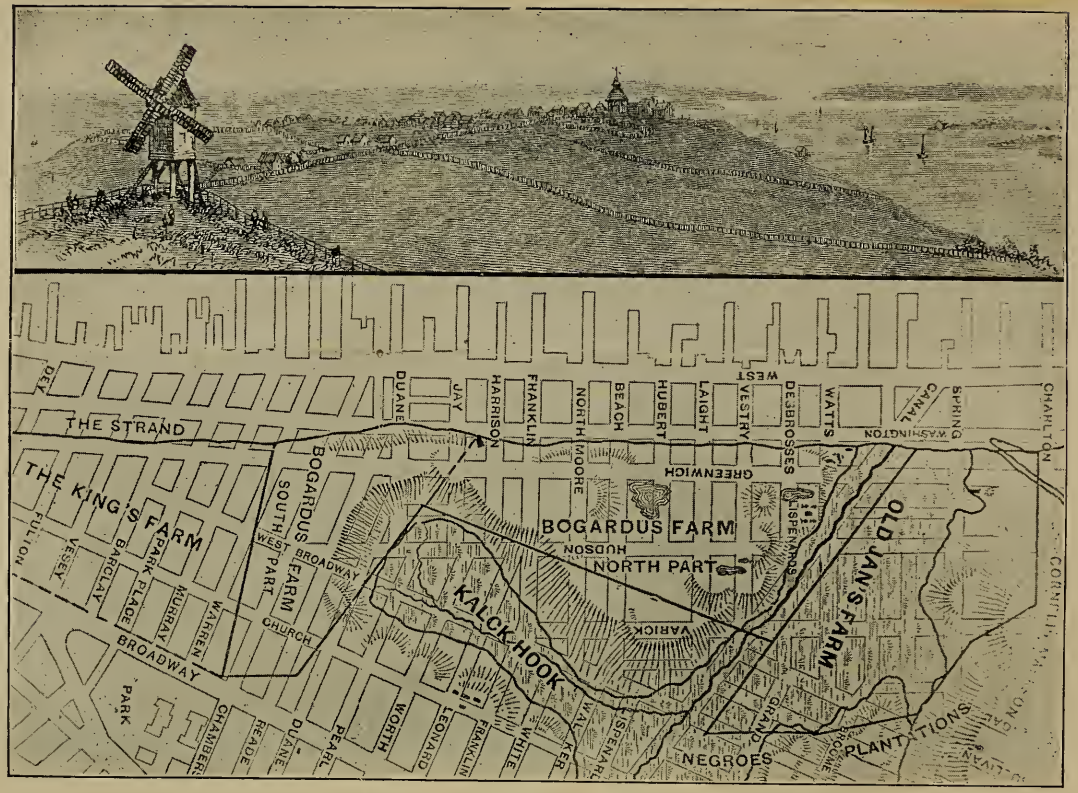

BOGARDUS AND JANSEN PROPERTY. NEW YORK CITY.

REVISED EDITION.

A COMPLETE

Dictionary of Dry Goods

AND HISTORY OF

Silk, Cotton, Linen, Wool and other Fibrous Substances

INCLUDING A FULL EXPLANATION OF THE
MODERN PROCESSES OF

SPINNING, DYEING AND WEAVING,

WITH AN APPENDIX CONTAINING
A TREATISE ON

WINDOW TRIMMING,

GERMAN WORDS AND PHRASES, WITH THEIR ENGLISH PRONUNCIATION AND
SIGNIFICATION, TOGETHER WITH VARIOUS USEFUL TABLES.

By GEORGE S. COLE.

1892.

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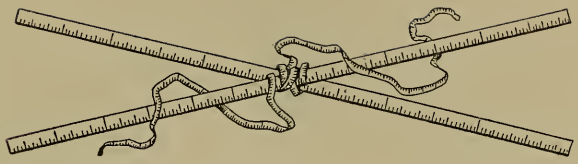
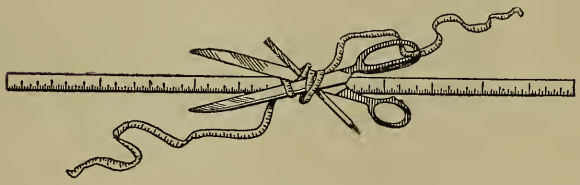


"To please the flesh a thousand arts contend,
The miser's heaps of gold, the figur'd vest,
The gem, the silk worm and the purple dye,
By toil acquir'd, promote no other end."



PREFACE.

In presenting to the Dry Goods trade its first Dictionary (of American origin) the compiler feels confident that the time and labor devoted to make the work accurate and complete will commend it to the favorable consideration of everyone connected with the business.

In the retail, wholesale, and manufacturing branches of the Dry Goods trade, within the boundaries of the United States, there are over one million people engaged; in point of money invested, number of hands employed, and annual volume of business done, it easily ranks first in importance among all the industries which have grown and prospered since the beginning of civilization in the Western world. Indeed, the Dry Goods trade of the United States has more money invested in it than any other *two* interests in the country—estimated at the enormous sum of $20,000,000,000, while the next in order, the railroad, has only between $10,000,000,000 and $12,000,000,000. The part which the manufacture and sale of Dry Goods, in the term's widest meaning, has had in the building up of our national prosperity occupies no secondary position. It without doubt forms the greatest feature of our Nation's commercial life. The Dry Goods store is found in every village and hamlet, and is the center of trade and barter in all rural communities. In the larger towns and cities the Dry Goods interest predominates in the same manner as in the smaller, forming by far the most important department of business, and aiding to a certain extent in sustaining all other branches of trade. The various lines form a business of such magnitude, involve so much capital, and is in every way so intimately interwoven with the varied wants of our modern civilization that it seems remarkable, in a country like ours, that not even a classification of the kinds of our textile fabrics nor the modern methods employed in their production has ever been attempted, to say nothing of a systematic history of them

That there should be such neglect of textile history, rich as it is in incident and importance, when costume and popular customs are so closely studied, is passing strange. Very much of the true history of the people, high and low, can be traced through their indulgence in fine fabrics, to which mankind, women included, have ever been prone. But this aspect of trade and manufactures is rarely mentioned, except as glossed over by ponderous encyclopœdic works, whose trade articles when relieved of the obscuring folds of verbal drapery yield but a scant amount of actual information.

The plan of the "Dictionary of Dry Goods" includes several objects, which, briefly stated, are: the proper description of all textile fabrics and manufactured articles; the peculiarities which distinguish a fabric and by which it may be identified; the method of weaving or manufacture; the origin of the names of all fabrics, with the history and literature of the subject; the definition of terms, words and phrases which have only a trade application, and which have sprung up with the development of the business in the nineteenth century; and the import duties under the new tariff on all goods, raw or manufactured. The Dictionary is designed to be a practically complete and comprehensive record of all fabrics which are in general use at the present time, together with full explanations of the modern process of carding, spinning, dyeing, weaving, knitting, netting, bleaching, and felting, constituting a book for general reference by merchants and clerks.

No labor or expense has been spared to make the work serve the purposes for which it is intended; the statements, figures, and tables which are presented are given only on the faith of recognized authorities, and in reducing the chaos of particulars relating to the history, literature, manufacture, sale, and distinguishing characteristics of textile fabrics strict and careful attention has been paid to accuracy.

If the Dictionary will aid the apprentice to more fully understand the essential points of his chosen occupation, or furnish the more experienced salesman with correct information upon subjects of which he is in ignorance, the hope that inspired its preparation will be amply realized.

Geo. S. Cole.

A COMPLETE

DICTIONARY OF DRY GOODS.

A

Abb Wool. In wool-sorting one of the two qualities known as *coarse* abb and *fine* abb; the lowest quality of wool used in the spinning of worsted yarns.

Abnet. [From Hebrew *abnet*, a belt.] In Jewish antiquity a girdle of fine linen. In surgery a bandage resembling a priest's girdle.

Acca. [From *Acre*, a city in Syria, whence it was first obtained.] A rich figured silk fabric decorated with gold, in use during the fourteenth century.

Adulteration of Fabrics. Woolens have been for years past largely adulterated with refuse fibers called "shoddy and mungo;" also known under the terms of "extracts" and "flocks." It is truly wonderful the manner and to the degree which this dust can be mixed with chemicals in order to give it sufficient tenuity for spinning. The practice is now more largely in vogue than ever, for there is hardly a yard of cheap cloth that does not

contain it. Shoddy, as originally used, was merely the fluff or waste from the looms, but now consists of any kind of woolen rubbish, as old blankets, hose, and cast-off clothing pulled to pieces in a machine called the "devil." [See SHODDY.] There is yet another kind of refuse called "extract," which is also employed in the manufacture of cheap goods. It consists of the wool obtained from the rags of mixed goods, that is, old rags which have a cotton, linen or silk warp. In order to separate the wool from the cotton or linen, the rags are immersed in sulphuric acid, which destroys the undesirable linen or cotton, but leaves the wool intact. To separate wool from silk the rags are given a bath in cold nitric acid which completely dissolves the silk but does not affect the wool.

Calico and low grades of muslin are often adulterated with size and china clay, the object being to give them increased weight and substance. Up to about thirty years ago the "sizing" of cotton goods was effected with a mixture of flour, paste and tallow, by which means the tenacity of the warp was increased, and the friction of weaving was lessened. To effect this, twenty per cent of size was used; but in 1862, when on account of the war our cotton famine began to be felt and the long-fibered cotton grew scarce, it was found necessary to give tenacity to the warp threads made of *short* fiber by using more "size." In this manner as much as from fifty to ninety per cent of size has got to be used, the greater part of it being china clay. Cheap calico and muslin are also largely impregnated with lime, and a cloud of dust will fly out of such fabrics when torn.

Silks are also made heavier and stouter by the incorporation of dye-stuffs used expressly for this purpose. These are termed "weighted" or "loaded" silks. [See SILK].

Agra Gauze. A cobwebby fabric woven of gossamer silk threads. It is transparent as veiling, light as air, yet firm and strong. Its consistency may be realized from the fact that a piece four yards long and fourty-four inches wide, can be enclosed in the palm of the hand.

Aida Canvas (a'-da canvas.) A species of canvas woven of pure linen, and frequently called "Java" and "Fancy Oatmeal." It is made in widths varying from 18 to 54 inches, in all the colors. A cotton canvas of the same weave is known by different names, such as Basket, Connaught, etc.

Aigrette (a'-gret or a-gret'). A French word used to denote the plume or feathery tuft on the heads of several varieties of birds, as the heron. Hence the term came to be used to designate the long, delicate, white feathers which being stuck upright in a lady's head-dress, are calculated to give a majestic appearance to the person. More recently the usage has been still further extended, and any head-dress bearing a similarity to a plume, even a bouquet of flowers fastened with a brooch, is termed an aigrette.

Alamode (al'-a-mode). A thin, glossy silk used for hoods and scarfs.

Alaska. The name given to a variety of sandal-shaped overshoes, without fastenings of any sort, having cloth uppers and rubber soles. [See RUBBERS.]

Albatross (al'-ba-tross). A soft untwilled woolen dress fabric; properly a soft fine bunting, known by the various names of "Satin Moss," "Vicuna," (the stoutest make), "Snowflake," (which is fluked), and "Antique Cloth." It is of an irregular weave, which produces a surface-appearance similar to momie cloth or cretonne.

Albert-cloth. An all-wool material the two sides of which are of different colors and patterns, each side finished so that no lining is required; used chiefly for men's reversible overcoats.

Alexis (a-lex'-is.) A style of fur cap for men, distinguished by the crown being made long and deep so that it may be pulled down over the ears and neck, and finished without roll or vizor.

Alizarin (al-i-za'-rin). [From *al-i-za-ri*, the commercial name of madder in Asia.] A peculiar red coloring matter formerly obtained from the madder plant [see TURKEY-RED.] At present alizarin is an artificial madder-dye obtained from coal-tar, and which in point of commercial importance far exceeds any of the other 400 shades of colors derived from that source. [See DYEING, CALICO-PRINTING.]

Alpaca. The wooly hair of an animal of the camel tribe, which inhabit the mountainous districts of Chili and Peru. In appearance this wool is fine, white and glossy, from two to six inches in length. It retains that peculiar gloss and beauty after being woven into textures, which particularly distinguish it from other species of wool. Alpaca is shipped to this country in bales of seventy pounds each, and is assorted on arrival into eight qualities, each suitable for a particular grade of goods.

The earliest manufacture of the dust-defying Alpaca fabric was in Bradford, England, in 1832 by Sir Titus Sault, at which time the fabric was made with a worsted warp and Alpaca weft, and very heavy. At the present time it is known as a thin, shiny, double-fold dress fabric, usually black, with a fine cotton warp.

Altar Cloth. A general term, formerly designating the closed case of linen used for covering an altar, and which was never allowed to be removed except for washing ; later, temporary coverings, whether of white linen or of rich brocaded cloth or embroidery. Ordinarily at present altar cloths are not used by the Protestant churches except at communion services.

Aluminum (al-u'-mi-num.)—An extremely light metal made from Iceland spar. Aside from its lightness and strength, it is malleable, does not rust, is as beautiful as silver, and is much more abundant in its native state

than any metal in use. While Iceland spar is the mineral from which it has been mostly obtained, it is a constituent of clay and other earth, and prevails almost anywhere. The statement has been made that it composes more than a twentieth part of the crust of the globe. The difficulty is to secure it in a pure state at a moderate cost. But within the last half century its cost has been reduced from over $30 a pound to less than $1. In a series of tests made by the United States naval officers at Watertown, Mass., a tensile strength of 90,000 pounds to the square inch was shown, which is largely in excess of anything before developed. The transverse strength of the metal was found to be 6,600 pounds to the square inch, a result that has only been equaled by the finest quality of crucible steel. Busy brains and hands are constantly at work to reduce the expense of manufacturing the pure metal, and as the incentive to success is very powerful, their labors are not likely to be discontinued. If they prove satisfactory, as there is reason to hope they will, a wonderful change in the line of notions and fancy goods will have been entered upon. Aluminum is lighter than wood and takes a polish like burnished silver. It not only does not rust, either in air or water, but retains its polish for an indefinite period. Transform in imagination the counters and shelving of stores, or even the fronts of the buildings themselves, the railings, balconies and floors to shining silver, and a glimpse may be had of the coming effect of aluminum by the qualities now claimed for it. The like has not been pictured since St. John spoke of the golden streets and pearly gates of the New Jerusalem.

American Cloth. A name given in England to a cotton cloth, prepared with a glazed and varnished surface to imitate Morocco leather, used for carriage trimming; known in the United States as enameled or oil cloth.

Angola. A diaper-woven cotton cloth with a fine rough face, somewhat resembling a momie-weave. It is usually a cream color, and is employed for embroidery purposes.

Angora Wool or Mohair. Of all animals whose fleece is largely used in the manufacture of fabrics, there is probably none so little known as the Angora goat. And when Mohair dress goods, Mohair plush or Mohair laces are mentioned it is exceedingly unlikely that one dry-goods salesman out of ten can tell whence comes the raw material out of which the goods are manufactured.

These goats derive their name from Angora, a city in Asia Minor, 217 miles southeast of Constantinople. There is no historical mention of them previous to the 16th century, and it was not until 1820 that Mohair became a steady article of import into England. The Angora goat should not be confounded with our common goat, nor with the Cashmere goat, which are quite different species. The fleece of the Angora is soft and silky and the whitest known to the trade, elastic and wiry in character, covering the whole body and the greater part of the legs with close-matted

ringlets, which attain a length of 4 to 5 inches. The fleece is composed of two kinds of hair; that next to the skin being short and coarse, the other being curly and lustrous, both however, being totally devoid of felting properties. The goats are sheared in the early spring, and the average yield per goat is about 2½ pounds. The best quality comes from Constantinople. The care of these goats is the chief industry of Turkish people in the Angora districts. Each farmer possesses not to exceed 20 or 30 to which he gives the greatest care, in many instances living under the same roof with them. They are washed and curried several times a week, for greater the care, the more hair is produced. The fineness of the fleece is due in a large measure to the climate and soil. The amount of wool produced by the Angora district amounts to about 5,250,000 pounds yearly, but of this only about 1,000,000 pounds can be picked out for the finest grade of upholstery and car plushes. In the year 1845, the increasing demand for, and value of Mohair stimulated endeavors to acclimatize the Angora goat in other regions. All European endeavors having failed on account of the extremely damp and uncongenial climate of that conntry, in 1849 Dr. J. P. Davis imported some flocks to America. They are now found in large numbers both in the South and far West, New Mexico, California and Oregon. It is only in high altitudes and dry atmosphere that the flocks will thrive. The annual product of American fleeces averages about 700,000 pounds. The climate and soil of New Mexico is especially favorable for Angora flocks and there they multiply rapidly, the ewes always bearing two and frequently three kids at a litter, twice a year. The American Angoras, however, are not the pure breed, and consequently produce an inferior quality of Mohair. The Turkish government issued an edict many years ago against the exportation of these goats, hence the American raisers are obliged to replenish their flocks with Angoras from other districts in Asia. Whether the United States can produce Mohair of the *best* quality is yet to be determined, for it is well known that certain localties possess specific qualities for the production of wool or hair of a distinct character. This was shown many years ago, when the rage for bright-haired dress goods was so marked as to suggest that the supply of bright-haired wool was inadequate to the demand. The peculiarities of a district for growing wool or hair of a certain character are hard to explain, but experience has shown that a locality will produce to advantage only *one* class of wool or hair. This is illustrated by the history of the growth of what are known to the trade as "lustre wools." Of all the wide area on the earth's surface that produces wool, *no* localities produce wools of pure lustre except certain districts in England, comprising the counties of York, Nottinghan, Lincoln, Leicester and Northumberland. These will produce bright wool and no other. It is not alone in the breed of sheep raised there for if this breed is taken elsewhere from its own pasture ground, the character of the wool deterioates, and after the first year ceases to be sold as lustre wool. On the other hand if any breed of sheep are taken to the favored lustre dis

tricts to be wintered and shorn, the fleece possesses almost as much luster as that of the sheep that has been raised there. Numerous attempts to produce luster wool, made in what are regarded as the best districts in the United States for wool growing, have failed to maintain in the sheep those qualities which in its original home produced the finest lustre wool. To use the phrase of the trade, the "breed grows out," and the sheep soon become identical, as regards the fleece, with all others that have been reared in the locality. What is true of one animal fiber is true of others, and while there is no doubt that the Angora goat will live and thrive in the United States, the question to be decided by experience is, whether it will in any other than its native place produce its characteristically beautiful, silky, lustrous *fleece*.

Mohair, as the hair or wool of the Angora goat is called, is a brilliant, elastic, tough, wiry fibre of enormous durability, and, owing to its elasticity, is well adapted for pile fabrics, such as plush, carriage and lap robes, or in braids, bindings, shoe laces and other purposes, the number of which is only limited by the supply of raw material. It is also used for making Utrecht velvet, or furniture plush, for the upholstering of railway cars, etc. The mohair used in the manufacture of seal plushes for ladies' cloaks, is made from the first clip in the second year of the animal, and is hard to obtain, selling at Constantinople at seventy-five cents per pound. Until the last few years England held an entire monopoly of the spinning and manufacture of mohair, but after many attemps our manufacturers have succeeded in making goods that not only compare favorably, but excel those of the bes. English makes. [See MOHAIR.]

Angora Cashmere. A term employed to denote a certain kind of cloth made in imitation of camels'-hair cloth, which is made of the long, white hair of the Angora goat of Turkey. Angora Cashmere is twilled like common cashmere; is of a light quality, and in width 27, 48 and 54 inches.

Aniline. One of the very numerous products of the distillation of coal tar. The readiness with which aniline, in certain of its reactions, produced very brilliant colors was known to chemists since 1826. Up to the year 1858, however it possessed nothing beyond a scientific interest, and had it not been for the untiring industry of Mr. W H. Perkin, dyers would probably have gone on in the good old way of dyeing fabrics with the extracts of plants and tree-bark until the end of time. In 1858 Mr. Perkin obtained a patent for the production of a dye stuff derived from aniline which soon became well-known as mauve, or "Perkin's purple," as well as by various other names. The discovery of Mr. Perkin formed the turning point in the history of aniline, and was indeed the beginning of a great revolution in the arts and manufactures connected with the dyeing of textile fabrics. The manufacture of aniline dyes was first begun in France. It immediately spread to all industrial centres, and became one of the most eagerly investigated of all commereial undertakings. A rapid succession of patents

were applied for and obtained; new processes and combinations were continually being projected, and a great variety of colors were tried, with more or less success, as commercial substances. The activity of scientific research kept pace with the energy of manufacturing enterprise, resulting in a rapid improvement of processes, decrease in the cost of manufacture, and a great increase in the beauty and tinctorial effect of the dyes produced. At the present time every color, and all tints and shades of colors, are produced from aniline, which in turn is derived primarily from coal-tar and, while the processes employed and the combinations formed are very numerous, the names under which the dye-stuffs are sold must be said to be endless. All shades and sorts of aniline dyes communicate a permanent color to wool and silk, but only produce on vegetable fibres—cotton, jute, linen, etc.—a fugitive, easily-washed-out stain. But in order to produce the best results with silk and wool, dyers need good soft water, so that every fibre will be made to absorb all the color possible, in order to make them indellible. With hard water this can not be accomplished, and in some places dyers have been obliged to sink artesian wells at a heavy outlay. About the time of the French-Austrian war, in 1859, a coal-tar dye was introduced into commerce which became known as aniline red, or magenta, from the battle fought on the day of its invention. Aniline colors are employed in the industrial arts for numerous other purposes besides their great use as dyeing materials. Violet ink, and other fancy colored inks, are prepared from them. They are used by paper manufacturers for tinting pulps, and for the superficial staining of finished paper. They are likewise used in the printing of wall papers, in the preparation ot lithographic inks, and to some extent for water colors. They are largely employed as coloring materials in perfumery, fancy soaps and cosmetics, besides having many other minor applications. Concerning these dyes, Dr. Hofmann, an Englishman, to whom the industry is much indebted, wrote, in 1862, while it was yet in its infancy, "Instead of disbursing her annual millions for these substances, England will, beyond question, at no distant day become herself the greatest color-producing country in the world; nay, by the very strangest of revolutions, she may ere long send her coal derived blues to indigo-growing India; her distilled crimson to cochineal-producing Mexico, and her fossil substitutes for quercitron and safflower to China, Japan and other countries whence the articles are now derived." It is scarcely needful to say that these bold anticipations made thirty years ago have already been fully realized.

Applique (ap-pli-ka'). In modern dress and upholstery this term signifies applied or sewed on. Thus, the gimp or pattern of soiled lace may be sewed upon a new ground, or embroidered flowers may be secured to new silk; in such case the pattern or ornament is said to be *applique*, and the whole *applique work*. More generally, said of one material fixed upon another in ornamental work. *Point Applique* is point lace, in which the design,

after having been separately made, has been applied to the net which forms the foundation.

Apron. The apron dates far back. Ever since over first parents ages and ages ago sewed fig leaves into aprons to conceal their nakedness, this style of garment has been a la mode. The Greeks and Romans were famous for their richly embroidered aprons. In the time of Queen Charlotte of England, Beau Brummel showed his dislike to them by deliberately removing the apron of a duchess and flinging it behind a sofa at a ball; and Mary, Queen of Scots, history asserts, left behind her when she was beheaded nearly one hundred aprons of various hues and fashions. An English illustration made in the 13th century shows a blacksmith at work in an apron similar in shape to that still worn by men of that class. At that time they were known under the name of "barm-skins." The exact origin of the word *apron* is unsettled, although it is supposed to be derived from the French *naperon*, a large cloth, whence also our word napkin, a small cloth. We call them by many names now, the fig leaves of Adam and Eve having developed by slow degrees into a valuable series of pin-a-fores, suitable for the infant in arms, or the man and woman to whom labor is the natural result having come into existence.

Arctics. A heavy variety of rubber overshoes, distinguished by having a cloth top which buckles up over the ankles, rubber heels and soles, and a nappy wool lining. [See RUBBERS, INDIA RUBBER.]

Areophane. A variety of crape, but considerably thinner than the ordinary kind. It was formerly used chiefly for bonnet trimmings, and quillings, and is now to some extent employed for ball costumes. It is made in all colors, and is cut like all crape, on the bias. [See CREPE DE CHINE.]

Armozeen (ar-mo-zeen'). [From French *armoisin.*] A kind of taffeta or plain silk used for women's dresses in the 18th century and earlier.

Armure or **Royal Armure.** [French for "armor".] The word is suggestive of the style of weaving. In feudal times an armor was worn by men made of small metal plates and lapping over one another like fish scales, so as to be flexible with every movement of the body. The weave of armure silk dress fabric is an imitation of this armor, the surface ridge of the pattern always forming a small diamond or other angled figure. There is also Satin Armure and Armure Bosphore, this latter being reversible. Royal Armure is heavier than ordinary dress silk; the widths vary from 22 to 24 inches.

Arras (ar'-as). Arras cloth takes its name from the town of Arras, situated in the north of France. In the fourteenth century this place was the chief seat of French tapestry manufacture, for both quality and quantity. Hence, in time, the term Arras came to signify any sort of tapestry, wherever made. [See TAPESTRY.]

Arrasene (ar-a-sene'). A sort of cord made with a central thread

and a thick velvet-like pile of wool or silk fastened round it. It is used in raised embroidery work.

Asbestos (as-bes'-tos). A fibrous variety of a mineral substance, composed of separable filaments, with a silky luster. Its fibres are sometimes flexible and elastic, sometimes stiff and brittle, and when reduced to a powder are soft to the touch. It is incombustible, and the fine qualities have been spun and woven into gloves, shrouds, cloth for firemen's suits, lamp-wicks, roofs, floors and for various other fire-proofing purposes. Its feeble consistency has always been the chief obstacle to its general use among textile fabrics. It is mined in Canada, Vermont, Virginia, South Carolina and on Staten Island, New York.

Astrakhan (as'-tra-kan). [From *Astrakhana*, a city and province in Russia.] Originally in Russia this was a name given to skins having a short, curly wool---particularly the pelts obtained from young lambs from the province of Astrakhana. At present Astrakhan cloth is silk or worsted material with a long and closely curled pile, in imitation of the fur above mentioned, and is used for ladies' cloaks, dress trimming and men's clothing. Astrakhan wool trimming is made in 10-yard lengths, and in 3-inch, 4-inch and 5-inch widths, the price increasing with the width. It is a durable and showy trimming.

Aune. A French long measure of 1¼ yards, used chiefly for cloth. It is derived from Latin *alna*, forearm. [See MEASURES, BAREGE.]

B

Baby Caps. The styles of baby caps are originated in Paris and other fashion centres of Europe, and are copied in this country the following season. Those not initiated in the mysteries of this bee-hive industry can scarcely form a correct idea of the importance it plays in the manufacturing interests of this country. New York and Philadelphia supply the country with more than seven-eighths of the goods consumed. New York takes precedence in sales of the cheaper grade of goods, while Philadelphia is noted for the better class. It is a current saying amongst the trade that Philadelphia is as famous for "baby caps as Connecticut is for corsets." The baby cap manufacture represents in the two cities a capital of $1,000,000, employing over 1,500 girls, averaging $7 per week, making $10,500 weekly outlay of wages. The estimated output amounts to over 5,000,000 caps annnally. [See HATS and CAPS.]

Baize. [Spanish plural for *bay*.] In the 16th century a light woolen fabric of a brownish-red or bay color (whence its name) was manufactured in Europe and called bay-cloth. At present, baize is a fine woolen stuff with a close nap on one side, dyed in plain colors, usually green or red. It is chiefly used for linings, desk and table covers and curtains, but when first introduced, in 1541, it was a much thinner and finer material,

and was used for clothing; specifically, in theatres the plain curtain lowered at the end of the play.

Balayeuse (bah'-lay-yuhz). [French feminine of *balayeur*, a sweeper.] A frilling of lace or muslin which lines the extreme edge of a dress skirt to keep the train clean as it sweeps along the floor; a kind of trimming on the bottom of gowns; by extension a frilling of any material, either in white or black, sewn under tke edge of a dress skirt to keep it from wearing out and from being soiled from sweeping the floor.

Balbriggan. A descriptive term applied to cotton knitted fabrics, either hosiery or underwear, and referring to the color, signifying that the articles are brown or unbleached. The term is especially applied to those fabrics or articles knitted of smooth, level yarns, and possessed of but little nap; so called from the town of *Balbriggan*, County Dublin, Ireland, where brown knitted hosiery was first produced.

Baleen (ba-lene'). The horny "teeth" of whales; whalebone in its natural state. [See WHALEBONE.]

Balloon-net. A kind of woven lace in which the weft threads are twisted in a peculiar manner around the warp in fanciful imitation of the ropes enclosing the gas reservoir of a balloon.

Balmoral (bal-mor'-al). A name given to various articles of dress, possessing unusual strength and weight. Specifically, a term applied to a variety of ladies' cheap cotton skirts, distinguished by not being furnished with a waist-band nor hemmed at the bottom. They were originally made of wool, dyed red with fancy black stripes, and intended to be displayed below the skirt of the dress, which was looped up. They were first worn by the daughters of Queen Victoria in 1860, during the visits to their royal residence at Balmoral, Scotland, hence the name. *Balmoral boots* or *shoes* are those that lace up in front, worn by both men and women; usually abbreviated in trade "bal." or "bals." [See BOOTS AND SHOES.]

Band. A flexible material, used to bind or bend around anything; as a hat-band. Also a border or strip on an article of dress serving to strengthen it or to confine it to any desired shape; as a waistband, a wrist-band, a neckband.

Bandana (ban-dan'-a). [From a Hindoo word *Bandhnn*, which means "a mode of dyeing, in which the cloth is tied in different places to prevent the parts from receiving the dye."] A cheap cotton (sometimes of silk) handkerchief for men, with a red ground, ornamented with various colored spots. The cloth is first dyed a solid Turkey red, and the white pattern made by discharging the red with bleaching liquor in a powerful press. If other colors than white are to appear on the handkerchief, they are printed afterward upon the white spots discharged for that purpose. The pattern to be discharged is cut out on two metal plates, of the full size of the handkerchief. A dozen or more handkerchiefs are laid between

these plates, and then the pressure applied; the liquor being run on the uppermost plate, which is grooved on the upper side to receive it. The pressure on the cloth to make clean work (that is, to prevent the spreading of the liquor) is enormous, often exceeding 500 and 600 tons. The bleaching liquor destroys the red color in all those parts where the plates allow it to circulate, thus producing the ornamental figure. Bandanas are made in sizes from 12 inches square to 24 inches square, the price increasing with the sizes at even inche

Bangle. [Hindoo *Bangri*, a bracelet of glass]. An ornamental ring worn upon the arms and ankles in India, and upon the legs and fastened in the ears, nose and lips in Africa. In the limited state at present signifying a bracelet without a clasp, a ring-bracelet generally with small ornaments suspended from it.

Bank-credit. A credit that merchants often have with a bank, by which, on proper security given to the bank, the merchant receives liberty to draw to a certain extent beyond his deposits that may be agreed upon.

Bankrupt. The breaking up of a merchant's business, due to his inability to meet his obligations. In modern law, any person who upon his own petition *or* that of his creditors is adjudged insolvent by a bankruptcy court. His estate may be administered by an assignee or trustee under the direction of the court, for the benefit of his creditors.

Bankruptcy Laws. The legal regulations under which the property of an insolvent may be distributed among his creditors, with the double object of enforcing a complete discovery and an even distribution of the property, and of discharging the debtor from his obligations and from being molested in the future by his creditors. Formerly only a merchant or a trader could be made a bankrupt under the Bankruptcy Laws, all other persons who were unable to meet their debts being termed *insolvents*, but this distinction is now abolished in the United States, and all debtors come under the same head. Congress has the sole power of enacting Bankruptcy Laws which shall be uniform throughout all the states. Those laws are administered by the United States Court. *Involuntary Bankruptcy* is adjudged on the petition of creditors, showing cause why the debtor should not be allowed to continue in possession of his assets. *Voluntary Bankruptcy* is adjudged on the petition of the debtor, indicating his desire to surrender his assets and be discharged. [See INVENTORY, SCHEDULE.]

Barcelona Silk Kerchiefs. These kerchiefs are named from Bar-ce-lo'-na, in Spain, from whence they were originally brought, though now all made in Great Britain; there are four varieties: black, plain colors, turban checks and fancies. The black measure from twenty-six inches square to seven-quarters. The turban checks were originally made for head dresses and are about twenty inches square.

Barege (ba-razh'). [So called from *Bareges*, a town in France, where

it was first made.] Barege veiling is woven with an extremely fine silk warp and a fluffy woolen weft, thirty inches wide. It is imported from France in several qualities, the length of the pieces being determined by meters or "aunes." An *aune* in English measure is 1¼ yards. [See VEILING.]

Barras (bar'-as). A coarse linen fabric imported by this country in the 17th century from Holland, used for shirting, linen pants, vests, etc.

Barrow-coat. A square or oblong piece of flannel, wrapped around an infant's body below the arms, the part extending beyond the feet being turned up and pinned.

Barter. To traffic or trade by exchanging one commodity for another, in distinction from buying and selling for money.

Basket-weave. A style of weaving which produces a pattern resembling the plaited-work of a basket.

Basse-lisse (bas-lese'). Woven with the warp in the usual horizontal position, as distinguished from that which is woven with the warp placed in a perpendicular, and described as *haute-lisse.*

Bast. The strong inner fibrous bark of various trees, especially a species of linden, of which the Russia matting of commerce is made. *Cuba bast* is used for tieing up bunches of cigars, etc. [See FIBER.]

Bastard cloth. A cloth presumably imitating a more expensive material.

Basting-Machine. A sewing-machine used for basting together pieces of fabrics, to make a continuous piece for bleaching, dyeing scouring etc.

Bat. SEE BATTING.

Bathing Suits and Trunks. Bathing "trunks" are usually made of knitted cotton or worsted, and shaped to cover the loins and trunk of the body. Bathing "suits" are of various shapes and made of many materials. Surah silk of thick quality is used extensively. It is claimed that it does not retain as much water as flannel, and that it does not cling so closely to the figure. The medium quality bathing suits are manufactured of flannel and of a coarse wiry cheviot. The more modest suits are made with the waist and drawers in one, cut in continuous pieces or attached to the same belt; a seperate skirt reaching to the knees is then buttoned on to this belt. The drawers fall below the knees and are quite wide with rubber in the hem to draw them into shape. Jersey suits are also manufactured and these do not shrink. The waist and skirt are all in one piece in this variety, and the skirt is made full. The drawers are close fitting like equestrian tights and have stockings woven with them—but how and where they are fastened no man has ever found out.

Bating. The process of steeping hides and skins in an alkaline bath to separate the oil and fleshy matter, and render them soft and pliable, preparatory to tanning.

Batiste. A variety of cotton muslin, having a good deal of dress, closely resembling lawn, the only difference being that batiste is slightly heavier, though in both materials the pattern is printed on in the same manner; used chiefly for summer dresses, lining and trimmings. Batiste is also the French name for cambric, a fine linen muslin made in France and used for dresses, linings and trimmings. The fabric derives its name from M. Baptiste a linen weaver of Cambray, Flanders, who invented it in the 13th century.

Batting. Raw cotton or wool prepared in thick, but lightly-matted lapped sheets, used chiefly in the manufacture of comforts, bed covers, and mattresses. Also called *bat* and *batts.*

Baudekin (ba'-de-kin.) A rich embroidered or brocaded silk fabric woven originally with a warp of gold thread. Called in the 17th century, *cloth of Baudekin.* It is not found in use after the 17th century.

Bayeta (ba-ya'-ta.) A common kind of coarse Spanish baize. [See BAIZE.]

Beads. [From Anglo-Saxon *bede,* a prayer.] Small perforated ornaments, of round or oblong shape, worn by women in necklaces, bracelets and head-dresses; and also for ornamenting slippers, purses, watch guards and a variety of fancy articles. Beads are used by Catholics to keep them right as to the number of their prayers, one bead of the rosary being dropped every time a prayer is said. Beads are made of gold, diamond, amber, pearl, coral, garnet, steel, paste, wood, etc., but the greatest quantity are of glass manufacture. They were manufactured, much in the same form as now, by the Phœnecians more than 3,000 years ago. At present, they form a favorite article of traffic with all savage tribes and nations, often being the only medium of exchange in bartering with them. The manufacture of glass beads is simple. A short, thick rod of colored glass is made with a hole through the centre of it. This is drawn out in a heated state by two men running in opposite directions, and by this very long tubes are produced of the size of the beads required. These rods are chipped into short uniform pieces of the length of the bead. The holes in the pieces are then filled with sand and ashes by shaking them up together in a bowl. This is done to prevent welding when heated at the next operation. This consists of transferring them to a heated iron pan and agitated until the sharp angles are worn off and they assume a smooth, rounded form. Taken out, their bodies washed and cleaned to separate the ashes and sand, and strung by children, they form glass beads. In commerce they are known as the hollow, the tube and the bugle. The hollow are the most expensive kind, the price varying from 25 cents to $2.50 per bunch of twelve strands. Common black beads are sold from ten to twenty-five cents per pound.

Beam-roll. In cloth manufacture, the spool-shaped roll upon which the warp-threads are wound preparatory to being woven.

Bearing-Cloth. A cloth with which a child is covered when carried to church to be baptised, often richly embroidered; also called a *christening robe.*

Beaver. See FURS.

Beaver Cloth. A thick woolen cloth used for garments by both sexes. The weave is similar to doeskin. Beaver cloth is always fulled to a considerable degree, and has the wrong side finished with a soft thick nap; much in demand previous to 1880 for overcoats. [See WOOLEN.]

Beaver Hat. The modern stiff silk hat was commonly called a "beaver" until shortly after the civil war. The first high stiff hats were made of beaver fur. [See HATS and CAPS.]

Beaverteen. A strong twilled cotton fabric for men's wear, napped on wrong side; similar to moleskin but heavier; dyed in solid colors of gray and tan.

Bed-Clothes. The coverings used on beds; sheets, blankets, quilts, slips, etc., collectively.

Bedford Cord. A particular style of weave found usually in dress fabrics, consisting of heavy ribs running lengthwise of the fabric; similar to the weave of cotton pique. [See CORDED FABRICS.]

Bed-gown. A night-gown or night-dress; a kind of jacket like a dressing-sack, worn in Scotland by women of the working-class, generally with a colored flannel petticoat.

Bedizen (be-diz'-en). To deck or dress out, especially in a tawdry manner or with vulgar finery.

Bed-linen. Sheets, pillow-cases and bolster slips, originally always of linen, but now usually of cotton.

Bed Pocket. A small bag, in use during the early part of the present century, hung at the head of the bed at night in which to put away things which might be wanted before morning, or as a receptacle for the watch, purse, handkerchief, etc., in place of poking them under the pillow. A hundred years back, bed pockets were used quite extensively. It is customary yet in the South, to provide visitors, especially fussy people and particularly old maids, with bed pockets. They are arranged in fanciful shapes, and hang by cords or ribbons from the bed-stead. They are usually embroidered with the injunction to the burglar, "Step softly and don't disturb the sleeper."

Bed Quilt. A wadded and quilted covering for a bed; as a bed spread or comfort, as distinguished from a counterpane or an ornamented coverlet.

Bed Tick. A case of strong cotton or linen material for containing the feathers or straw of a bed. Nine yards of 32-inch ticking is required for the manufacture of a bed-tick.

Beetling Machine. A machine for "finishing" linen or cotton cloth by hammering it; for this purpose heavy wooden blocks are used, which are raised in succession and permitted to fall by their own weight. Sometimes called "mangling-machine." The object is to render the surface of the cloth of an even and uniform thickness.

Beige (bazh) [from It. *bigio*—gray.] In France in the early part of the present century there was a sort of twilled dress fabric woven with a gray cotton warp and an unbleached and undyed woolen weft, called Beige. At present in this country it is one of the few dress fabrics which has not departed from the original manufacture. Although it is now dyed to some extent, it still remains a twilled serge-like material woven with cotton warp and worsted weft, dyed in shades of gray, drab and slate; sometimes called *de*beige. There are several other definitions to "beige" besides the beige proper as a fabric. It may be coarse, unbleached serge, or it may be wool in its natural state. *Beige damasse* is a loose, light, woolen tissue, woven in patterns like Damask cloth, while *beige de laine* is a soft "woolen" beige used for ladies dresses. [See DAMASSE.]

Bend-leather. The strongest kind of sole-leather used for shoes. A name in the leather trade for a butt or rounded crop cut in two; the half of a hide of sole-leather that was trimmed and divided before tanning.

Bengaline (ben'gal-ene'). A dress fabric woven exactly like a Faille silk, except that a fine "worsted" thread is substituted for the weft. This weft (which forms its cords) is entirely covered and concealed by the fine, silk warp threads, so that the wool is not exposed from either surfacc. This same fabric, with a larger, thicker, and more decided cord, is termed *Tyrolienne.*

Bengal Stripes. Wide striped ginghams used for skirting, so called from having originally been brought from Bengal, but now manufactured exclusively in this country.

Berlin Wool. A fine woolen yarn for working fancy articles in needle work. Also called German wool.

Berlin Gloves. See GLOVES.

Bias. A cut which is diagonal or oblique to the texture of a fabric. In retail stores satin and mourning crape are usually cut "bias."

Bib. [From L. *bibere* to drink whence also our words *imbibe, bibulous,* etc.] A cloth worn by children to keep the front of the dress clean while eating; usually made of honey combed cotton canvas, lawn, lace, and the like.

Birdseye Linen. A honey comb or diamond-figured linen fabric used for towels and fancy-work. Birdseye is a term also applied to varieties of canvas and crape, these fabrics having spots or markings somewhat resembling bird's eyes.

Biretz. See ELECTORAL CLOTH.

Blacksize. In leather manufacture, to cover the tanned skin with a coat of stiff size and tallow. The "size" is laid on with a soft brush or sponge, and the leather is then well rubbed with a glass slicker to gloss it.

Blankets. [Said to be derived from Fr. *blanchet*, meaning a blank piece of cloth, without figure. The name is also claimed to be derived from that of an English manufacturer, Sir Thomas Blanquett, who in 1340 was the owner of a large woolen mill near London]. A large, oblong piece of soft, loosely woven woolen cloth, spread commonly over the sheets of a bed for the procurement of warmth. Sometimes used as a covering for a horse when standing or exposed to cold, and sometimes worn as a garment especially among Indians and other uncivilized peoples.

Formerly the manufacture of blankets was confined exclusively to the New England States, but since 1865 the seat of manufacture has from year to year steadily followed the Star of the Empire, until at present woolen mills for the manufacture of blankets are found dotting the streams throughout the entire West. These mills have every facility and material for making cheaper and better goods than can be made by the Eastern factories for the money. For many years the Mission mills of San Francisco, California, and the mills at Portland, Oregon, have made bed and fancy blankets second to none in the world. Ohio, noted for its growing fine wools, is also famous for making fine blankets, though probably not superior to the products of factories dotting the states of Indiana, Illinois, Iowa, Missouri and Minnesota. In the latter state, at Minneapolis, is produced the finest blanket in the world, known as the "Royal Rose," 90 by 100 inches, which sells at wholesale at nearly $40 per pair.

"Eiderdown" blankets have a fine, soft, thick nap on either side, and are tufted and bound with silk, dyed in beautifully tinted and solid colors. They are very warm for their weight, not being so thick and clumsy as the ordinary comfortable, yet having as much warmth as a double blanket.

The Navajo (pronounced Nav-a-ho) Indians find a first claim to fame by virtue of their blankets. The process of blanket construction by an Indian, while in nowise complex, is arduous. All work is performed in the most primitive manner, and with tools of the rudest kind. The Navajoes number some 40,000 people, having a reservation which embraces a portion of both New Mexico and Arizona. They are solely a pastoral people, never under any circumstances building a home twice in the same place. Navajo shearers are the most expert in the world. They used to remove the fleece by a sort of shaving process, but long ago, even in the sixteenth century, succeeded in finding shears, and from that time not even a Navajo's gun is more carefally kept than are his sheep-shears. After washing and cleaning, all of which work is done by the women, the spinners begin their operations. The best of the wool only is kept. Much the larger bulk is sold to the traders, and by them shipped unwashed to the mills of the

East. The spindle operated by the women is a simple piece of wood some eight inches long, scarcely larger than a lead pencil, and sharpened to a point. The bundle of wool lies on the woman's right side, not made into rolls, but simply cleaned and beaten. She takes up a strand of it, lays it against the spindle and twists rapidly with the left hand. The fibre gradually takes the form of yarn, though it is loose and uneven. As soon as the spindle is full it is unwound and rolled on a ball, after which it is ready for weaving. The loom is simplicity itself. The poles are cut the *length* required for the breadth of the blanket. One is secnred to the branches of a tree. The other is anchored to the ground with stones. From this lower pole to the upper one the strands of yarn are passed, till the "warp" is all placed in position. Then, beginning at the lower side, the woman begins inserting the "woof." Originally they had but the two colors of white and black, and the figures produced, while varying infinitely in form and outline, were always combinations of these two. Later, however, the women learned to dye the wool, and now they are able to make red, blue, green and yellow. With the savage love of vivid colors they combine these six in an order that is harmonious and complete in each blanket, producing an effect decidedly pleasing and curious. There is no shuttle. The dexterous fingers simply pass the threads back of certain lines of warp, in front of others, and continue that process until they have traveled across the breadth of the fabric. Then with a sort of comb they press the threads of the yarn down firmly. A strand of woof seldom reaches across the blanket. The whole work is done with simple "bits" of yarn. But they are intertwined so dexterously, are drawn backward and forward so firmly, and are beaten into place so solidly, that when the work is done the designs are found uniform, the thickness is the same throughout, and the selvedge edges are secure against raveling. Nearly any Navajo blanket will hold water for an indefinite length of time. Judged by a strict civilized standard, their blankets are not handsome, but they possess a barbaric beauty that is distinctively their own, and go far to answer the question of the red man's origin. Persons accustomed to seeing works of art in a hundred lines, would be surprised at the originality and boldness of some of the designs displayed in this weaving. Some of them display the zigzag lines of vivid lightning, others the suns, moons and shining stars drawn from the heavens. Many present the curves and spirals that could only have been woven by the most patient and cunning of human fingers.

The Government provides nearly all of the Indians in the United States anually with one pair of 6-pound woolen blankets, costing about $3.35. These Navajo Indians as soon as they get a Government blanket, proceed to unravel it and wind the yarn into balls. It is dyed to suit the garish taste of the Indian, and when the yarn from 5 to 15 of Uncle Sam's blankets is accumulated he is ready to make his Navajo blanket. The wool from as many as 15 blankets has been known to be woven and whipped and thrashed by the Navajo process into one of the blankets of

that name. They are astonishly heavy, and hold water like the skin of an animal. [See TEASLING, WEAVING, WOOL.]

Blazer. A bright colored, loose summer coat, usually of striped flannel, worn by tennis and cricket players. The origin of the word is as follows: The boat club's uniform at St. John's College is bright red, and the St. Johnian jackets have for many years been called *blazers*, on account of being of such fiery color. Up to a few years ago the inaccurate modern term of *blazer* for a jacket of any other colorthan *red*, was unknown.

Bleaching. The process of freeing textile fibers and fabrics from their natural color, and rendering them white or nearly so. The ancient method of bleaching by exposing to the action of the sun's rays and frequent wetting, has been nearly superseded (at least where the business in prosecuted on a large scale) by more complicated processes in connection with powerful chemical preparations. Among these preparations, the chief are chlorin and sulphurous acid, the latter being employed for the animal fibres (wool and silk) while the vegetable fibres are bleached with chlorin, the bleaching in both cases, however, being preceded with certain cleansing processes. Glass is bleached with salt peter, arsenic and red lead. [See LINEN, WOOL, COTTON.]

A hundred years ago the process of bleaching was known as "whiting." We find "whiting time" spoken of in Shakespeare, and in the *Merry Wives of Windsor* allusion is made to the "whitsters" of Datchet Mead. At this time the work of bleaching could only be carried on in the open air in the manner followed from time immemorial, and consequently the summer months alone were suitable, the operations, if the weather happened to be unfavorable, not being always completed during the time at command. The exposure of fabrics on the open ground in England and Ireland led to a practice of stealing linen, for preventing which several severe laws were passed from time to time. For instance, George II enacted that "every person who shall, by day or night feloniously steal any linen, fustian, calico or cotton cloth; or cloth worked, woven, or made of any cotton or linen yarn mixed; or any linen or cotton tape, incle, filleting, laces, or any fabric, laid to be printed, whitened, crofted, bowked or dried to the value of 10 shillings, or shall knowingly buy or receive any such wares stolen, shall be guilty of felony without benefit of clergy." Felony of this degree was at that period punishable with death. Holland early acquired a reputation for bleaching, and it was an ordinary practice to send linens there in the spring to be returned in the autumn. The tedious character of the operations, when the use of cotton goods had increased so vastly through the inventions of improved machinery caused attention to be directed to chlorin, a gaseous substance contained in common salt, discovered in 1774. Bleaching by chlorin is now in extensive use, and allows the buyer of the cheapest calicoes a whiter material than his ancestors could obtain in costly linens after months of laborious operations. The old system of crofting or whiting is yet followed for fine fabrics in the north of Ireland.

Block-printing. There are two modes of printing calico, *block-printing* and *machine-printing*. The former has been practiced from time immemorial. The latter is a modern invention. In the case of block-printing, the design of the pattern intended to be printed upon the cloth is cut out upon a block of sycamore, the parts which are to make the impression being left prominent and the rest of the block cut away, just as practised for wood engravings. When the figure is too complicated and the lines too fine to admit of being cut in wood, it is made by means of small pieces of copper, which are driven into the block, and the minute spaces filled up with felt. Several colors may be at once applied on the cloth by means of one block. The block, being pressed against the cloth, takes the color as supplied by rubber tubes and thus produces the pattern. It is an exceedingly slow and tedious process. The printing-block is seldom over one foot square, several hours being required for each color to dry. In machine-printing, as the piece is printed, it passes rapidly over a steam-heated roller and dried in one or two minutes. [See CALICO.]

Blonde Lace. Blonde laces were first made in 1745, and being produced of unbleached silk, were known as "Nankins" or "Blondes". Blonde net is unbleached or cream colored bobbinet.

Bloom. A term applied to velvets, when by dyeing they are said to glow with a warm color, or luster. Dyers claim that the most important branch of black-dyeing upon cotton goods, is that empolyed for cotton velvets, in which it is desired to produce a rich lustrous effect; the process is long, tedious and uncertain, consisting of successive applications of sumac, acetate of iron, logwood and fustic — the end chiefly aimed at being the production of a black, with a blush or violet bloom.

Bloomers. A peculiar and ridiculous costume for women introduced and advocated in 1850 by a Mrs. Bloomer of New York, the distinctive features of which were a short skirt extending to the knees, loose baggy trousers buttoned around the ankle, and a low-crowned hat.

Blouse. A light, loose upper garment, made of linen or cotton, worn by men as a protection from dust or in the place of a coat; also a loosely fitting dress-body worn by women and children. A blue linen blouse is the common dress of French workingmen. [See SMOCK-FROCK.]

Boa. [From Latin *boa*, a large serpent.] A long, serpent-like piece of fur or feathers, worn around the neck by ladies; also a fur tippet. A boa usually accompanies a muff to complete a set of furs.

Bobbinet. A machine-made cotton netting, consisting of parallel threads which form the warp, upon which two systems of oblique threads are laid in such a way that each of the oblique threads make a turn around each of the warp threads, producing a nearly hexagonal mesh.

The art of netting is intimately related to weaving, knitting and machine-lace making, from all of which, however, it is distinguished by the

regular knotting or twisting of the diagonal threads around the straight warp threads. Bobbinet, which is the foundation of machine-made lace, is made by the intertwisting of threads of fine cotton or silk.

Prior to the year 1800, laces of every description were made by hand. Amongst the most beautiful of these hand-wrought laces was a variety called "Brussels," which was distinguished by a portion of the threads being "twisted at regular intervals so as to form an open spot, in order to relieve the sameness of the tissue." The first attempt at the manufacture of lace by machinery was an imitation of this Brussels lace, probably on account of the great popularity of, and demand for this variety. The first step was to make this open work, (bobbinet) upon which to ground the pattern. In England several efforts were made from 1758 to 1809, but the first really successful machine for bobbinet (so named from the threads which cross the warps being supplied from bobbins) was that of Jno. Heathcoat, invented in 1809, and suggested by the machinery he had seen employed in making fishing nets. The principle of the invention was in the use of fixed parallel warp threads around which the bobbins worked as the "filling" of a fabric, one set going obliquely from right to left, and the second set obliquely from left to right. In the machine the warp threads to the number of 700 to 1,200 in a yard of width are stretched from a roller which extends the whole length of the thread beam, and the weft threads are wound each upon a bobbin, formed of two thin brass discs riveted together, leaving a narrow space between them for the threads to pass out. Each bobbin holds about 100 yards thread, and there are sometimes as many as 1,200 of them to a machine. About 30,000 meshes per minute can be made with improved machines. The pieces of bobbinet measure from 30 to 40 yards each ; the width is variable, being very narrow in Wash Blond and wider in Brussels and Darn net.

In England at this time (1810), the bobbinet machine was regarded as the most wonderful and important invention that had been introduced. By the aid of one machine it was possible to manufacture in a day the same amount of netting that formerly required two-score men and women. The unfortunate work people in their rage organized a mob and destroyed Heathcoat's machines, and declared they would make scrap-iron and kindling wood of all he should thereafter manufacture. This caused him to remove to Nottingham, where the indignation was not so high, and where he began the manufacture of netting and machine lace. Prosperity shone upon the trade, and numerous individuals, clergymen, lawyers, doctors, and others, readily embarked capital in so tempting a speculation. Fabulous wages were earned during this period. It was no uncommon thing for an artisan to leave his usual calling and betaking to himself a lace frame, of which he was a part proprietor, realize by working upon it 20, 30 and 40 shillings a day. In consequence of such wonderful gains, "Nottingham and the adjoining towns became the scene of an epidemic mania; many, though, nearly devoid of mechanical genius or the constructive talent, tormented themselves night and day with projects of bobbins, pushers, lockers, point-

bars and needles of various forms, endeavoring to get around or improve the Heathcoat patent, till their minds got permanently bewildered. Several lost their senses altogether; and some after cherishing visions of wealth as in the olden time of alchemy, finding their schemes abortive, sank into despair and committed suicide."

Many improvements have been made on the original machine, but to this day the principle still remains the same. [See LACE, LACE CURTAINS.]

Bocasine (bok'-a-sin). [From *buckram*]. A linen fabric woven so fine as to look like silk; not in general use at the present time.

Bocking. A coarse woolen flannel or baize named from Bocking, Essex county, England, where it was first made.

Bolster. Something on which to rest the head while reclining; specifically a long cylindrical cushion, stuffed with feathers, hair, straw, or other materials, generally laid on the bed under the pillows.

Bolt. Any quantity of rolled or wrapped fabric.

Bolting Cloth. A cloth of linen or silk used in mills for bolting or sifting meal and flour; also a fine wide linen fabric used by ladies for fancy-work. The most expensive variety of silk fabric made is bolting cloth for millers' use, woven almost altogether in Switzerland. There is no import duty on this, provided it is not used for, or suitable for wearing apparel.

Bombast. Cotton or other stuff of a soft, loose texture, used to stuff a garment; padding.

Bombazine (bom-ba-zeen') [From *bombycina*, made of silk.] Originally a dress fabric woven of silk and wool, made in England as early as the reign of Elizabeth; afterward a cloth made of silk alone, but always of one color. At present, a light twilled dress fabric of which the warp is silk and the filling worsted, giving it a changeable shiny appearance; formerly black but now made in various colors. In England in 1575 the Dutch elders presented in court a new fabric called Bombazines, praying to have the "search and seal" of them to their use. These early Bombazines are said to have been of silk and cotton, but as the use of cotton was not begun in England until about fifty years later (1625), it is probable they were of silk and wool or silk and linen. In 1800 Bombazines were described as spun from wefts of fine wool, the worsted being thrown upon the right side; so that the modern Bombazines of silk warp and worsted weft in all likelihood closely resemble those of the sixteenth century.

Bombyx. The caterpillar of the *Bombyx mori* is well known by the name of *silk worm*. When full grown it is three inches long. It feeds on the leaves of the mulberry tree and the Osage orange, and spins an oval cocoon the size of a pigeon's egg, of a close tissue, usually of a yellow color but sometimes white. A single fibre is often 1,100 feet long. It requires 1,600 worms to produce a pound of silk. Greek missionaries first brought

the eggs of the bombyx or silk worm from China to Constantinople in 565 A. D. In the twelfth century the cultivation of silk was introduced into the Kingdom of Naples, and several centuries afterward into France. In the seventeenth century silk worms were brought to the United States. [See SILK.]

Bombycinous. Silken; made of silk; silky, feeling like silk; or, of the color of the silk-worm moth, of a pale yellow color.

Bone-lace. Lace, usually of linen thread, made on a cushion with bobbins, and taking its chief decorative character from the pattern woven into it as distinguished from point-lace; so named according to some authorities, from the fact that the bobbins were originally made of bone. Fuller, England 1662, says that much bone-lace "is made in and about Honytoun, (Honiton) and weekly returned to London. Let it not be condemned for a superfluous wearing, because it does neither hide nor heat the bodie, seeing it doth adorn. Hereby many children who otherwise would be burthensome to the parish, prove beneficial to their parents. Yea, many lame in their limbs and impotent in their arms, if they are able in their fingers, gain a livelihood thereby." The question has arisen as to what sort of bones were used in the production of this lace. Fuller explains that sheep's trotters were used for bobbins, and that thus the name came into use, but other authorities say that the Devonshire lace-makers, deriving their knowledge from tradition, declare that when lace-making was first introduced into their country, pins, so indispensable to their art, being then sold at a price far beyond their means, the lace-makers, mostly the wives of fishermen living along the coast, adopted the bones of fish, which, scraped and cut into regular lengths, fully answered as a substitute.

Bonnet. [From Hindoo *banat*, woolen cloth or broadcloth.] A form of head-covering worn by women out of doors. It encloses the head more or less at the sides and generally the back, and is usually trimmed with some elaborateness and tied on the head with ribbons. It differs from a hat of the ordinary form in having no brim. In Scotland the term bonnet is applied to any kind of a cap worn by men, but specifically to the closely woven and seamless Scotch caps of wool, known as *glengarys*, *balmorals*, *braid bonnets* and *kilmarnocks*. In England about the year 1480, extravagantly trimmed bonnets were worn by men as well as by women. These were usually made of cloth, sometimes richly adorned with feathers, jewelry and ornaments of gold. It was regarded as a grave breach of propriety by the law-makers of this period for a married man to indulge in these fanciful bonnets, and in consequence a law was enacted that "if any sane person, of full age, whose wife not being divorced, nor willingly absenting herself from him, doth wear any French hood or bonnet of velvet, with any habiliment, paste, or edge of gold, pearl or stone shall lose £10, for every three months" during which time the law was disobeyed, for the evident purpose of "protecting" the rights of unmarried men.

Bookbinder's Cloth. A stiffly sized variety of cotton cloth, colored in every conceivable tint and shade, and often decoratively embossed, much used for the cheap binding of books in place of leather. All books said to be "cloth bound" are covered wlth *bookbinder's cloth.*

Bookfold. A piece of linen or cotton fabric containing 24 yards.

Bookmuslin. A glazed, starchy, transparent muslin, used for the covering of library books or lining of dresses; very similar to paper cambric.

Boots and Shoes. From the earliest times a comfortable covering for the feet has been one of man's first necessities upon emerging from savagery. As he advanced toward civilization he began to give more and more attention to his footgear, making it not only comfortable, but ornamental. Where climate demanded more protection for the foot than the original sandal, the primitive races shaped a rude shoe out of a single piece of untanned hide; this was laced with a thong and so made a complete covering. Out of these two varieties—sole without upper, and upper without sole— arose the perfect shoe and boot, which consists of a combination of both. The characteristics of a nation can often be traced in its shoes. The high, stiff boot of the uncompromising Dutchman is as truly an index to his character as is the gaily-colored, up-curving slipper worn by the luxurious Turk. The manufacture of American shoes is no less characteristic. Our factories turn out their product in such quantities that no man, woman or child is too poor to wear them, and a barefoot peasantry is an unknown condition on this side of the water. One workman can peg 600 pairs per day. In China, on the other hand, where customs never change, the cobbler still goes from house to house, announcing his approach with a rattle, and taking up his abode with the family while he accomplishes the necessary working and mending. In certain parts of Asia Minor it is nothing unusual for a pair of shoes to be handed down from generation to generation, being worn only upon state occasions, and carried in the hand by the proud possessor on holidays.

The word "shoe" occurs thirty-one times in the English version of the Bible. "A man plucked off his shoe and gave it to his neighbor; and this was a testimony in Israel."—Ruth 4:7. "Over Eden will I cast my shoe"—Psalm 9:8. These passages evidently refer to an established symbolical use of the shoe in transferring property. "Loosening the latchets of shoes," and "bearing the shoes" are alluded to as works of inferiority. In the far East the shoes are removed as a mark of respect, and all Orientals take off their shoes when entering a church, but keep on their headgear. The Hebrews took great interest in the ornamentation of their shoes. Solomon exclaims, "How beautiful are thy feet with shoes, Oh, prince s daughter!" An old writer—Bend Boudoin—maintains that God, when giving Adam skins of beasts for clothing, gave him also shoes of the same material. Xenophon tells us that the ten thousand Greeks who were with him in the

great retreat, were compelled for the "want of shoes" to cover their feet with skins which caused them great inconvenience. During the dark days of the Revolution in our own country, shoes and leather were so scarce that the heroes of Valley Forge were driven to tying the bark of trees to their feet, and it was no uncommon thing in the winter of 1779 for stains of blood to mark the footsteps of patriots.

The earliest form of shoe was, of course, the sandal, which allowed the foot full freedom of motion. It was secured to the foot by means of thongs passing over the instep and between the great and second toes, so that it was held firmly whichever way the foot moved, and yet could be cast off at pleasure. The Egyptian priests wore sandals of palm leaves and papyrus, while those of the common people were made of leather. The papyrus shoe was interwoven like a mat. The Hebrew shoe was similar to that of the Egyptian, the military sandals being made of brass or iron. The Roman soldier, when obliged to fight in a hill country, placed his feet in sandals with soles heavily spiked, and with thongs extending far up the ankle. While he marched in these, the luxurious citizens at the capital employed the security he gave them by inventing fanciful boots formed of animals' skins dyed purple, covered with gilded ornaments, and further enriched by the head and claws of the animal, which were left to hang down from the top of the boot.

One of the most curious form of shoes ever known was the "chopine," which originated in Turkey, and spread through Europe, being worn even in England; inexplicably enough, for nothing more clumsy and difficult could have been invented. They increased the height of a lady by half a yard, and it was impossible to walk a step in them unless supported by a maid servant on either side.

This is certainly about equal in folly to the much condemned Chinese custom of deforming ladies' feet; though it did not cause so much pain, it interfered much more with freedom of locomotion. The inconvenience of the Chinese custom is all thrown upon the weaker sex, for the China men wear shoes that can not be excelled for ease and comfort; but Fashion thousands of years ago decreed that all ladies of any rank should have their feet so bound in childhood that they can not grow longer than three or four inches from toe to heel. The Chinese affectionately term these distorted pedal extremities "little golden lilies." They cause a growing girl the greatest torment, and cripple her for life; but she is taught to endure willingly in order to insure rank and position, much after the fashion of the fair sex in our own land.

Our English forefathers, much as they plumed themselves upon sturdy common sense in dress, indulged in occasional vagaries in the way of footwear which no giddy Frenchman could surpass. One of their greatest extravagances in this line was the pointed toe. It began with an simple point, "only this and nothing more," but the point grew and curved and curved and grew until it attained a length of 15 inches, and was aptly com-

pared to devil's claws. In order to overcome their inconvenience they were sometimes secured by a chain or cord to the knee, many specimens being still in existence having rings attached for fastening the chain. The reaction against this extreme came in the form of broad-toed shoes. These were made gradually shorter and wider until they caused the fashionable foot to appear like a hoof, and it was found necessary in 1480 to restrict them in breadth. Having attained a width of twelve inches, and were still widening, sensible Queen Mary issued a proclamation prohibiting a wider shoe than six inches at the toe. The next freak of fashion came in the form of wide topped boots. These came into vogue with the courtiers of the second Charles. They were of soft, pliable Spanish leather, which doubled over the top like a cuff; and this boot-cuff was further adorned with ruffles of costly lace. The extreme width of these boot tops with their frail ornamentation, made it necessary for the wearer to take wide spraddling steps in walking.

In the ninth and tenth centuries the greatest kings and princes in Europe all wore wooden shoes, not wooden boots like those worn by the Hollanders, but wooden soles fastened to the feet with leather thongs. The wooden boot coming up to the ankle is, at present, worn by the peasants throughout all Europe. The towns of Mende and Fillefort are the headquarters for the wooden shoe trade in France, about 1 700 persons there finding employment in the manufacture. These shoes (or boots) are made from a single piece of wood roughly cut and hollowed out into shoe form. Analogous to this industry is the clog-making trade of England. Clogs are heavy wooden shoes to which, shoe or boot, uppers are attached. Sole and heel are made of one piece, from a block of maple or ash two inches thick. These clogs are of great advantage to all who work in damp,sloppy places, keeping the feet dry and comfortable in a manner impossible with either leather or india-rubber. They are, consequently, largely used on the Continent and in the United States by ditchers, dyers, bleachers, tanners, etc. There is also a considerable demand for expensive clogs, with fancy uppers, for use by clog dancers and others on the stage.

Probably as curious an adaptation of shoes to the requirements of climate as ever known, is the Canadian snow-shoe. This is formed of a wooden frame work, strongly interlaced with thongs of leather. Its use was learned from the Indians by travellers and hunters; and it is exceedingly difficult to acquire the pace. The inhabitants of British America travel rapidly on the broad surfaces of these shoes. Both men and women wear them, and the number of miles gotten over in a day by able-bodied experts sound extravagant to people not aware of the facility with which they can be managed. They are from eight to fourteen inches in breath at the widest part, and sometimes as much as seven feet long, though generally about four feet.

The present form of leather boots and shoes was adopted early in the 17th century. The general styles have not varied much for many years;

the narrow sole, the broad sole, the box toe and the high and the low heel being the principal differences between one pair and another. It has been but a few years since the best trade would not think of buying ready-made footwear, but their manufacture by large establishments, however, has reached such perfection that it is doubtful if there is one out of ten thousand well-to-do people who have their shoes made to order by hand. Manufacturing has been reduced to such a science that it is possible to do work as well by machinery as by hand, and at the same time shoes are made much cheaper now than they were twenty years ago. This is on account of the reduced cost of tanning leather, more economical production and better freight facilities. There was a time when the person whose feet were not the shape that nature may have intended, or who were particularly sensitive or fastidious, was justified in having shoes made by exact and special measurement. But to-day the factory-made shoes are of every conceivable shape, size, style and finish. The finest shoes are made in seven widths, A, B, C, D, E, EE, F; and in length varying in size from a third to a sixth of an inch. A full "size" of a shoe or boot means one-third of an inch in length; half "sizes" mean one-sixth of an inch; expressed 6, 6½, 7, 7½, etc. These figures do not represent the actual length of the shoe (as do sizes of hosiery) but start from an arbitrary base.

It is a matter of fact that the shoemaker (compared with his vocation once) is now only a repairer and vender of factory-made goods. His shelves are loaded down with goods purchased from the jobbers and all the manufacturing he does takes up but a very small portion of his time. He is really a *merchant* with the ability to halfsole, cobble and straighten-up heels. The consumer is the gainer by all this, for the amount demanded for a pair of boots prior to the war would now purchase four pairs of well-made and neatly-fashioned shoes.

It is a fact very noticable and one also that has been commented freely upon, that among the urban population of the United States, boots have long been *en passe.* Ever since they went out of fashion many years ago, there have been occasional and fitful attempts to revive the use of them. Men's predilections are variable. In respect of shoes, every conceivable taste has been thoroughly ministered to, but it is doubtful whether the use of boots will ever again become general. Here and there is encountered an elderly man whose partiality for them cannot be changed. He began to wear them in his youth and has clung to them ever since. Some physicians maintain that the wearing of boots acts as a preventative of rheumatism. They not only repel extraneous moisture, but being loose at the top permit the free escape of the natural perspiration of the feet. Years ago they were the acknowledged badge of a gentleman; now they are worn by coachman and grooms, and are regarded as the insignia of servitude. A century back there was a saying "every gentleman wears boots;" now we have the terse tale of a hanging in the phrase, "he died with his boots on." The decline of the boot is another illustration of how the practical has

driven out the picturesque. When courtiers wore powdered wigs and lace ruffles, boots were indispensable, but in this unpoetical age the male portion of humanity has no time to expend upon useless furbelows and trappings. The army officer, of course, wears boots just as he always did; and the bugle-call to "boots and saddle" in a cavalry camp is as potent as of yore. But we are a nation of peace and army officers are few. Foreigners marvel that they can travel from Maine to Mexico and from Hatteras to to the Golden Gate without seeing a solitary soldier.

But the soldiers of the soil, the industrial army of our country, still continue to wear a certain amount of boots, and the trade in them is by no means inconsiderable. The names of the lines made by the various factories tell the story. There are "driving," "ditcher" and "freighters'" boots, and there are "mining" and "lumbermen's" and "cowboys'" boots. Cowboys wear fine calf boots with high heels and fancy tops. They job at $3 to $3.50 a pair. A line with Goodyear welt bring $4.25. A heavy calf mountaineer boot jobs at $3.75. For lumbermen and out door laborers in the northern latitudes, leather has given way to the felt and wool boots, worn in conjunction with a buckled rubber overshoe. Wool boots without leather stays sell for $8 to $9.50 per dozen.

Certain philosophers have contended, with a great deal of force, that boots are an index of character. That eminent authority, Kirtley, has long adhered to this view. "Men who wear boots" he tells us, "are superior for many reasons. They manifest, in the first place, decent reverence for the example of their forefathers. Boots, they know, were worn by the men of the olden time—the men who expelled the British invaders from our shores, and founded this mighty Republic. They are not unaware that George Washington, when asked by a Virginia cobbler to don a pair of patent leather pumps, nailed the ear of the offender to the town pump. Then, too, they recall the preference for boots of every man who has made his mark in the commercial, professional or the political world. Allegiance to boots has invariably been synonymous with uninterrupted and marvelous success. Disloyalty to boots has provoked certain and ignominious failure."

In the manufacture of shoes there are two main divisions. The minor division—the making of "turn" shoes—embraces all work in which there is only one thin, flexible sole, which is sewed to the upper while outside in, and turned over when completed. Slippers and ladies' thin kid shoes, are examples of this class of work.

In the other division the upper is united to an insole, and at least one outsole. In this are comprised all classes, shapes and qualities of goods, from shoes up to long-top boots, with all their variations of lacing, buttoning, congress, etc. Till within recent times, shoemaking was a pure handicraft, but now machinery effects almost every operation in the art. In the beginning of shoemaking inventions the principal difficulties to overcome were encountered in the operation of fastening together the soles and

uppers. The first success in this important operation was effected when means other than sewing were devised. In 1809 David M. Randolph obtained a patent for fastening the outer sole to the inner sole by means of little nails. This invention may be said to have laid the foundation of machine boot-making. In 1810 M. J. Brunnel patented machinery for fastening the soles to uppers by means of metal pins or nails.

Apart from sewing by machine or hand, three principal methods of attaching soles to uppers are in use at present. The first is "pegging;" the second is "riveting," or "clinching," with iron or brass nails, the points of the nails being turned by coming in contact with the iron last used. The third method, "screwing," has come into extensive use since the standard screwing machine was introduced. The standard screw machine, which is an American invention, is provided with a reel of stout, screw-threaded brass wire, which is inserted into and screwed through outsole, upper edge and insole. Inside the upper a head presses against the insole directly opposite the point of the screw, and the instant that the screw and head touch the wire is cut level with the outsole. The screw, making its own hole, fits tightly in the leather, and the two soles, being both compressed and screwed firmly together, make a perfectly water-tight and solid shoe. The principal disadvantage in the use of standard-screwed soles is the great difficulty met with in removing and levelling down the remains of an old sole when repairs are necessary.

The various forms of sewing-machines by which uppers are closed, and their important modifications for uniting soles and uppers, are also principally of American origin. The first important step in the difficult problem of sewing together soles and uppers by a machine was taken by L. R. Blake, tn 1858. Blake's machine was ultimately perfected as the MacKay sole-sewing machine—one of the most successful and money-making inventions of modern times. Blake's original machine was very imperfect and was incapable of sewing round the toe of a shoe; but a half-interest of it coming into the hands of Gordon MacKay, he with Blake effected most important improvements in the mechanism, and they jointly in 1860 procured patents which secured to them the monopoly of making machine-sewed boots for twenty-one years. On the outbreak of the Civil War, a great demand arose for boots, and there being at the same time much labor withdrawn from the market, a profitable field was opened up for the use of the machine, which was now capable of sewing a sole right around. Machines were leased out by the MacKay Company to other manufacturers at a royalty of from ½ to 3 cents on every pair of soles sewed, the machines themselves registering the work done. The income of the Company from royalties increased from $38,000 in 1863 to $589,000 in 1873, and continued to rise till the main patents expired in 1881, when there was in use in the United States nearly two thousand Blake-MacKay machines, sewing yearly 50,000,000 pairs of boots and shoes.

The range of machinery for making and finishing other parts of a shoe.

used in a well-equipped factory, is very extensive, embracing machines for cutting leather, pressing-rollers for sole-leather, and cutting-dies for stamping out soles and heel pieces. For finishing there are scouring, sand papering and burnishing machines for the soles, and stamping machines for marks and monograms. In short there is not a single operation necessary in shoemaking, however insignificent, for which machinery has not been devised.

This country consumes more than 200,000,000 pairs of boots, shoes and slippers annually. It is safe to place the figures at 17,000,000 pairs a month of all kinds. When some circumstance occurs which forces the people of this great country to wear their shoes a week or a fortnight longer than they are accustomed to doing, it produces a perceptible effect upon the shoe and leather trade. The entire trade is very quick to feel the effect of unseasonable weather. This sensitiveness is accounted for by the fact that the shoe business is comprised of but one class of goods alone, while all other branches of merchandising and manufacturing are composed of scores of different lines.

The manufacture of shoe "lasts" is to-day a fine art. Makers of statues and sculpture may commit errors that the ordinary observer will not perceive. But manufacturers of lasts are without this immunity. They must build well and truly, and their dumb models, inanimate as they are, must have the curves and grace and anatomical peculiarities of the human foot. The beauty of the foot depends upon the elasticity, symmetrical aliveness of each toe and muscle, and upon the length of the toes relatively to the contour of the whole foot, and upon the curve of the outer side of the sole. There never was a handsome foot in the classic sense that had short toes, and there never was a foot that fully satisfied the sense of beauty but was arched or curved on the outside. The inner curve is far more common, and exists frequently when the outer side is as flat as a negro's.

Lasts are made of the trunks of maple and persimmon trees. A last factory is an interesting sight. Rugged tree trunks, redolent with forest life, are hauled by a fatal chain to a vicious circular saw. The big clumsy slices of wood are rapidly cut, roughed, and placed in the silent drying room. In another part of the building are lathing machines busily trimming the homely blocks into shape. Then comes the paring of heels and toes. Next the shaving and finishing, which is followed by plating the heels and toes of the lasts with iron. Sandpapering wheels smooth irregularities on the grain, and finally it is coated with shellac. In all these operations, conducted so skillfully and rapidly, the eye and hand of an artist is constantly employed, for if the slightest imperfection occurs the last has to be cast aside. [See LEATHER].

Bootee (boot-ee'). A trade-name for a half or short boot for women.

Boot-powder. Massive talc, or soapstone reduced to powder, used to dust the inside of a new or tightly-fitting shoe, to facilitate drawing it on.

Boucla (boo-clay'). A style of weaving in which a rough, knotted surface is produced. These bunches or knots are formed in the warp or weft threads prior to weaving, and appear at short intervals over the surface of the fabric. This weave is generally confined to woolen dress goods and cloaking.

Bowing (bo'-ing). The old process of preparing the fur for the body of a felt hat. Usually about 3 ounces of fur was spread upon a platform of boards about 5 feet square, over which a large bow some 6 feet long, strung with catgut, was suspended. This bow was held in the left hand of the hatter, while with the right he tugged or twanged the string of the bow and made it vibrate upon the fur, and into it with great dexterity and the nicest judgment. This operation has always been considered a beautiful sight to a stranger, as the hatter goes on plucking the string, and the string playing upon the top of the fur which lies upon the left hand side of the platform. The fur touched by the string is made to fly from one side of the boards to the other with the greatest regularity. In this operation the different materials are tossed to-and-fro and *mixed* with a much greater regularity than if drawn by machinery. One half of the intended hat, called a *bat*, is bowed at a time, and both in nearly a triangular shape, which is pressed and gently rubbed with the hands backward and forward so as to create a friction on the surface fibers, thereby interlacing the outside filaments, by which means the safe-lifting of the two half-solidified portions of the future hat is secured. The one-half being laid upon the other they are joined together by overlapping two of the three sides, thereby giving to the intended hat the form and figure of a hollow cone, but so tender that none but an experienced hatter could handle it. This finishes the operation of "bowing," after which come felting and shaping, for descriptions of which processes see HATS.

Box Coat. Early in the present century an overcoat with a cape, intended for drivers or travelers on the outside of a coach. At present, a short overcoat, usually of a light and delicate color used for attending operas and balls and the like. Sometimes called an *Opera coat.*

Box-Plait. A double fold or plait, as on a shirt bosom or a woman's dress; a method of folding cloth alternately in opposite directions so as to form a kind of plait from each side.

Braid. A narrow textile band or tape formed by plaiting or knitting together several strands of silk, cotton, wool, or mohair, used for the trimming and binding of garments. The production of silk and mohair goods form a branch of the larger silk manufacturing trade; which more than most others is free from season fluctuations. In silk varieties since 1887, and in mohair since 1890 the bulk of these goods consumed by the domestic trade have been manufactured in this country. The braids produced at Patterson, N J., outrival the best that Europe can produce, whether in quality of material and consequent durability, in exellence of

weaving, or in finish. In the numbering of braids they are designated as being of so many "lines" according to the number of ribs they possess. If a braid has four ribs running lengthwise from end to end, it is called a 4-line braid. In numbering cords and other similar materials there is no uniform system adopted. Their description is supposed to be based on the number of main strands that enter into their construction, but this is not always the case. The majority of standard wool dress braids, such as "Goff's," "Corticella," etc., are numbered 61, which signifies that the braid is composed of 61 threads. This may easily be determined by counting the ribs—which will be found to be 15—each rib or plait being composed of 4 threads = 60 + 1 thread necessary to start the web = 61. On account of one thread being necessary to start the plaiting of a braid, all braids if "sized" according to the number of individual threads which compose the texture will be found to bear *odd* numbers. Formerly they were all so numbered, but in recent years the width of fine silk and mohair braids is indicated by the number of longitudinal ribs in their tructure.

Brandenburgs. [Named from *Brandenbourg*. in Germany.] A variety of ornamental buttons formed somewhat in the shape of a long, narrow barrel, smaller at the ends than in the middle, and made of silk on a wooden mold or foundation, usually connected with loops and worn on the front of garments and to fasten men's heavy overcoats; corresponding to frogs on ladies' cloaks. [See FROG.]

Breakfast Shawl. A small, square checked shawl, folded diagonally and worn around the neck by women.

Breast Clout. A bib.

Breech Clout. A cloth of any description, covering the breech and loins of Indians, Africans and other uncivilized peoples.

Breeches. A bifurcated garment formerly worn to cover but the hips and thighs; improperly used in the sense of trousers or pantaloons. The word is derived from Anglo-Saxon *breech*, which indicates the lower part of the body behind, or the hinder part of anything. The "Geneva" Bible, an English translation issued from Geneva in 1560, by several British divines, has been called the "breeches" Bible, because in the story of Adam and Eve, a passage (Genesis III, 7) was translated: "Then the eyes of them both were opened, and they knew that they were naked, and they sewed fig leaves together and made themselves breeches." Later and more fastidious translators make the passage read "aprons."

Bride. In lace making and needle work a loop, link or tie connecting two different parts of the work together. [See LACE.]

Broad Lace. A wool lace or embroidery made in bands about four inches wide and used as an ornamental border to the upholstery of a carriage or car.

Broadcloth. A fine "woolen" cloth, commonly black, with a smooth,

glossy surface, principally used in making men's garments, so called from its breadth which is usually 60 inches. Broadcloth is woven of the finest grades of felting wools. When taken from the loom it does not present that polished appearance which is its distinctive feature as seen in the shops of tailors. In the loom it is rough and dull-colored, with the threads which compose the warp and woof plainly showing. All broadcloths are subject to the action of fulling or felting, with the result that the wool-hairs of the weft and those of the warp become mutually entangled to such an extent that these cloths never unravel when cut by the tailor, and no hemming of a garment is required. Twelve hours in the fulling mill will reduce a piece of cloth two-fifths in breadth and one-third of its length. This shortening and narrowing result is the effect of its *felting* in the fulling mill during the operations of scouring and washing, every fibre of the wool of which the cloth is made having clung to its immediate neighbors (both warp and weft) and with the spirit of true friendship, they remain forever in each other's embrace, the cloth being transformed from a loose to a solid fabric.

Upon every fibre of wool are minute scales, so very minute, indeed, that it requires the aid of a powerful microscope to enable the beholder to discern them, and even then but faintly. These scales, which cover every filament of wool, are thin and pointed, overlapping each other quite similar to the scales of a fish or the shingles upon a house. On a single filament of merino wool, as many as 2400 barbed scales, like teeth, projecting from the center of the stem have been counted in the space of one inch. On Saxony wool there are 2,700 while other wools fall to 1,600, 1,700 and 1,900, and none have been found to have so few as 1,000 to the inch.

The cause of that mysterious and curious operation called felting, is the existence of these scales. Of all the fibres only wool can be felted, because none of the other fibres possess these minute scales. Till lately the best posted manufacturers and the investigating philosopher were equally at a loss to explain upon what principle the felting effect was produced. Take, for instance, a handful of wet wool; squeeze and press it, work it a little with the hand, and then observe the effect; for immediately upon pressing it a certain locomotion is thereby conferred upon every fibre of the handful, which is increased by every turn of position that is given. The rolling and pressing change the position of each fibre. A friction is produced upon every member composing the mass; a footing, as it were, is obtained from the scales of each, and the wool being all bent or curled, a progressive motion goes on, interlacing each other in their travels, resulting in a compact, dense body, which challenges the patience and perseverence to undo. Every hair has been traveling in its own individual direction, boring, warping, grasping, holding and twisting amongst its fellows like a collection of live worms. This is "felting." After the felting process is carried to the desired extent, the cloth is slightly napped, and sheared to produce an even smooth surface; and wetted, steamed, ironed

and pressed many times to make the polished surface. "Steaming" consists in passing hot live steam through the rolled piece, and alternating with cold water, just as a barber acts when shampooing a customer. This fastens the bloom and nap, and preserves the beautiful peach-like appearance of the finish. After being carefully dried it is sheared and cropped, so that the top hair or down is taken off, and the under growth of down made a regular length.

The finest piece of broadcloth which ever left a loom was manufactured at the woolen mills of Vassalboro, Maine. It was first exhibited at the World's Fair in London in 1851, and next at the Centennial in 1876, being pronounced by the judges in that line of goods as surpassing anything of the kind ever displayed; in fact there is no record of the manufacture of any broadcloth superior in either texture or finish, and the only reason, as assigned, why these superior fabrics have not been made on a commercial scale, is because of their extremely high price.

Broadcloth is also the name given to a wide fabric made of "woolen" yarn, with a slightly napped face, exclusively used for ladies' dresses. Its origin is derived from the material used for men's wear, from which it differs chiefly in weight and finish. Broadcloth and *ladies' cloth* are terms often used to signify the same fabric, and, while the two are practically the same cloth, there is a difference between them. Broadcloth has a twilled back, and is of heavier weight and closer shorn than ladies' cloth, while ladies' cloth is a plain weave, with a heavier nap. [See WOOL, WOOLEN.]

Brocade. A fabric woven of any material or combination of colors, in which a design of flowers or foliage is inserted. Brocades in the olden time were rich fabrics, woven with gold and silver and silk. To prepare the golden thread in those days, a flat gilded ribband was used over a silk of the nearest possible tint to the metal, and the principal skill in this preparation was to have the circumlocutions of the metal around the silk in such manner that the edges were drawn as closely as possible to each other, without overlapping. The manufacture of these golden threads was brought to such a degree of perfection that they were in high favor with the public taste. There early existed in Milan, Italy, a great factory using a secret process which made a thread, only one side of which was golden. Ornamented threads of hemp and flax, and flat threads of copper were also made. The Chinese economically employed bands of gilded paper upon the silk, and sometimes used them without other support than their own fabric. But these were very ephemeral, and were rarely used except as tapestry or ornaments, as they needed constant protection from the moisture of the atmosphere.

Afterward, the foundation of "brocades" was of silk, relieved with flowers or ornaments of gold or silver, and later the name brocade was given to fabrics ornamented with flowers and other figures in which no metallic thread was employed. In the 13th century a large factory for the

manufacture of brocades was in operation at Lucca, Italy, but the governor forced the workmen to abandon the city. Three hundred of them went to Venice, where encouraged by the offer many privileges, they founded a new factory. For a long time afterward the Venetian factory flourished and turned out immense quantities of fine goods. In the course of the latter century this factory invented a modification of brocade, and gave the name of *damask* (curtain) to the new fabric. This textile, although it contained but half the gold or silver used in brocades, showed a much richer and more even surface. The metallic thread was not passed round a thread of silk, but in passing the cloth between heavy rollers the metallic thread thus represented ornaments which had the appearance of brilliant leaves of gold or silver in a single piece, similar to the curtain damask of the present time.

This process was kept secret for a long time by the manufacturers, but the immense advantages accruing to Venice attracted the attention of the French government, which employed a celebrated expert to go there and ascertain the methods employed. The attempt of the expert was not fruitless, and factories for making the new brocade immediately sprang up in Lyons. There are many rich brocades of the original sort still produced in India, especially in the looms of Benares. These gold brocades are called *kin-cobs*, and in style and essential character are older than the use of silk in Babylona, Phœnicia or Egypt. Japan takes now as for centuries past, the front place in the production of figured silks of all kinds, especially gold wrought brocades, rich with flowers and other ornaments, figured damasks and other beautiful fabrics. There are two kinds made in Japan, gold thread brocade, and silk damask brocade, or brocade inwrought with flowers and foliage. Gold and silver is very largely used in the weaving of these fabrics. The Japanese have many proverbial expressions which show the high estimation in which they hold their brocades, such as: *Kokioye Nishiki*—or "Clothe yourself in brocade when you return home, *Tzurure wo Kite mo Kokoro wa Nishiki*—or "He wears rags, it is true, but his heart is of brocade."

Brocaded. This term is used to describe a fabric upon the surface of which a figure of any kind is formed by the threads of the warp or filling being raised in such order as to produce the pattern required. The word has much the same application to silk and wool textures that "damasked" has to linen textures, or to worsted stuffs when used for upholstering purposes. [See LOOM, WEAVING.]

Brocatel (broc-a-tel'). A coarse or inferior brocade or figured fabric, commonly made of silk or cotton, or sometimes of cotton only, but having a more or less silky surface; used chiefly for curtains, furniture-covering, tapestry linings, and linings for carriages.

Broche (bro-sha'). [From French *broach*, to sew or stitch]. Broche properly means sewed or stitched; or, any style of weaving ornamented

with threads which form a pattern on the surface in imitation of stitching; the term has a meaning similar to "brocaded" when applied to woven fabrics: as a broche shawl, a broche ribbon. [See CASHMERE SHAWLS.]

Broche Shawl (bro-sha'). A variety made in imitation of genuine Cashmere shawls, distinguished by its "cone" pattern, or round scroll work. They were first made at Paisley, Scotland, and were of a peculiar bluish color, and known to the trade as Paisley shawls. At present they are made in France, and red is the predominating color; called either Broche or Paisley.

Brush Hat. The old-fashioned brush hats were made of beaver fur, first made into a felt cloth, and then finished with a flowing nap. This nap was produced in the process of sizing by being constantly "brushed" with a hand-brush—hence the name. The best of these usually retailed for $15.

Buckle. A metal appliance for fastening together different articles and portions of dress. The origin of the buckle is clouded in a great deal of uncertainty, but it is known to antedate as an ornamental device for shoes all other contrivances. Of exactly what material they were first manufactured history does not enlighten us. In England and France, and even in our own country, in the year 1781, all gentlemen of tone sported on their shoes a large, square buckle, plated with silver, and as ladies soon adopted the reigning taste, "it was difficult to discover their feet, covered with an enormous shield of buckle, and men wondered to see the active motion under the massive load."

Buckles and buttons at this time were worn of such immense size as to occasion the issue of a caricature entitled "Buckles and Buttons, or I'm the Thing, Damme!" but in 1791 the massive loads became unsupportable, and suddenly went out of fashion, strings for shoes being adopted. In consequence of this a large class of ingenious artisans in the manufacturing districts of England were thrown out of employment. In 1792 a deputation of these buckle-makers presented a petition to the Prince of Wales (afterward George IV) setting forth the distressed condition of the thousands who had been engaged in the department of buckle making. The Prince promised not only to wear buckles on his own shoes, but to order the members of his household to do the same. But the commands of royalty were powerless when opposed to the mandates of fashion.

Buckram. [Said by some etymologists to have been derived from *bucca*, a hole, from the fabric being woven loosely and open, and afterward gummed, calendered and dyed; by others, the fabric is said to have taken its title from the place of its original manufacture, Bokhara, in Tartary; also conjecturally referred to as having been derived from L. *bouquena*, goat's skin. Formerly spelled *bokeram*, *bouqueran*, *bockaran*, *buckeram*.] A coarse unbleached linen cloth, stiffened with glue or gum, used as a stiffening for keeping garments in a required shape, and recently also for

binding books. Buckram was originally a very different material to that now known by the name. It is described in the fourteenth century as a "fine thinne cloth" ranking with the richest silks, and as late as the beginning of the sixteenth century this stuff was held good enough for lining to a black velvet gown for Queen Elizabeth. There can, however, be no doubt that buckram of a common description was early applied to a dress lining, as the prices on many old invoices do not show a fine material, so that the character of the fabric must have undergone a great change prior to the fourteenth century, even much more so than it has since done.

Buckskin. A soft kind of glove leather, yellowish or blue-gray in color, made originally by tanning deer-skins with oil and wood-smoke, but now sometimes being prepared from sheepskins. At present, in its preparation a great deal of manipulation is required, the softness of which is its chief characteristic, being produced by the use of either oil or brains in dressing it. [See LEATHER.]

Buff. A kind of thick, uncolored leather, originally and properly made of the skin of the buffalo, whence its name, but since the extinction of this animal, made of the skins of cattle. [See LEATHER.] It is dressed so as to be as flexible as possible, and without a glazed or artificially colored surface.

Buff Coat. A military coat made of buff-leather, in favor at the time of the English civil wars. The buff coat was commonly so thick and unyielding as to be considered proof against the sword, and even against a pistol-ball, except when fired at short range.

Buffing. The operation of diminishing the thickness of a hide of leather by means of a currier's knife or splitting machine, for the purpose of increasing the suppleness of the leather; hence the *layer* so shaved off.

Bugle (bu'-gle). A shiny, elongated glass bead, usually black, used for decorating female apparel. Bugle trimming consists of these glass ornaments attached to a silk or gimp foundation; similar to passamenterie

Bullion-fringe. A fringe of thick twisted cords, such as will hang heavily, covered with fine gold or silver thread; used for epaulettes and the trimming of uniforms. Also called *bullion-embroidery.*

Bunting. A light loosely-woven single width worsted dress goods, woven both plain and laced. Bunting is also the material out of which all train flags are made, as well as National flags and signals for ships. Distinguished from Nun's Veiling by being but single width, of coarser and more open texture, and composed of "worsted" while Nun's Veiling is "woolen." [See WOOL, FLAGS.]

Burlap. A coarse, heavy material made of jute, flax, hemp or manlila, and used for wrappings and upholstery; outside coffee bags are made of burlap. [See JUTE, HEMP.]

Burl. To pick knots, loose threads, burrs, etc. from, as in finishing cloth. To cleanse cloth, as with fuller's earth or a similar substance.

Buskin (bus'-kin).. [From "bore's-skin," of which they were first made.] A half-boot or shoe, strapped or laced to the ankle and the lower part of the leg, worn by the ancients. At present a low-laced, low-heeled slipper worn by women.

Bustle. Derived from *busk*, which in the 16th century is described as being a "flexible strip of whalebone or other stiffened material, used by fleshy women to keep their stomachers down, and to stiffen their stays;" also a "quilted or plaited thing to keep the body straight." Bustles have been worn of various shapes and dimensions, at different periods, since 1841. At present they consist of a sort of a pad or wire spring, worn by women for the purpose of improving the figure, causing the folds of the skirt to hang gracefully, and preventing the bottom of the skirt from interfering with the feet in walking.

Butcher's Linen. A coarse and heavy bleached linen material, used principally as a backing for shirt bosoms.

Butter-cloth. A thin and open unsized muslin, used by dairymen to wrap their rolls of butter; similar to cheezecloth.

Buttons. [Fr. *bouton*, from *bout*, end, extremity, bud]. A catch of various forms and materials, used to fasten together the different parts of dress. In ancient times buttons were far from being as universally used as they are now. Clasps, hooks and eyes, or things made of wood, were the articles most generally used in fastening the two edges of garments, and with these rude things the people of those days had to be content. Now, however, buttons are made of various materials. Horn, bone, agate, india-rubber, mother-of-pearl, various woods and vegetable ivory are but a small part of the substances which have been pressed into this service; while for covering buttons there is used lasting, brocade, twist, velvet, silk and mohair.

Button manufacture did not assume any special form until the 14th century, when buttons of gold and ivory were used as ornaments for the dress of both sexes. In England, at the commencement of the 17th century, the button trade had assumed formidable proportions, and large quantities of bone, steel and wooden buttons were shipped to this country. The first that were manufactured in the United States was in the year 1826, by Samuel Williston. While he was dragging along as a country store-keeper at East Hampton, Mass., his wife bethought her that she could cover by hand the wooden buttons of that time and thus earn an honest penny. From this humble beginning the couple advanced in their ambition until they had perfected machinery for covering buttons, the first employed in this country. From this sprang an immense factory, and then others, until Samuel Williston made half the buttons of the world. His factories are still running at Leeds and East Hampton, Mass., coining wealth for the proprietors.

There are two systems used for the measurement of buttons, the English and the French. English measurement runs 14, 16, 18, 20, etc., "lines," while the French runs 4, 4½, 5, 5½, etc. An English "line" is one-fortieth of an inch, or 40 lines to the inch; the French "line" may be expressed thus .08887 of an inch. The French line measurement is said to be obsolete, yet it is every day in practical use. To show in what relation the respective systems stand to each other, see the following:

English Measure	18	20	22	24	26	28
French "	5	5½	6	6½	7	7½

Vegetable Ivory buttons are made in large quantities in this country, at Leeds, Mass., and at New York and Newark. The ivory nut, as it is called by the trade, is grown in the hot regions of South America. The principal point of shipment is Colon, on the Isthmus of Panama. Like the banana, the ivory nut is perennial in its native clime, and may be found in all stages from the bud to the ripened nut at all seasons of the year. The nuts grow in great bunches of about fifty, incased in a shell, as are chestnuts in the burr, though the shell outwardly resembles in roughness the surface of a pineapple. The entire cluster of nuts in this shell is as big as a man's head. This shell comes off easily after the nuts are ripe. At this stage they fall from the trees, which are fourteen or fifteen feet in height, and are packed on the backs of natives to the points of shipment. These are shipped to this country and kiln-dried, sawed into slabs of the proper thickness from which the buttons are cut by a lathe, the holes being drilled in by a power lathe. One of the peculiar features of the material, in relation to buttons, is its susceptibility to coloring matter. It can be colored any shade that is desired by the manufacturers. The artistic tailors and dressmakers make use of this to great advantage in the adaptation of buttons to garments, even in making up mottled goods buttons in perfect harmony with the material may be secured. The grain of the nut is white and of even texture, so that it is easily carved, sawed and worked into any desirable shape The trees are not farmed or raised artificially as is the banana tree, but grows in its natural state and in its own manner in the primeval forests, the same as the hickory or the chestnut or the walnut. About 4,000 tons of the ivory nut are brought to this country annually, and lying stacked up on the pier at New York resemble large hay-stacks and are interesting as illustrative of the great variety of extraordinary things brought to this market from various parts of the world and the ingenuity of those who have cleverly adapted them to the uses of mankind. Owing to the cheapness of the raw material, there is not more than $150,000 per annum involved in the traffic. 1,500 persons in New York alone are employed in handling the nut and manufacturing it into buttons. Unlike rubber and bone, ivory is not affected by heat or cold and is not liable to break in the eye. The cost of manufacturing is the principle item of expense, about 80 per cent of the cost of vegetable ivory buttons being the labor. The greatest production in this country was from 1880 to 1890, but the Germans having the advan-

tage of cheaper labor are now able to successfully compete with American manufacture. The duty is forty per cent, fifteen per cent of it having been a raise under the McKinley act.

Metal buttons are made of various materials, the variety known as *gilt buttons* being made of a mixture of copper, with a small portion of zinc or brass mixed with copper, common brass being unfit for gilding. The gilding is performed by means of an amalgam of quicksilver and gold. The buttons are cut out of large wide sheets of this metal, and the shanks are affixed by solder. This work is all done by machines, the process being so rapid that one workman can prepare 12 gross in an hour. *Brass buttons* are simply stamped out of sheet brass, and the ornaments are struck by a die. *Plated buttons* are made out of copper, plated with silver, and are chiefly used in liveries and uniforms. The figures or designs upon them are formed by stamping with dies. The cheapest and commonest kind of metal buttons are those which are stamped in pewter, and chiefly used in the trimming of military jackets. They are very soft, but not being intended to bear any stress, but merely to exhibit the number of the regiment or some such figure they answer a purpose.

Upholstered buttons, or cloth covered buttons, have to undergo six different operations before they are turned out completed. The covering must first be cut out slightly larger than the size of the button. This is done by an ordinary die and mallet. The cutter, however, becomes so expert, that he can punch upwards of 100 gross per day, and if he has whole cloth to cut from and lay it in several breadths deep, he can cut as high as 1000 gross daily. The next part of the button to be made is the tin mold, this being stamped out of a sheet of ordinary tin; these are produced at the rate of 600 gross a day. The little tin mold next goes to a machine, where it has a hole cut in the center for a shank to protrude. It is then called a "collet," 600 gross being the daily capacity. Paper filling must next be cut; the machine for this is so rapid that it makes 700 revolutions a minute, punching some 15,000 gross of these cardboard wads daily. Making the back is the fifth process. The "collet" is placed in a mold and then covered with a coarse cotton cloth, upon which the cardboard filling is placed. This is pressed down and forms a solid button with the shank. These can be made at the rate of 90 gross daily. Lastly the cover is placed in another machine, the back being set in the socket of a punch which descends with great force, clamping the collet tightly round the completely finished button. Fifty gross of these can be made each day on a machine. Men are employed to cut the cloth and tin, but the balance of the work on upholstered buttons is done by girls, who earn from $6 to $7 per week. Various small button-making machines have been invented, by the use of which retail merchants can in a few moments produce first class buttons of any size from the same material as a dress, jacket or other garment is made, thus doing away with all the bother of matching shades, now so much a nuisance to lady customers. The cloth is cut in small squares

and pressed over wooden molds by the machine. The cost of the machines vary from $6 to $10.

Great quantities of dress buttons are now made from potatoes. It is not generally known, but nevertheless a fact, that if the common Irish potato be treated with certain acids it becomes almost as hard as stone, and can be used for many purposes for which horn, ivory and bone are employed. This quality of the button adapts it to button-making, and a very good grade of buttons is now made from the well known tuber. The potato buttons cannot be distinguished from others save by a careful examination, and even then only by an expert, since they are colored every conceivable shade, and are every whit as good-looking as a button of bone or ivory. Their cheapness is their recommendation, and will, no doubt, be largely employed in the future.

Shoe buttons for ladies' shoes are made of button board, which is a paper material in sheets about a quarter of an inch thick. These sheets are cut in strips one-half inch in width, by the button manufacturer, each sheet making 56 strips, and from each strip 100 buttons are punched, which equals 5,600 buttons per sheet. Four hundred sheets make a ton of button board, or enough to make 2,240,000 buttons. The number of buttons required to supply the demand of shoe manufacturers may be dimly estimated when it is stated that one firm alone uses 18 tons per month, producing 40,320,000 buttons.

Pearl buttons are made of pearl shells, or what is known as natural pearl, having a clear, pearly inside of various degrees of whiteness. Some large snail-like shells are obtained in New Zealand, others of the mother-of-pearl variety are found on the coasts of Australia, while the finest come from China and the Persian Gulf. The raw shells bring all the way from 43 cents to $1 per pound in this market. In the first process of cutting out the disc for the button, the shell is held in the hand of the workman against a tubular saw, something like an ordinary gas pipe, and is very quickly sawed out. In order to do this and leave a clean and perfect edge, the saw must be kept very sharp, and it can readily be seen that the workman is called upon to use his best judgment in sawing the discs out of the shell, so as to get as many perfect ones as possible. From the first workman they go the second, who turns them in a lathe, and cuts out whatever pattern is required. Next comes boring the holes, polishing, putting on the shank where it is a button of that kind, and boxing, after which the article is ready for sale. It should be borne in mind that in all these processes each button has to be handled separately, and, though in many other lines of business wonderful improvements have been made in the direction of adapting machinery to special kinds of work, yet in the pearl button industry there has been little or no change for a hundred years. And as the tools required are of a simple kind, and the rest of the process depends upon experience and good judgment, it looks as if it was always destined to be a hand industry, and therefore peculiarly subject to outside influences

which affect the cost of labor. Neither is there a fixed value to raw pearl shells, the price fluctuating daily according to supply and demand. Until the latter part of 1890 the bulk of pearl shirt buttons were made at Birmingham and London, England, while pearl dress buttons for the most part were made at Vienna, Austria. On the 1st of April, 1891, there were but seventeen pearl button factories in the United States. This increased to ninety-five in one year. Wages of button "turners" range from $18 to $23 per week, and boys and girls employed in finishing the goods are paid from $6 to $10 per week. Over 700 persons obtain a living at this industry in Newark, N. J., where formerly but twenty were employed. Factories have been located at Providence, R. I., Springfield, Mass., Philadelphia, New York, Brooklyn, Chicago, Detroit, and several other places, furnishing work for over 6,000 people at remunerative wages. None of these factories existed before the tariff of 1890 was imposed, as the American workman could not compete against wages of $3 and $4 a week earned by the Austrian button makers. The result of the tariff has been to reduce the imports of pearl buttons in 1891 to $200,000 against an amount of $3,500,000 in 1890, though a large portion of this sum was for over-importations previous to the passage of the tariff act. There are three classes of shells recognized by manufacturers out of which pearl buttons are made: 1st. The Macassar, which is a pure white, and from which "three-quarter super," "super," and "extra super" buttons are made. 2d. The Mussell, of which are manufactured the "half-fine grades." 3d. The Manilla, which produces the lowest grade goods. The Macassar is a pure, clear shell; the Mussell has a white inside with a yellowish or blackish back, while the Manilla is a dirty yellowish color throughout. Smoked pearl buttons are made of dark colored shells. The McKinly tariff on pearl buttons is 2½ cents per line per gross and 25 per cent advalorem, equal to a straight rate of about 400 per cent. The United States consume 12,500,000 gross annually. New York manufacturers have attempted to import from Europe what is known as "pearl blanks," round discs without grooving or eyes. Except that they are not pierced or shanked they correspond in appearance with the ordinary pearl button of commerce. The manufacturers assert that these articles are not buttons, but merely "manufactures of shell," upon which the duty is only 40 per cent advalorem, claiming that the only thing known as a button in trade and common use is an article made with eyes or a shank. It was decided by the courts, however, that the ball or blank, or other special form of pearl, fashioned by skilled labor, is in fact a button, and that shanking, piercing or grooving the button is simply an auxiliary process, inasmuch as having reached such a stage of manufacture they were unsuitable for use except as buttons. As far as the tariff is now concerned a "blank" is a button.

Agate buttons used to be manufactured in England exclusively, but they have lost the industry. It came about in this way. A smart Frenchman, F. Bapterosses by name, went to England and hired to the agate but-

ton makers as a common workman, thoroughly studied the business and got possession of the secrets. He then returned to France, where with the aid of the French Government he constructed a large plant and was enabled to produce agates at half the cost of the English goods, which of course ruined the latter industry. This man accumulated an immense fortune out of the agate button business and gave employment to thousands of French workmen, and was made a Knight of the Legion of Honor by his Government in recognition of his services to mankind—that is, the French part of it. He visited the Centennial in this country in 1876. Agate buttons are made of a mineral substance known as feldspar, found in the roofs of caverns at Briare, France. The raw material is taken to the factory and ground into a paste, after which it is molded into buttons and baked; they are then sewed on cards by machinery. On all of Bapterosses' goods will be found the letters "F. B." printed on the back of each card in script letters. These are the Frenchman's initials. They are the best goods made. The protective tariff on them is 25 per cent. advalorem, but there is not an agate button made in North America. There is only one other agate factory in the world, and that is in Germany, but its product is not so good, the Germans being unable to procure feldspar that is perfectly clear and white. They are branded on the back "R. C." and on inspection it will be noticed that they are not so well burned as the "F. B." goods. These specks seem to be a matter the Germans cannot overcome. The common milk-white agate buttons are termed *lentille*, it being a beveled edge. The same shape is made in a pearly color, and called *pearly lentille*. Printed agates are *printed lentilles*. *Caneles* are agates with little canals around the edge. *Bourrelet* is a raised edge, and *cuvette* is a concave button. These are all 4-hole, and are all made both "lentille" and "pearly lentille," with the exception of the printed, which is made in lentille only. Pearly lentille is the only variety made with but two holes. These are the staple lines. In addition there are numberless fancy varieties used especially for wash goods and which have, to a certain extent taken the place of the expensive pearl button.

Caddis (cad'-is). A coarse serge. The variegated stuff worn by the Highlanders of Scotland.

Cadet Gloves. See GLOVES.

Calender. A machine consisting of two or more steel cylinders revolving very nearly in contact, between which is passed a woven fabric, for finishing by pressure the surface of linen, cotton and other texile fabrics; often aided by steam heat communicated from the interior of the cylinders. The word calendering is a corruption of *cylindering*. The object is to give cloth a perfectly smooth, even and equal surface, and sometimes, to produce a glaze, as in jaconets, sateens, silesias, etc. The domestic processes of starching and ironing afford a simple illustration of the object and result of calendering. Before the final calendering the fabric is flatly smoothed

by passing over warm cylinders. The fabric is then simply passed between plain cylinders, which produces the desired effect by flattening the threads. By means of a cylinder with a pattern raised upon it, the amount of this flattening can be made unequal on different parts of the cloth, producing a *watered* effect. *Glazing* is produced by the rollers being made to move with different velocities, so that one side of the fabric is rubbed as well as pressed by the surface of the roller moving the most rapidly. A copper roller is used for glazing, so hot that if the machine stops it burns the goods.

Calfskin. The best calfskin is tanned in France, with the liquor extracted from the bark of the evergreen oak, a species indigenous to that country. One single tannery in France employs 12,000 workmen and has been in existence over 100 years. This establishment ships its product to every clime and country on the globe, even to every city in the United States where there is a wholesale leather house or a boot and shoe factory. One of the reasons for the superior quality of French calfskin is that fully 90 per cent of the raw hides the tanneries receive come from England, Ireland, Italy and other populous European countries, where the calves are stall-fed. It being a well known fact among tanners that range or grass-fed animals produce the poorest and most inferior hides for making fine leather. Another reason is they employ the most expert and skillful labor that can be obtained, and make no endeavor to shorten the time requisite for properly tanning the leather.

Calico. The word "calico" has a queer origin. Many centuries ago the first monarch of the province of Malabar gave to one of his chiefs, as a reward for distinguished services, his sword and all the land within the limit of which a cock crowing at a certain temple could be heard. From this circumstance the little town which grew up in the center of this territory was called Calicoda, or the cock crowing. Afterward it was called Calicut, and from this place the first cotton goods were imported into England, bearing the name of calico.

The printing of calico has come to be a wonderful art-science. In this country there are two classes of calico printers---those who make the cloth, print it, and sell direct to jobbers, and those who merely print the cloth for jobbers or commission merchants at piece-price. "Grey" print cloth may be purchased in New York or Liverpool even by retail dealers, who in turn may take it to the calico printer and have the patterns put on. Ordinary grey cloth, 64x64, usually sells for 3 and a fraction cents per yard; and 56x60 cloth at 3 cents, or a fraction under 3 cents, per yard; while the cost of printing the same varies from one to two cents per yard. One pound of raw cotton will make 8¼ yards of 64x64 calico cloth. The tariff on imported calico is 4½ cents per square yard. The following table shows the price of the best print cloth and standard sheeting in comparison with the price of cotton for four years:

	1889.	1890.	1891.	1892.
Middling cotton	11¼c.	12c.	8⅜c.	7 5-16c.
Standard sheeting	7¼c.	7¼c.	7c.	6½c.
Print cloths, 64x64	3 15-16c.	3⅜c.	2.91c.	3⅜c.

"Standard" sheeting weighs 2.85 yards to the pound.

When the grey cloth is received, fresh from the hands of the weaver, it is put through a critical examination for flaws and imperfections in weaving. The webs of cloth that pass inspection are then handed over to a girl who stitches the ends of several together, forming a required continuous length, 300 yards being the minimum run a printer cares to accept to one coloring of a pattern. Upon each printing piece, of say 300 yards, are then placed certain marks for purposes of identification, and which will be visible and recognizable after printing.

The next process is singeing, the purpose of which is to remove all surface unevenness and fuzz, the existence of which after printing would leave a blotched and defective appearance, a completely smooth face being absolutely necessary. Singeing to the uninitiated is probably the most perplexing process through which the cloth passes; at first sight it seems that nothing will save the cloth from destruction. The cloth passes over and in passing is pressed against semi-circular platinum plates heated to almost white heat by the passing through them of electric currents. Great caution is necessary in the folding of the cloth preparatory to its going through this fiery ordeal; if any hitch should occur to prevent its running freely and smoothly its ruin is inevitable. The rate at which it is made to travel, singes about 125 yards of cloth in one minute.

The next operation the cloth undergoes is that of bleaching, which is divided into two branches: 1st, "print-bleaching", in the case of which the goods are bleached as a preliminary process to being printed all over; and 2nd, "white-bleaching" which applies to goods to be finished "white", or unprinted, or merely lined or dotted as in the case of calico shirting or percales. In "white" bleaching it is only necessary to satisfy the eye, but in "print-bleaching" the cloth must be chemically pure, otherwise the colors in the subsequent printing process would be dull and blotchy, the colors refusing to combine evenly or perfectly.

The cloth next goes through the process technically known as "souring", a series of alternate and repeated acid treatments and washings. A solution of sulphuric or muriatic acid and one of chloride of lime are in turn used. None of these "souring" processes can be dispensed with, though their tendency is to weaken or rot the cloth. The chief cause of tender printed calico is carelessness at this point, too strong a solution of acid being used, or the boiling and washing-out afterward of the acid not being sufficiently thorough. The cloth is now as free from foreign matters as it is possible to get it, and contains only the identification marks referred to, and after being wound upon rollers is ready for starching.

The object of starching is to fill up the spaces between the threads in order that the pattern may be imprinted plainer. What ought to be, and

by reputable factories really is used, is pure starch, either of corn or potatoes, made into a stiff mucilage and blued with indigo. The cloth passes ever a roller into a long trough of starch, and as it comes out is caught between a pair of rollers and the superfluous starch squeezed out and thrown back into the trough, the cloth passing on to the drying machine. Many factories use a great deal more starch or "sizing" than is necessary, in order to give light-weight cloth an appearance of heaviness.

The cloth now being ready for printing, the design is selected and the rollers engraved. These rollers are of polished copper, cylindrical in form, the pattern being engraved around its entire circumference and from end to end, a different roller being required for each color or shade in the pattern. In establishments of any considerable extent many thousands of these copper cylinders are kept in stock, involving an enormous outlay of money. Colors as applied to cotton printing are of two kinds, substantive and adjective. The substantive or topical colors are such as will unite immediately with the cotton, and the printing of such colors on the cloth is called the steaming process. The adjective colors are those that will not unite with the cotton without the use of a *mordant*, it being a well known fact that cotton in itself has no affinity with dye, but must be induced to cling to it through a chemical medium. A mordant is the chemical medium or foundation over which the proper colors are to be printed. Alumnia and oxide of iron are the mordants most commonly used for fixing of the color in calico printing; mordants are liquid in form and almost colorless. As the mordant must be applied to the cloth through the medium of the engraved pattern on the roller, a quantity of fugitive color, (one that is easily washed out) is added that the outline of the pattern may be discernible, and this is called *sightening color*, because it enables the operator to see that his pattern is being properly produced. Pressing against each engraved roller is another roller of wood covered with cloth, called the "furnishing" roller, which transmits the color from a reservoir beneath it and in which it revolves. The mordants having been put into the reservoirs, a nice arrangement has to be made so that in fixing the engraved rollers the pattern may be exactly adjusted for the transmission of the color the cloth. This is done with mathematical precision and without a hairbreadth of variation; these printing machines are of various sizes according to the number of colors to be printed, some being capable of holding 16 sets of rollers. The cloth now begins its journey entering at the rear of the machine, where it is dealt with by the back-tenter, whose duty it is to see that it is carefully and evenly delivered. When it passes from the rollers upon which it is placed it travels along with a back cloth moving beneath it, and so finds its way to the blanket with which and the back cloth it moves until it is received between the drum and the engraved roller, in this part of the process receiving the mordant. When it has passed over the mordant rollers the cloth moves out in front of the machine in view of the printer, who watches to see that the pattern has been accurately rendered. The cloth

has now to be dried, which is performed by means of steam heated cylinders. When in a dry condition, it is subjected to a process known as "ageing," which extracts from it to a great extent the acetic acid, leaving the pattern firmly fixed in the fibre of the cloth in what is called a free base, which is the true mordant stain or substructure upon which the final colors are to be built. The process following this is "dunging;" its object is to completely wash off the remainder of the acid, the sightening colors, and any other loose matter at the same time, leaving the mordant in its pure form in the fibre. The material that has been found most conducive to these ends, strange as it may seem, is cow's dung; its action is a subject of conjecture, and has never been defined in precise chemical terms. The final process prior to the reception of the coloring matter is a thorough washing in soft water. This leaves but a faint, scarcely distinguishable outline of the pattern, but upon this will be built up the desired color or colors. We will now visit the dye-beck and be introduced to a substance called alizarine which produces in its action an almost magical effect. Here may be seen the long piece of cloth that has gone through the process already described, with scarcely an outline of pattern visible plunged into a vessel contaning alizarine, (a yellowish-brown fluid) and after immersion brought out full fledged calico, displaying the different effects of colored patterns, reds, pinks, heliotropes, purples, etc., according to the various printings of the mordants.

This alizarine, the effect of which is here described, is a coal tar product, and to the uninformed observer the revelation of the results of the production of colors from coal tar, is remarkable. To return to the dye-beck, a bath of the alizarine is formed by the dyer, heated to boiling point; through this the cloth is passed, coming out of it the required color or colors. The next operation is called "clearing" and consists in boiling the cloth in soap and water; this has the effect of brightening the colors. When cleared, the cloth is taken to undergo certain finishing operations. It is first run over a machine to open it to its full width; it is then passed between cylinders for the purpose of calendering it; thence to the folding machine to be made up in piece form, when it is ready for market.

In the above description the pattern we are supposed to have followed, is printed on a white ground; to effect the production of a white pattern on a dark ground, the mordant is made to cover the whole surface of the cloth. The pattern, such as small leaves, sprigs, dots, etc., is printed with acid which discharges the mordant and leaves the pattern white; Simpson's mourning prints are good examples of this work. Such styles are known as acid discharges. Into these white spaces other colors may be printed if desired. This latter process is called "padding."

One requisite in fast-color printing is a plentiful supply of water as soft as possible, and free from iron and magnesia in undue proportions, which would prevent the proper action of the chemicals. In this respect the United States has been particularly favored by nature in the districts

selected for calico-printing. The wealthy and enterprising corporations engaged in this trade, having the finest raw cotton in the world, possessing the newest and most perfect machinery invented, and an enormous and ever-increasing home market, are enabled to command the services of the most skillful operators, the most enthusiastic and devoted students of art, and the most scientific investigators in the sphere of chemistry. Lancashire, England, was long regarded as the native home of calico-printer, but as is often the case, the child which has wandered to a far-off land has eclipsed the achievements of the parent, and thus to-day America stands unrivaled in this, the art-department of commerce.

Calico-printing originated in India, where the abundance of dye-stuffs and the preference for cotton fabrics naturally lead to the development of this process. The name also originated in India from the port of Calicut, from which over a century ago the fabric was first imported to European countries. From about the year 1800 the United States has been familiar with these goods, through their production in England, and was almost entirely dependent upon the mother country for all our manufactures in this line. Up to 1840 English calico or prints covered in a great variety of printed styles, were produced by various distinct processes. Madderwork, [see MADDER AND TURKEY RED] however, was the chief product, and through its durability deservedly has maintained to the present time its superiority. The nature of the process, however, prevents the variety of effects which the modern process of coloring has been brought to so high a degree of excellence. Indigo work [see INDIGO BLUE] also has been largely employed of late years, and holds rank with madders for fastness of color, but lacks variety the same as madders. Aniline colors date with the second half of the century and are coal tar, or petroleum extracts.

Within the memory of the older dry goods merchants, English prints were the chief goods of this class in dealers' stocks in this country. "Hoyles" purples, chocolate chintzes, "Potter's plate work," and other familiar English prints supplied the larger part of the goods consumed here. Among the early American printers who are high standard, were the Merrimack, Cocheco, Sprague, and Richmond companies. All these were producers of madder work, and every country woman before the Civil War was as pronounced in her preference for one or the other of these, as the women of to-day are for their favorite make of spool cotton. These printers adopted as high standard a cloth counting seventy-two threads warp and weft to the inch, width twenty-five inches; but later on when printers increased and the English article was driven out of the market, the standard became sixty-four threads both ways, to the inch, and twenty-four inches wide, and so remains to this day.

The so-called Chintzes of early days were English or French wide calcoes, printed by hand-block processes, and ruled at prices so high that the dames of early days prized their chintz gowns more than those of today their

silk dresses. The production of calicoes reached its greatest extent in the seventies. Since then the increase of colored woven cottons, such as ginghams and chambrays, and later satteens, have materially diminished the use of calico, (per capita) and many printeries are now stopped that then yielded their millions of yards to the annual product. The chief producers of today are the Merrimack, Cocheco, Manchester, Pacific, Simpson and Windsor, each of which produce fancy and staple work, while American, Arnold and Washington are the main producers of oil and indigo styles.

Cambrasine (cam'-bra-zene). A name given to batiste and cambric of fine quality.

Cambric. The town of Cambria, France, was long famous for its manufactures of fine muslins. Here in 1520, was first made a fine thin muslin of pure linen, called *cambric* in compliment to the city. This fabric was much used for the fine ruffs [see RUFFS] of that period, as well as for kerchiefs, etc. As long ago as 1588, 60,000 pieces of linen cambric per annum were made at Cambria. The Scotch were the first people to imitate the the linen cambric in cotton, and termed it cambric-muslin. It is made of fine cotton yarn, hard twisted and highly calendered, in width 36 inches. There is also a cheap cotton fabric manufactured for dress linings, called respectively "glove-finished" and "glazed" cambric, width 27 inches.

Cameline (cam'-e-lin). A fabric used centuries ago as a material for dress. It is commonly said to have been made of camel's hair; but as it is repeatedly in old invoices mentioned as a cheap stuff, it is probable that it was an imitation of the genuine Eastern fabric. [see CAMLET.] Some authorities think this fabric was identical with what we now call *Cashmere.*

Camel's Hair. The fiber known as Camel's hair comes from Southern Asiatic Russia, Tartary, and Africa; the quality from the latter country is the finest. Its native color is the light brown as seen in the goods made from it, and is its most distinctive feature. In preparing camel's hair for weaving, it is separated into "tops--long, coarse hairs, and "noils"—the short fine, curly ones—by combing, precisely as mohair, alpaca and other combing wools are treated. The "tops" are used for coarse cloths. The staple of the "noils" is about one inch in length, and the feeling extremely soft and silky. It is the noils only that is used in underwear, hosiery, dress fabrics, shawls, etc. Camel's hair is often mixed with wool or cotton to make various grades of goods. Good grades of raw "noils" sell for 60 cents per pound. It is not unreasonable to suppose that camel's hair will at no distant day become a fibre of common use in the United States. The camel is numerous over an immense area of the earth; he is a large animal and his coat is heavy; the globe is constantly being ransacked for new and superior materials for clothing mankind and for decorating his home. Until within the last few years, camel's hair fabrics have been very high-priced, but as the advantages possessed by this material came to be appreciated the demand for raw material was proportionately increased. A

steady demand by the manufacturers lead to a larger production and supply; competition is developed, and these causes have lowered the former high prices until now camel's hair can be bought as cheaply as fine wool fabrics.

Camel's Hair Shawls. The cashmere shawl, which is made of the fine hair of the Cashmere goat, is sometimes erroneously called Camel's hair. The high price of these shawls is due, not to the cost of the raw materials, but to the fact that each one is a splendid work of art, that is slowly and patiently wrought and sold as great pictures are sold, for a price befitting their artistic worth.

Camlet. A rich fabric used for dress as early as the thirteenth century. It was more costly and finer than cameline, and is frequently mentioned as being in use down to the end of the seventeenth century. At present a very durable, plain woolen cloth for cloaks is termed camlet. All the kinds of camlet are in a certain sense imitations of Oriental camel's hair cloth, which is characterized by the straggling "top" hairs over the surface. They are made of hair, especially of Angora goat hair, with wool or silk, and present a veined or wavy appearance.

Canton Flannel. A cotton cloth napped heavily on one side, used chiefly for under garments and bandages. Canton flannel received its name from Canton, China, on account of having been first imported from that city. [See TEASLING AND NAPPING.]

Canvas. [From L. *Cannabis*, hemp.] Originally canvas meant any coarse texture woven of hempen thread. Evolution has corrupted the pronunciation to plain canvas, and changed the material to cotton and linen. At present it is known as unbleached cotton or linen cloth, never twilled, but always plain-woven, used for tailoring purposes, tents, sails, etc. Honeycomb, Java, Penelope, Aida, Railroad and Congress, are varieties of canvas, woven in small square meshes, used for working fancy embroidered toilet articles with the needle. Also a carefully woven linen fabric used as a surface for oil paintings. It is prepared by stretching it tightly on long frames and covering it with one or two coats of neutral colored paint. Four kinds are known to the trade: Single Prime, Smooth, Roman and Twilled.

Cap. See HATS AND CAPS; BABY CAPS.

Cape. A circular covering for the shoulders and adjacent parts, either separate or attached to the top of a garment. Any short circular garment hanging from the sholders, without arms, worn for protection against the weather.

Capote. A loose, roomy cloak for ladies, properly with a cape and hood, but without sleeves, made of light cloth and covering the person completely, reaching nearly to the ground.

Cappadine (cap'-a-din). A sort of silk flock taken from the upper

part of the silkworm's cocoon after the true silk has been wound off, used for shag in making rugs.

Capuchin (cap'-u-chin). A large loose hood worn by the women of the 18th century; also a hooded cloak of the same period.

Cardigan Jacket. A coarse, heavy, rib-knitted worsted or cotton jacket for men's and boys' wear, deriving its name from the town of Cardigan, Cardigan County, England, 240 miles north-west of London. A "size" in cardigan jackets is 2 inches, the numbers ranging from 1 small to 7 large, being equivalent to 34 to 46.

Carding. The process of opening and combing wool, flax, hemp, cotton, for the purpose of disentangling the fibers, cleansing from extraneous matter, separating the coarser parts, and making fine and soft for spinning. Upon the successful performance of this operation much of the beauty of the manufactured material depends. Carding was once necessarily performed by hand, coarse wire brushes being used. The old-time hand cards consisted of short wires passed slantingly through leather strips, which were then nailed upon a board. Two of these brushes were always used by the operator, one in each hand. The first carding engine was patented in England in 1748 by Lewis Paul, and afterward greatly improved by Arkwright. In the earlier carding machines the fibers were fed by hand to a cylinder upon which "cards" were laid in strips parallel to the axis, and were removed from these strips by hand as they became full. In modern cotton-carding machines a loose roll of fibers, called a *lap*, is placed in guides which deliver it to the *feed-roll*, on passing through which it is seized by the card-teeth of the main cylinder. Other small cylinders successfully remove the fibers from, and deliver them to, the main cylinder, all the while getting them more and more in the desired order. The tangles and knots, which are not loosened by the action of these cylinders, project beyond the teeth of the main cylinder and are caught by *top-cards* from which they are removed and cleared by hand. The original lap, finally drawn together into a ribbon or sliver, traverses a funnel or trumpet and is passed between successive pairs of rollers, which draw out and condense the sliver and deliver it to the *drawing-frame* where it is doubled and drawn preparatory to spinning. [See SPINNING.] For fine work the operation of carding is repeated. The principle of the wool-carding machine is identical with that of the cotton-carding machine, being chiefly distinguished from the latter by a great number of small cylinders called *urchins*. Wool fibers are always oiled to prevent felting and facilitate carding. [See FELTING, WOOL, COTTON, LINEN.]

Cardinal. A member of the Sacred College, a body of Roman Catholic ecclesiastics who rank in dignity next to the Pope and act as his counselors in the government of the church. About the middle of the 18th century these cardinal priests wore a short cloak of deep scarlet to distinguish their

office, hence arose the color now known as cardinal red; at present, however a rich, deep-red color, somewhat less vivid than scarlet.

Carpets. A heavy woven or felted fabric, usually of wool, but also of cotton, hemp, straw, etc., used as a floor covering, made in breadths to be sewed together and tacked to the floor. The word is supposed by some to have been originally derived from Cairo, a city in Egypt, but more probably from the Latin *carpeta*, woolen cloth, through *carpere*, to pluck wool. Formerly the carpet was in one piece, like the present Persian carpet, and was sold (as it still is in the East) for covering beds, couches, tables, etc., and for hangings. The first woven carpets were produced in Egypt, Babylonia, Persia and Hindustan, whence they were introduced into Europe, where they are supposed to have been first manufactured by the French in the year 1600, and next in England in the reign of James I, about 15 years later. In Fuller's Church History of England, published in 1556, it is stated that "private men's halls were hung with leather cloths; their tables and beds were covered with capes (mantles) instead of carpets and coverlets."

The earlier fashion of floor covering was a spread of sweet rushes or straw, and it is only within comparatively modern times that fabrics have been used for that purpose. Down to the period of the Valois Kings of France (1300 to 1400), as shown in many paintings, the practice was to strew the floors with rushes, hay, sweet smelling herbs, flowers and foliage. This custom prevailed until the time when velvet-pile or ornamental carpets came into use and the looms of Europe succeeded in imitating them. The strewing of the floors then gave place to the velvet fabric. The manufacture of carpets is traced in the records of French Monastic Orders as far back as the 10th and 11th centnries; but in all likelihood these were merely embroidered and not woven fabrics and instead of being in general use were only found in exceedingly rare instances. The actual manufacture of carpets in Europe is assigned to the reign of Henry the IV of France, between 1589 and 1610, and is said to have been introduced there direct from Persia. Carpets may be described as migratory manufactures, as in almost every instance, the industry after being successfully established in a town, has been taken elsewhere, the carpet still retaining, however, the name of the town where it was first made. Thus, Axminster carpets which were first made at Axminster, England, are now produced in Glasgow, and the Wilton factories long ago transferred their business from Wilton to Kilmarnock; Kidderminster carpets are no longer made at Kidderminster, but instead in Scotland and at Yorkshire, England; while Brussels carpets which were once made exclusively at Brussels, Belgium, are now made the wide world over. In Asia, where carpets were first invented, they are seldom used except to sit or sleep upon, thus their use even has been perverted.

Prior to the American Revolution, woven floor coverings, with the exception of domestic rag carpets, were almost unknown in this country. A few "Scots" carpets from the "other side" had found their way into some

private city houses, but such a rarity were these considered that country people, on being ushered into apartments where they were laid, instinctively tip-toed around them, in awe lest they should soil them. Ten years later, it appears by early newspapers, small importations were being made. In an advertisement in the New York *Gazette* of June 30, 1760, a firm states that they will sell among other goods at their store in Smith street, some "Scots" carpets. In 1761 the same firm advertises Turkey carpets, and in 1763 both English and Scots carpets. In 1776 the only floor covering in general use was the rag carpet before mentioned, made with a stout yarn warp supplied by farm-house spinning wheels. Then ensued the long war of the Revolution, and the consequent commercial depression. The majority of the people, possessed of but little wealth before the war, were now in no condition of temper or purse to encourage the importation of English goods. Before the close of the year 1791, it is said, the *first* carpet factory in the United States was erected by Wm. P. Sprague at Philadelphia. To-day the annual product of that city alone, if laid in line, would almost girdle the globe. The first carpet made by the Philadelphia mill was a hand-made, finger-tufted fabric, designed for the United States Senate chamber. Attracting the attention of Alexander Hamilton, it induced him in his report on finance for that year to allude to the new home industry, and to recommend as an encouraging measure, the imposition of a small duty on foreign made carpets. There soon sprang up in Philadelphia and elsewhere small works for the production of two-ply, (or, as they were called, "Kidderminsters,") three-ply ingrains and venetian carpets. In 1800 Jacquard [see JACQUARD,] invented the simple, yet wonderful machine which has always borne his name, its first application being to the manufacture of figured goods. In the course of a few years a number of factories were started. In 1825 a carpet works was in full operation at Medway, Mass., which later merged into a company now second to none in the world---the Lowell. Up to 1840 the weaving of carpets of all descriptions was performed by hand. The attempt had been repeatedly made in England to adapt the power-loom to ingrain-weaving, but without success. About this time, Erastus Brigham Bigelow, a young but already successful inventor, turned his attention to carpet weaving, and was trying, with small success, to interest carpet manufacturers and obtain the pecuniary aid for his experiments in weaving ingrains by power. The object sought for was a loom that could make rapidly a carpet of smooth, even surface, good, regular selvedge, and figures that would match perfectly. In weaving by hand the weaver can only approximate to regularity of figures by the closest attention to his work and the exercise of superior skill and judgment. Mr Bigelow's improved method of producing figures that would match by steam power, was patented in 1845. The same machinery was found to be adapted to the weaving of Brussels and tapestry, the weaving of which by power had previously been considered an impossibility. In 1840 ingrains were being woven at Lowell by hand looms at the

rate of eight yards per day. With the adaptation of power forty yards per day could be produced. The rate of increase in Brussels was from four yards per day to twenty yards per day, and in Axminster from one and a half yards to fifteen. The application of steam not only economized time and labor, but it improved these fabrics until they surpassed the best of their kind in any other part of the world. The new invention not only revolutionized the weaving departments of carpet factories, but infused new life into the industry of the whole country, building up small villages of a few hundred inhabitants into prosperous towns, numbering their populations by thousands.

Carpets may be divided into two general classes: one, a double fabric consisting essentially of two distinct webs woven at the same time, and held firmly together by the weft threads, showing a different pattern upon either side. The other general variety have the raised pile upon one side, like that of velvet.

Ingrain Carpet consists of a cotton or wool warp with a wool filling, and is woven in strips one yard wide. It is composed of two distinct webs interwoven together at one operation, and is therefore a double or two-ply carpet. Three-ply carpet is composed of three distinct webs, which by interlacing and interchanging their threads produce a different pattern on each side, and at the same time permitting much greater variety of color, with a corresponding increase of thickness and durability in the texture. The best quality of all-wool "Extra Super" ingrain has 1080 *warp threads* to the yard, 30 to the inch; and thirteen and a half pairs of filling-threads to the inch. This is the largest number of filling-threads beaten into any "extra super" carpet made on a power loom. In some patterns these threads are doubled and twisted to produce certain effects in color. To make cheaper qualities of carpets these filling-threads are lessened a half pair at a time until they are reduced to six pair to the inch, which latter grade is about the cheapest quality made under the title of all-wool ingrain. Thus the *quality* of ingrain carpets is determined by the number of *pairs* of filling-threads per inch, and is known in trade as 6, 8, 10 up to 13½ pairs per inch. This is similar to the manner of indicating the quality of Brussels and tapestry by the number of "cords" or "wires" per inch. "Twelve-pair Supers" (or mediums) contain twelve double woolen threads to the inch in the filling, and 960 warp threads to the yard. This grade is usually preferred by consumers on account of its being all-wool and holding its color better—although as a matter of fact they are not as strong as the best "Extra Super" with wool filling and cotton warp. These latter have the same number of threads as the *all-wool* Extra Super. Wool-filling ingrain carpets are not made in lower grades than 8-pairs to the inch. *Union Extra Supers* were first made of cheap wool and cotton carded together for the high colors, and while the filling-threads were part wool and part cotton, the warp was all of cotton. At present, competition has so cheapened them, that they are mostly *all* cotton. All grades below this variety are made of

cotton, or cotton and shoddy-wool termed in trade 12-, 10-, 8½-, 7- and 6-pair cottons. Some of the finest grades of ingrain carpets now manufactured are copied after the most artistic patterns of Body and Tapestry Brussels, both in color and design. In England ingrain carpets are called *Kidderminster*, while in Scotland they are termed *Scotch* carpets.

Ingrain is a term used in connection with many textile fabrics meaning dyed before woven, that is, dyed *in the grain* or thread before the operation of weaving, in distinction from printed or stamped fabrics.

Brussels, or Body Brussels as it is sometimes called, was first manufactured in Brussels, Belgium, in the year 1710. In 1720 they were first produced in England by some French Huguenot weavers who many years before had been driven out of France by the revocation of the edict of Nantes. In regard to the annulling of this edict which had been in force for nearly one hundred years, and the consequent exodus of the Huguenots to England and other countries it has been well said: "Nothing short of a great history could tell how the manufactures of all European countries were improved and stimulated by the peaceful incursions of over a million of these steadfast, industrious and highly-skilled artisan refugees. They were the thriftiest and readiest hands in France; they carried the arts and taste which were at that time the special gift of their country to every city and country in Europe and America. They crowded into the armies which were arrayed against their oppressors, they helped to man the ships which destroyed the navy of France; they planted their industries in a hundred places, and gave wealth and prosperity to other lands. No discovery whether of science or adventure, no victory, whether over inanimate matter or adverse forces, has had a greater influence upon the fortunes of England than the signing of the decree which, intended to coerce these worthy artisans wrought more disaster upon its authors." A number or these religious refugees settled at Wilton, England, and in the course of time began the weaving of carpets. They obtained a royal charter and formed themselves into a corporate body for their mutual protection. One of the peculiar terms of this charter forbade the weaving of carpets anywhere within ten miles of the little town of Wilton; thus early was the "protection of home industries" inaugurated. It is easy to see how the carpets became known as "Brussels," without doubt from the city where they were first made, and also "Royal Wilton"—Wilton from the town, and Royal from the charter. When borders came to be more extensively used they were stock numbered the same as the carpets to which they belonged. Frequently there was a stair carpet, also, which matched the carpet and border, and had the same stock number. These were then and are to this day distinguished by the terms, "Body" "Border" and "Stair." *Body Brussels* is a very superior texture, composed of a linen back and a woolen pile, having a rich, corded appearance. The quality of Brussels and Tapestry carpet is partially determined by the number of these cords per inch, varying from 8 the cheapest to 16 the

best. The surface of a Brussel carpet is composed of loops of worsted yarns packed closely together. When any one loop is formed the particular worsted thread of which the loop is a portion sinks beneath the linen or cotton cross-thread (weft) and remains with other threads in the body of the fabric until it is required to form another loop on the surface. These surface loops are held in position by the cross-threads (weft). Not being tied or knotted should any individual loop be caught or pulled by a sharp point in brush, broom, boot or claw, then the worsted underneath will be drawn above the surface and the loose ends will form what is called a case of "sprouting."

These loops which are collectively called the pile, constitute the figure or pattern, and are produced or raised from the linen back, by inserting a series of wires between the linen foundation and the superficial yarn, and looping the yarn tightly over each wire, which leaves a distinct row or "cord." These wires are withdrawn as the weaving proceeds, and there is left a smooth, looped surface as seen in all Brussels carpets. The colors are usually limited to five, (called 5-frame or 6-frame, as the case may be) though in the best goods six colors are introduced. These are warp-dyed and are carried entirely through the linen background from end to end of the piece of carpet. The best qualities are usually 5-frame, that is, the pattern is composed of five different colors. Each is a continuous layer of thread dyed in the yarn, running from end to end of the web, which rises to the surface at close intervals as indicated by the design, and then goes out of sight and sinks into the body of the carpet, showing indistinctly the pattern on the back side. These are the main characteristics which distinguish Brussels carpets from tapestries, in that each color is composed of a thread of itself, dyed in the yarn, which runs the full length of the web, the colors, not being used to produce the pattern on the surface sinking into the body, causing the carpet to be heavier and firmer and showing indistinctly the pattern on the back.

Tapestry Carpets or Tapestry Brussels, are manufactured by a very ingenious process which was invented and patented in Scotland in 1832. It is composed of one thickness of worsted yarn printed before weaving with the colors which will compose its design when woven. This is woven into a stiff inelastic back composed entirely of jute or hemp. The method of weaving tapestry is a combination of weaving and printing, a pile or surface imitating and very similar to Brussels being produced, in which any desired number of colors is available, while only a single thread is used in making the pile, instead of the five or six which run through Brussels texture. In tapestry weaving the ordinary process of printing is reversed. Instead of the fabric being first woven and then printed, the thread is stamped and afterwards woven up as the warp, forming the pile of the carpet. One thread, or two treated as one, some times miles in length, is colored by steps of half an inch or so, faster than the swiftest runner could make half the distance. When the thread has a been partill-

colored in this manner it forms the elements, as it were, of the intended pattern of the fabric. Singly in the long thread it exhibits no regular figure, but when woven up in the proper order the pattern comes into view little by little as the thread is looped around the wires. Unlike the weaving on the Brussels principle, in which the colors cannot exceed five or six, any desired number of colors and shades can be introduced in a Tapestry carpet. The manner of looping over the wires is exactly the same. The back side of Tapestry shows nothing but the plain linen backing into which the pile is woven ; though sometimes unscrupulous manufacturers stamp the back in imitation of a Brussels weave for purposes of deception. The color wears off and the pile sinks down, showing the foundation of the carpet much sooner in Tapestry than in Brussels, but as an offset to this the former are proportionately cheaper in price. Like Brussels, Moquetts and Wiltons they measure 26 inches in width. The quality is determined by the number of "cords" to the inch, termed in trade 10-wire, 9-wire, 8-wire Taps, and so on, the less number of wires or cords to the inch the cheaper and less durable the carpet.

Wilton Carpet is a variety of Brussels carpet in which the loops are opened into an elastic, velvet pile, and is so named from being originally made at Wilton, England; but they differ from Brussels in this: When the wires upon which the loops are formed are drawn out, the worsted loops are cut, giving the fine upright pile or "plush:" To effect this the wires over which the yarn is looped, are not round and smooth as the Brussels wires, but are flat and furnished with a knife-edge at the top, which when withdrawn cuts the pile. Wiltons are made of extra fine, non-felting wools, which produce a surface extremely dense and lustrous. Among the respectable "middle-society" class of this country it is the abiding hope and never-faltering ambition of every good housewife to some day to carpet the front parlor with a genuine Wilton. No matter in what community she may reside, the possession of a Wilton affords her a prestige approached only and never excelled by solid walnut furniture or a Steinway Grand. The manufacture of Wilton is said to have been introduced in England through the exertions of Lord Pembroke. These carpets have the advantage of being executed in very beautiful designs, especially the Royal Wilton, in which the pile is raised much higher than in the common fabric of the same name. In the Wiltons made from high class Brussels there are nearly three thousand threads of worsted warp employed on the 27-inch web.

Moquetts is the French term for "tufts of wool." The carpets known by this name are woven substantially after the manner of Brussels, the colors being dyed in the yarn; differing in this, however, that the pile is looped, first in a very coarse foundation to which is afterwards attached a another foundation for the purpose of giving the carpet weight and firmness. In Moquetts the loops instead of being left corded in rows are cut open into an elastic velvet pile, leaving a "plush" appearance. Moquett

might be termed an American carpet, not being in much demand in other countries. In coloring they are soft and delicate. The pile of Moquett is much longer and deeper than that of a *velvet* carpet.

Velvet Carpets are Tapestries cut after the Tapestry proper is made, and though handsome in effect, if the design be good, are neither so durable nor so rich as Wiltons, being like Tapestry made from one length, or frame, of parti-colored yarn, looped and then cut by passing through a machine in which a small knife passes under each row and severs the loops. The patterns have more lustre than in the Tapestries, caused by the colors being given off from the ends of the wool instead of the sides as in Tapestry.

Imperial Brussels is a variety of Brussels in which the pattern is raised above the ground and its loops cut so as to form a pile, while those of the ground remain uncut.

Axminster Carpets owe their origin to James Templeton, of Scotland, who obtained a patent for his invention in 1840. They were first made at Axminster, England, hence the name. Axminster is at present but a small town of about three thousand persons, and no longer produces the floor covering which so much delighted our forefathers. These carpets are pile fabrics, woven into a strong linen or hempen backing and can be woven of a depth equal to any Oriental production. Their manufacture involves two distinct weaving operations: First, the preparation of "Chenille" strips which form the *filling;* and second, the carpet weaving proper. The pattern or figure for the carpet is first prepared on paper, and accurately drawn in its proper colors. This is then cut into long, narrow strips and given to the Chenille weaver to guide him as to the colors he is to use, and he proceeds in the regular order that they were cut, with length after length till the whole pattern is woven up. This first web is cut into shreds or strips along its whole length, according to the number of "chenilles" it contains, and the loose edges faced together by a peculiarity in the weaving, so that a double pile projects upward from a finely woven center-rib or back. These chenille strips now form the filling for the second weaving and being woven into a strong linen foundation in the same order that the strips were cut from the original paper pattern. the colors consequently all come together properly, and the parts of the whole design come out gradually as the second weaving proceeds. Axminster carpets are classed with the very finest, surpassing in the depth of pile and beauty of coloring some of the present Oriental productions. These carpets are frequently three inches thick, and for durability cannot be excelled. It is seldom they find their way into any but wealthy families, as the best grades cannot be secured for less than $9 per yard, although imitations are made as low as $1.25 per yard.

Aubusson Carpet is a variety made at Aubusson, France, generally in one piece to suit the size of the room. They are the finest and most costly loom carpets brought to the United States, being made in the hand or

needle-work style of the East Indian carpets, and are highly esteemed for the elegance of its design and coloring. They are generally ornamented with designs after the antique arabesque, but these luxurious articles are necessary confined to the opulent, as the great majority of the middle class in France scarcely know the use of carpets, which are so general with us, tile floors being the most common among them. As previously stated, the manufacture of carpets was introduced into France from Persia by Henry IV. and the magnificent royal factory still exists at Aubusson, in the South of France.

Chenille Carpet is a variety in which the weft is of chenille instead of yarn. The pattern is dyed in the chenille itself, nothing showing on the surface of the carpet but the ends of the chenille fringe.

Felt Carpet is one in which the fibers are matted or felted together without spinning or weaving, consisting of strips of felt set on edge and tightly laced through the center. They are the same on both sides, and are distinguished for their great durability and softness.

Knitted Carpets are made in Germany, and are knit of strips of textile goods, such as woven rag carpet is made of. The knitting is done with wooden needles, and for convenience in this respect is made only about twelve inches wide, the widths being joined together by sewing in the usual manner. The knitted carpet is more durable than the woven rag carpet. Knitted carpet schools have long been established in many towns in Germany, and it is stated that itinerant carpet makers travel from place to place teaching the art of carpet knitting for a small remuneration.

Kidderminster Carpets in England are but another name for our two-ply or three-ply *ingrains*. In Scotland they are called *Scotch carpets*.

Venetian Carpets are of the simplest kinds, the texture of which is plain; a striped woolen warp on a thick woof of thread, made of hemp, cotton or woolen, and the warp is so thick as to cover entirely the woof. It is not known that what is called Venetian carpeting was ever made at Venice, Italy.

Hemp Carpets, made entirely of hemp, were first imported from Russia, but are now made in this country in considerable quantities. They are extremely cheap and durable, but are used chiefly in offices, passages, and places where a cheap carpet is required to deaden sound. An excellent floor covering for offices and business rooms is also made of cocoa fiber. It is woven open to let the dust pass through, and is extremely durable and cheap.

Paper Carpet is a variety made of a hard and tenacious paper called *hession*, which is produced by subjecting the paper pulp to the action of chloride of zinc and then to strong pressure, by means of which the product is rendered hard and tough like leather. It is finished both plain and in imitation of ornamental woods.

Fraternity Carpets are made in ingrain, especially for the use of lodges and secret societies. They are splendidly worked out and colored

with designs and emblems peculiarly appropriate to the order for which they are intended.

Dutch Carpet is a very strong and cheap wool ingrain carpet, usually woven in stripes and checks.

Rag Carpets were first invented and woven during the early part of the present century by the economical settlers of New England. Until about 1874 no large factories for the weaving of rag carpets existed in the United States, the industry being carried on solely by families residing in rural communities. It is, however, fast becoming one of the lost arts, such as the making of flexible glass and the manufacture of Tyrian purple, being slowly but surely driven out by the superior appearance and low price of ingrains. While it is always possible to get the inferior factory-made article, yet that is not the sort that is associated with an old-fashioned room, with its high-post bedstead, whitewashed walls and diamond-paned windows. In those days the rags were cut and sewed by the log fire in the long winter evenings, and often the carpet was woven on the old wooden loom in the up-garret. For every three yards of carpet woven, required one and a quarter pounds of cotton carpet chain. If the weaving was hired the charge was 25 cents per yard, the weaver providing the warp, and an average days' work was about sixteen yards. *List carpet* is very similar to rag carpet, being made of the *list* or selvedges of woolen cloths obtained from tailor shops or clothing factories. It is made at all the regular carpet factories, a full yard wide and 130 yards to the roll.

Persian or Oriental carpets are similar in their weaving to the Gobelin tapestry manufactured in France. This tapestry, as is well known, consists of tufts of wool (Fr. *moquetts*) or silk sewed on the strings of the warp by means of small shuttle needles. The Persian carpet is formed by knotting into the warp tuft after tuft of woolen yarn, over each row of which a weft shot is passed, the particular pattern being produced by different colored threads, hand wrought upon the warp. In Persia there are entire tribes and families whose only occupation is carpet and rug weaving. These dispose of their productions to the native merchants, who ship them either to Smyrna or Constantinople, where they meet with English or American purchasers. Persia has always been particularly rich in the various products of the loom. Carpets, now so extensively made and used in all civilized countries, had their origin in Persia, which still produces perhaps the most beautiful specimens in the world. Their durability may be imagined from the fact that the floor of one of the largest palaces at Ispahan is still covered with a fine carpet made in 1582. The Persian habit of sitting and sleeping on the ground probably lead to the manufacture of fabrics specially designed to meet the requirements of such a custom, and the carpets which thus had their origin in the common necessities of ordinary life afterwards found their way as luxuries to other countries. The finest Persian carpets are now made at Kurdustan The pattern does not represent a flower, bouquet or other

objects thrown up in relief from a uniform ground like most of our designs, but looks more like a layer of flowers strewn on the ground. A real Kurdustan carpet is worth $20 a square yard. All carpets in Persia are made by hand with the aid of the simplest machinery, the loom being simply a frame upon which the warp is stretched. The wool consists of short threads of yarn woven and knotted into the warp with nothing else but the naked fingers. The long beautiful pile is formed by merely clipping the ends of the wool until an even surface is obtained. Not being "manufactured" in the proper sense of the word, the Persian is incapable of repeating over and over the same pattern. Each carpet is different in design from the one preceding it. This sort of weaving allows the maker to follow the bent of her lively imagination, always accompanied by a sense of what is beautiful; she does not mind small irregularities in details, if the general design of the carpet has a pleasing and artistic effect. These carpets are now what they always were in manufacture, and probably, in the majority of instances, in design also —abounding with strangely fantastic forms, luxuriantly and harmoniously colored, and manufactured of materials second in durability only to the floor of which they form the cover.

The Persian carpet is rarely large, and are mostly made by the women and children in the villages. The colors formerly used by the Persian weavers were imperishable. Carpets a hundred years old show no want of freshness of color, but rather soft tones like ancient oil paintings. The use of aniline color is strictly prohibited. A recent traveler in Asiatic Turkey gives a concise description of how Oriental carpets are woven in that country: "A loom primitively constructed of trunks of trees, as nature made them, is inclined against a wall; a trunk so arranged that it can be turned round holds the threads of coarse wool, and a second supports the completed work. Balls of colored wool hang from a string, from which the women (the men do not work at the looms) take detached threads to form knots, each of which ties two threads of warp. After making a series of knots and consolidating them by means of a comb, they insert from right to left one or two threads of wool, and then pass on to the next series. The tufts which result from this work are combed and leveled with scissors. The patterns are worked from old models, which have decended in the family, or from designs received with orders from Smyrna, though of late years not a few orders have come direct from European and American agents."

From a strictly artistic point of view, carpets should be darker in tone and more broken in hue than any portion of the room, both because they present the largest mass of color and because they serve as a back ground to the furniture placed upon them. As a general rule, lighter carpets may be used in rooms thinly furnished than to the contrary, as we should otherwise have too overpowering a mass of shade. The pattern should always be proportioned to the size of the room, as a small figured carpet in a large

room makes the floor space appear larger than a large figure would, and *vice versa.*

"Sprouting" of carpets is a peculiar disease to which only Tapestry and Brussels are liable, consisting of the bobbing up of loops above the surface of the carpet. The trouble is especially liable to occur in first-class goods, in which the yarn is fine, soft and highly dressed. A rough table-castor or the jagged nail in a shoe has caused many a case of sprouting. There is but one remedy, and that is to clip off the loose ends with a pair of sharp scissors. By careful, close clipping the threads by degrees get flattened down and the trouble ceases. If this is not done at once these loose ends are liable to be caught again and again by the feet of the passers by, and the first injury made greater by the loops being dragged out further. The worst enemy of these two varieties of carpets is the common broom in the hands of a maid more muscular than intelligent. If possible, a new Brussels or Tapestry carpet should be exempted from sweeping for the first month; that is, until the loops get trodden down somewhat. If sweeping is regarded as absolutely necessary, the only proper thing to use is a good carpet sweeper run over the surface with the utmost possible care. In every case of complaint from a customer, the retail dealer should be especially careful to place the matter in the hands of an experienced clerk, whose special business it should be not only to see to the remedy, but also to ascertain the cause of the trouble. Sprouting is not a fault or defect of the carpet, but a natural and unavoidable feature of the fabric, which the manufacturer can do nothing to prevent, neither can he have done anything to produce it.

The following table shows at a glance how to cut economically and to the best advantage carpets with patterns ranging from 13 to 30 inches, so that they will match when made up. The table is thoroughly reliable, and will be found very valuable in saving time and waste, both to the salesman and carpet-sewer:

	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
13 inch pattern cuts at	7	7	8	8	9	9	10	10	11	11	13	0	14	1	15	2
14 " "	8	2	9	4	10	6	11	8	12	10	14	0	15	2	16	4
15 " "	10	0	11	3	12	6	13	9	15	0	16	3	17	6	18	9
16 " "	9	4	10	8	12	0	13	4	14	8	16	0	17	4	18	8
17 " "	9	11	11	4	12	9	14	2	15	7	17	0	18	5	19	10
18 " "	9	0	10	6	12	0	13	6	15	0	16	6	18	0	19	6
19 " "	9	6	11	1	12	8	14	3	15	10	17	5	19	0	20	7
20 " "	10	0	11	8	13	4	15	0	16	8	18	4	20	0		
21 " "	10	6	12	3	14	0	15	9	17	6	19	3	21	0		
22 " "	11	0	12	10	14	8	16	6	18	4	20	2	22	0		
23 " "	11	6	13	5	15	4	17	3	19	2	21	1	23	0		
24 " "	10	0	12	0	14	0	16	0	18	0	20	0	22	0	24	0
25 " "	10	5	12	6	14	7	16	8	18	9	20	10	22	11	25	0
26 " "	10	10	13	0	15	2	17	4	19	6	21	8	23	10	26	0
27 " "	11	3	13	6	15	9	18	0	20	3	22	6	24	9	27	0
28 " "	11	8	14	0	16	4	18	8	21	0	23	4	25	8	28	0
29 " "	12	1	14	6	16	11	19	4	21	9	24	2	26	7	29	0
30 " "	10	0	12	6	15	0	17	6	20	0	22	6	25	0	27	6

In making calculations do not figure too close, as some carpets stretch or shrink a little, or a new piece of the same pattern may occasionally be made half an inch smaller or larger by the manufacturer.

Cashmere (kash'-mere). [Also written *cachemere* (and with altered form and sense *cassimere* and *kersymere*); so-called because first made in *Cashmere*, or *Kashmir*, the native name of a state and valley in the Himalaya mountains north of Panjab, India; also the name of a fine-wooled goat or this same region]. An all-wool fabric used for ladies' dresses, originally made from the fine downy wool of the cashmere goat, but since 1824 has been manufactured both in England and America of soft, prime native wool. It differs from merino in being twilled on one side only, and from henrietta in being finished with a more subdued luster.

Cashmere Chevron. See COTE DE CHEVAL.

Cashmere Shawls. [Also called *India shawls*, and sometimes erroneously termed *camels' hair shawls*.] These wonderfully wrought and ancient fabrics date back 4,000 years. The shawl cloth of Babylon, the silky textures of Ruth, the mantles of Thamar, and the long pieces of cloth worn by biblical characters were none other than shawls of eastern manufacture. When these Asiatic veils or mantles took the form of the modern shawls is not precisely known, but it seems from certain French records that they were introduced into Europe about 1739 by the wives and daughters of the French ambassadors to India. The first manufacture of shawls is believed to have originated in the valley of Cashmere, in the northwest of India. Though not so flourishing as it once was, the manufacture is still prosecuted in this province to a very considerable extent. The genuine cashmere shawls are the very best made, possessing unequalled fineness, delicacy and warmth, and characterized by great elaboration and minute detail of design, and by the glowing harmony, brilliance, depth and enduring qualities of the colors. These excellences are due to the raw material, which consists of the very fine, soft and flossy under wool of the cashmere goat, and to the unwearying patience and inherited skill of the Oriental weavers. A single goat does not yield more than three ounces, and the fleece of ten goats are requisite for the manufacture of a shawl a yard and a half square. These goats which produce the finest down in the world are reared upon the cold, dry table-land of Thibet, from 14,000 to 16,000 feet above the level of the sea. The goat thrives sufficiently well in many other climates and countries, but in the sultry plains of Hindostan it has hardly more hair than a greyhound, and though in higher latitudes the hair is more abundant, it is for the most part shaggy and coarse. It is only in the intensely cold and dry climate of Thibet that it yields the peculiarly soft downy wool that constitutes the material of the cashmere shawl. The wool is sorted with patient care by hand, and spun into a fine thread, a work of so much delicacy, owing to the shortness of the fibre, that a pound of undyed thread is valued at $12.15. The shawls are woven in rudely constructed looms, a fine one often occupying the labor of three or four men a whole year in weaving; and it is to this slow and laborious process that their high prices are due. It is said that although $3,500 has been known

to be paid for a single shawl, that but few of the finest ever leave India. The commonest qualities range in price as low as $50, and consumes from sixteen to twenty weeks in making. A first-rate shawl weighing about seven pounds may cost at the place of its production $1,500, made up thus: material $150, labor $750, duty $350, miscellaneous expenses and profits $250. There are several classes of these fabrics, principal among them being those woven all in one piece, either solid white or black or dyed of various colors; the class comprising embroidered shawls in which over a plain ground is worked by needle a minute and elaborate pattern; another class are those that are made in small strips or squares and sewn together with such precision and neatness that it is simply impossible from either side for the seam to be detected. The "cone" pattern, with its flowing curves and minute cornucopia of flowers, is characteristic of this latter class. Probably the finest specimen ever produced represents a map of the city of Shrinegar, the capital of Cashmere; the streets and houses, gardens and temples, with the people walking about among them, and the boats on the deep blue river being seen as plainly as in a finished photograph. Besides shawls, an immense variety of articles are made in Cashmere of shawl stuff.

In 1822 pure Cashmere goats were introduced into France, and since have been unremittingly improved by cross-breeding until a fairly satisfactory result in the union of the most essential qualities of the wool—abundance, luster and softness—has been reached. By the aid of the draw loom and Jacquard loom French manufacturers have succeeded in weaving Cashmere shawls very similar to the Oriental in external aspect. To produce shawls altogether identical on both sides was a more difficult task. In both modes of manufacture, the piece is mounted by drawing the warp through the harness and ground treadles. The weaving of imitation shawls is executed as usual by as many shuttles as there are colors in the pattern, which are thrown across the warp in the order indicated by the design. The greater number of these weft yarns being introduced only at intervals into the web, many remain floating loose at the back of the piece, and are cut afterward without affecting in the least the quality of the texture. The deception would be very complete if the reverse of the shawl did not show the cut ends. It is said that the shawl merchants of India greatly admire the ingenuity of the French weavers in imitating Cashmere shawls, but condemn them on account of their harshness. The latter is largely due to the manner of washing the yarn. In Cashmere soft water is used in a solution of rice starch, which greatly adds to the peculiar softness and gloss of the yarn. Amritzer is now the principal entrepot of the shawl trade between India and Europe. Imitations of the real Cashmere shawls made at Nimes and Lyons, France, are called "Broche," while those made at Paisley, Scotland, are known as "Paisley shawls."

The common black shawls made of twilled Cashmere dress fabric, and fringed, usually worn by elderly women, bear no relation to the above

described products of India. These latter are known as "square," "long," and "double." The "squares" range in size from 56x56, 60x60, up to 80x80; the "long" from 56x60, 60x64, up to 84 inches in length, while the "double" are twice the size of the "long" shawls.

Cassimere. [From *Cashmere.*] A general term applied to a class of all wool cloths used for men's clothing, woven plain or twilled, coarse or fine of "woolen" yarn. The pattern of Cassimere is always woven in the loom, and the cloth is never napped. In order to make the pattern more distinct, Cassimeres on leaving the loom are slightly felted and then are subjected to the process of singeing, to remove from their surface all superfluous nap or the ends of wool which have been ruffed up in weaving and milling, producing a smooth, clean surface. It remains a mooted question which are the better for wear for men's clothing, worsteds or cassimeres. The advocates of the latter contend that the looser and more pliable a wool cloth is woven and the greater amount of elasticity preserved, the better it will produce a resisting surface. [See WOOLEN and WORSTED, WEAVING.]

Cassinette. [From *Cashmere.*] A cloth for men's wear made with a cotton warp and a fine woolen weft. Also called *Kerseynette.*

Cassock. A loose form of cloak or outer coat, particularly a military one, worn by men. Also a long clerical coat, buttoned over the breast and reaching to the feet, and drawn in at the waist by a broad sash. In the Catholic Church its color varies with the dignity of the wearer: priests wear black; bishops, purple; cardinals, scarlet; and the pope, white. If lined with fur it is called a *pelisse.*

Castor. The beaver, and by extension the fur or hide of a beaver. The fur of the Castor beaver is used in the manafacture of fur hats. Also, a heavy quality of broadcloth used for making overcoats is sometimes termed castor. [See GLOVES.]

Catgut. A sort of linen canvas with wide interstices. The intestines of sheep, dried and twisted, used for strings to violins and guitars. The popular supposition that these strings are made of the gut of cats, is erroneous.

Celluloid. A combination of gun cotton and camphor. Its successful manufacture and introduction has only been accomplished in the past twelve years. Celluloid consists of vegetable fibre, treated with certain acids; this fibre is then united with camphor and other substances to make it elastic and capable of being molded in any form. Of recent years there has been much experimenting indulged in for the production of a whiter and clearer substance than celluloid. An Austrian has invented a material called celluline that combines some of the properties of glass and celluloid. It is made by dissolving 4 to 8 parts of celluloid wool (gun cotton), in about 100 parts of alcohol, by weight, and adding 2 to 4 per cent of cas-

tor oil and 10 per cent of resin or balsam. The mixture is then dried on a glass plate at a temperature of 120 degrees. The compound soon solidifies into a transparent sheet. The addition of magnesium chloride reduces its inflammability and zinc white gives it substantially the appearance of clear ivory. By increasing the relative proportions of castor oil and resin, the toughness and pliability of leather is imparted to the material.

Challi (shal'-i). A name originally given to a superior dress fabric of silk and wool, first manufactured at Norwich, England, in 1832. It was thin, fine and without gloss, but its chief characteristic was its absolute freedom from dressing. The name is now applied to an extremely lightweight dress fabric made of either cotton or wool, or a mixture, woven without twill, either plain or with printed figures. All-wool Challi does not differ essentially from the old fashioned muslin-delaine. Neither fabric wrinkles easily and both possess a cool, dainty look especially suited for the summer season. Most Challi patterns are copied from French silks, which in part accounts for their unusually tasteful designs and artistic effects.

Chambray. A variety of plain-woven ginghams, always of one color and without pattern. It is made of extra fine cotton yarns and stiffly sized with pure starch. The fabric gets its name from *Cambray*, France, where it was first woven of linen.

Channeling Machine. A machine for cutting the channel in the soles of shoes and boots, into which the thread is sunk.

Chasuble (chas'-u-ble). A sleeveless vestment or coat, devoid of buttons or other fastening, and provided with an opening in the center through which to pass the head. The chasuble is the principal garment worn by a priest when celebrating the mass or holy communion. It is held to represent the seamless coat of Christ, or charity symbolized by it. The material is usually rich stuff, silk brocade or velvet.

Check. In textile fabrics a pattern of squares of alternate colors. Properly, a check should have no divisions between the squares more than a thin boundary line; that is, it should resemble the ordinary chess-board. [See PLAID.] The word *check* is derived from a custom practiced by the courts of Europe of settling accounts and computing money by means of counters or tallies on a table covered with a square checkered cloth; the word having been originally derived from French *echequier*—a chess-board.

Cheese-cloth. A thin, limp muslin, bleached or brown, used by dairymen to cover their cheese. A variety of cheese-cloth called *cotton bunting* is woven smooth and of better texture, and is used by women as a cheap white dress goods. It is entirely free from sizing.

Chemise (she-mez'). [From Arabic *camis*, shirt.] The innermost garment worn by women, anciently known as a "shift" or "smock."

Chemisette. [Diminutive of *chemise*]. An article used by ladies for

covering the neck, made of some light fabric, as lace or cambric, usually worn under a waist cut low, in imitation of the exposed portion of a man's shirt bosom.

Chenille (she-neel'). [French for "caterpillar."] A beautiful description of cord used for embroidery and decorative purposes. The name denotes the appearance of the material, which somewhat resembles the hairy caterpillar. Chenille cord is usually made of silk, though sometimes of silk and wool, and for cheap fringes of wool alone.

Chenille Cloth. A fabric made with a fringed silken thread used as a weft, in combination with wool or cotton; a fur-like surface is thus produced, whence its name.

Cheviot. A twill-woven, napped "woolen" cloth, originally made from the wool of Cheviot sheep. These sheep were formerly native to the Cheviot Hills, near the boundary between Scotland and England, but are now extensively reared in the United States. The genuine cheviot is a superior fabric for men's clothing, being strongly woven of carefully-selected wool, and finished with a closely curled nap. The value of cheviots depend more on their construction than their appearance, and few can discern from the latter the character of the former. Since about 1888, an immense demand has sprung up for this fabric in the ready-made clothing trade, and while some genuine and wearable cheviot was made up, yet the very composition of the cloth admitted of a wide field for the lowering of the standard, without much risk of detection, with the result that the quality of late has sadly depreciated. The same reasons which account for the imitating of cheviots account also for the imitating of many other first-class fabrics: first, the greed of manufacturers; and second, the public's demand for cheap grades of a popular fabric. Consumers who are obliged to select according to their purse nevertheless expect and absolutely demand the same weaves and patterns that are displayed for the delectation of their more favored brethern. This can only be supplied by the production of an inferior and ofttimes worthless fabric. Imitations of cheviot are made to look well, and appear a marvel of cheapness, but an examination shows their weight to have been increased by the addition of flocking or shoddy. Apparently they seem strong, but a sudden pressure on any part will cause a rent while the face will be off in a week's wear and the poverty of the goods plainly manifested. Such a cloth possesses no intrinsic value, and pandering to cheapness only results in damaging the reputation of genuine cheviot. [See WOOLEN.]

Cheviot Shirting. A term which formerly signified a cotton fabric free from starch or dressing, but of late years has come to include all medium grades of single-thread, soft-finished shirt cloth.

Chiffon (shif'-on. French pron. she-fon'). A variety of thin transparent silk gauze woven so fine and sheer that ordinary print may be easily read through it. It is stated that one pound of the warp of Chiffon will ex-

tent eight miles. It is both black and white, printed and plain; 45 and 20 inches in width. It is used for neck and sleeve trimming and for draping over silk foundations, ladies handkerchiefs, etc.

Chijimi (chi-je'-ma). A variety of Japanese drapery silk, dyed in fast colors; in width thirty inches.

China Silk. A term applied to the plain silks woven in China, Japan and India on the primitive hand looms of those countries. The warp and weft are identical in size and color, and are woven in evenly, producing a beautiful natural luster. Real China silk is easily recognized on account of the imperfections which always mark hand-spinning and hand-weaving; some of the threads being heavier than others, a somewhat irregular or "faulty" surface is produced. The bulk of these fabrics come from China and Japan, India silk being almost a myth, so little of it is made and so little sold. Choice in the market lies practically between the products of China and Japan, about nine-tenths being from China. The difference between these two is not seen by the casual observer. The weave of Japan is smoother, softer in quality and much more beautiful. They wear about equally well and there is no perceptible difference in the price, the range in both being from 50 cents to $3, the latter price being for an extraordinary quality, a yard wide. The usual width is twenty-six inches.

Many persons confound the China and India silks. The China silks are distinguished by their somewhat coarse, irregular threads and by their softness. The India silks have more body and a more even surface, and are better adapted for long outside garments, traveling dresses and petticoats, as they shed the dust; the Chinas are eminently fitted for tea gowns and under-clothing which is to be worn next to the skin, as it laundries well. Almost every city and country town in China is largely devoted to the cultivation of the silk worm, which is carried on usually by young girls. Frequently along some of the narrowest streets of the over-populated cities may be heard the clatter of the loom and the rattle of the shuttle in a little bit of a half-lighted establishment, the door of which is scarcely five feet from that of the opposite shop. A loom stands on each side of the entrance, and the weavers at work are well-nigh in the street, if the paths between the houses may be termed such. This is a characteristic silk factory of that interesting country. Two men working hard all day weave only about three or four yards of "China silk," and get for their day's work about twenty cents. The name "China silk" has also been adopted in the United States recently for a class of machine-woven silks made in imitation of the more serviceable hand-loom product. These imitations are three inches narrower in width and lack the soft quality of the eastern fabrics, and are also free from the imperfection of uneven threads. Both the hand-wrought and power-wove varieties are printed in much the same fashion as calico. When the figure is white upon a dark ground the silk is bleached, then run between rollers that print the ground, leaving the figure

blank. Colored figures on white or light grounds simply reverse the process. Complex patterns, employing many colors, have a separate roller and printing for each tint.

Chinchilla. The Indian name for a squirrel-like animal found in the mountains of South America. The ancient Peruivans were accustomed to employ the wool of these animals in the manufacture of fine fabrics. The fur is beautifully fine and of a pearly-gray color, rolled into little tufts, much used for muffs and tippets, lining for cloaks, etc. Chinchilla overcoating is a thick, heavy, double-woven fabric, with a napped surface rolled into little tufts in imitation of Chinchilla fur; manufactured in all colors and qualities, used for men's overcoats and ladies' cloaks. Chinchilla is made both all wool and "union," usually with a slight nap raised on the wrong side for the procurement of warmth. The fabric differs from Frieze in not being so heavy nor so shaggy, and from Montenac and Fur-Beaver in having the nap rolled or curled into small tufts. [See WEAVING, TEASLING.]

Chine (sheen; French pron. she-na'). [From the Fr. *chiner*, color, dye.] A term applied to the fabrics in which the warp is dyed in different colors at short distances, so that a mottled effect is produced; or in which a double thread, formed of two smaller threads of different colors twisted together, is used to produce a similar mottled or speckled appearance. In plain Chine silks the threads are colored in a similar manner, so that when woven up into the fabric the peculiar reflections of light, giving the appearance of shadows, is produced. Figured Chine silks have a plain ground, but the flowers and bouquets forming the pattern have an indistinct and cloudy appearance, produced by the breaking of minute particles of color into one another.

Chintz (Hindoo *chhint*, spotted). Cotton cloth printed with flowers or other patterns of bright colors, and finished with a glaze. The only difference between Chintz and Cretonne consists in the glazing of the former, which is effected by calendering. Chintz is also known under the name of *furnitnre print*, from its extensive use in covering furniture. About 1850 glazed chintz was greatly used for furniture, and some of the patterns which have survived are quite surprisingly bad. For this reason, and the fact that chair covers were gone out of fashion, the majority of the world got tired of Chintzes, when some enterprising manufacturer saw the beauty which might lie in a fabric called Cretonne—which is simply a Chintz without a glaze. It is a question whether Chintz is ever either suitable or salable in a town. Its extreme daintiness seems as out of place in the grime and grind of a city as the innocent chat of a country cousin seems almost like a reproach to the short-haired advocate of "women's rights." But the soft tints and darker shades of Cretonne are always harmonious, and it is asserted by artists there is no fabric with the exception of Brocade which

looks so well for upholstery purposes. Chintzes are all block-printed, the principal dyes being madder, weld and indigo.

The earliest mention of cotton-printing occurs in Pliny, in the first century, A. D., who records his surprise at seeing the Egyptians exercise this wonderful method of dyeing, by which the white cloth was stained in various places, not with dye stuffs, but with substances which had the property of absorbing colors. Herodotus mentions a Scythian tribe who stained their garments with the figures of animals by means of the leaves of a tree bruised with water, "which would not wash out, but lasted as long as the cloth." The Egyptians probably learned the art from India, for there was communication between the two countries before the first century, the time of Pliny. The India Chintzes were in much request in Europe before the art of making them had been introduced and simplified there; most of them were made by very tedious processes, a great part of the pattern being painted by hand. The parts intended to be white were covered with wax before the material was thrown into the dye-vat, and the process of afterwards removing the wax occupied considerable time and no small amount of patience. Small quantities of these goods were at intervals shipped to England and Holland as early as the 12th century, and there seems to be little doubt that an attempt was made in Europe in the direction of printing patterns on cotton as early as 1634. The introduction of cotton printing into Europe is mainly due to the Dutch, the Dutch East India Company having taken the India Chintzes to Holland before they were heard of in England. Flemish emigrants imported the art into England about 1676, and later other works sprang up to supply the London shops with Chintzes, their import from India having been prohibited by Parliament in 1700. This infringement of the rights of consumers having been received with equanimity, Parliament next proceeded to pass a law prohibiting the *wearing* of all printed cottons—a law which actually endured in force for 16 years and nipped the rising industry in the bud. In 1736 this unjust law was repealed, but the cotton-printer was handicapped by having to pay a duty of 6 pence on every square yard of Chintz he turned out. Later on this duty was decreased to 3 pence, but it was not until 1831 that it was repealed altogether. The passage of these obnoxious laws was chiefly due to the extreme jealousy of the silk and woolen weavers—a feeling which reached its climax in the London riots when the silk weavers paraded the city and tore the calico gowns off every woman they met. Notwithstanding such unfavorable beginning, the cotton-printing industry gradually triumphed, until to-day calico goods are part of the national need and an immense addition to the national wealth. [See CALICO, BLOCKPRINTING, COTTON, CRETONNE.]

Chudder. [From Hindoo *chaddar*, mantle, shawl]. The name given in Europe to the plain shawls of cashmere of solid color, without pattern except a herringbone twill, or if embroidered, having the embroidery the same color as the ground.

Cladding. [From *clad*, to clothe]. A word sometimes used for clothes and clothing.

Claith. A Scotch word for cloth.

Clamp-dyeing. See FLAGS.

Clerk. [From Latin *clericus*, clergyman, priest, whence our words *clerical*, *clergy*, *ecclesiastic*, *clerk*, etc]. In its original sense a learned man; a man of letters; a scholar; formerly a man who could read, an attainment confined chiefly to ecclesiastics. At present by extension, one who is employed in an office, public or private, or in a store or warehouse either to keep accounts or act in the capacity of salesman.

Clan Tartans. [It. *tartantanna*, linsey-woolsey, or cloth of different materials and colors.] A term descriptive of the parti-colored plaids long worn by the different clans of Scotland. They were of various combinations of colors. The exact date of the introduction of clan tartans into this country which at different times have assumed so many wonderful and picturesque varieties, is assigned to 1822. The fashion of wearing these gaily colored plaids has been revived from time to time during recent years, and have been variously styled Scotch Plaids, Clan Tartans, Tartan Plaids, etc. The numerous clans into which the Highland population was divided had each a special tartan plaid by which it was distinguished. Many new and imaginary "sets" have been invented by manufacturers in the United States, with the result of introducing confusion in the heraldry of tartans, and of throwing doubt on the reality of the distinctive "sets" which in the olden time were undoubtedly recognized as badges of particular clans. [See PLAIDS.]

Clay Worsted. A variety of flat-twilled worsted woven with a twill similar to that of serge, the diagonal lines lying flat on the surface and barely perceptible. On account of the warp and weft being slackly twisted the cloth does not take a gloss as in the case of the ordinary hard-twisted worsteds. The name is derived from an English manufacturer, and it is from England that the best qualities are obtained.

Cloaks. [Originally spelled *clokke* and until recently *cloke*. The word is derived from *clock*, which piece of mechanism, when first made, was of the shape of a bell, and sounded the hours with a clapper. The cloak when first used for a garment was bell-shaped and without sleeves, hence the name.] Properly a loose outer garment without sleeves, worn by either sex as a protection against the weather; at present, however, the term is used for any sort of sleeved wrap, long or short, worn by women. Though a garment of great antiquity, cloaks have in the course of many centuries varied but little, save in being at times short or long, ornamental or useful. They have frequently been common to both sexes, and by English laws of the time of Edward IV (1441—1483) were legally regulated as to the length they should be cut and who should wear them. Then no person under the degree of a lord was allowed to wear a cloak which was

not of sufficient length "as being upright to cover his private members and buttocks upon pain of being fined fourty shillings." The fashion of wearing short cloaks has frequently recurred, and cloaks of light and costly materials have been worn by men, particularly in the dissolute courts of the early Stuarts. It was one of these latter garments which Sir Walter Raleigh gallantly threw upon the muddy ground that Queen Elizabeth might pass with dry shoes, which act of gallantry ingratiated him into the Queen's good will and brought him life-long favors. Under the name of *Spanish cloak* this garment was worn from about 1800 to 1840 in Great Britain and America, the shape being a half-circle; it had a broad collar, often velvet or fur, which was continued down the edges of the cloak on both sides. The same garment is still worn as the most common winter dress in Italy.

At the present day, when well-fitting, stylish and comfortable cloaks may be bought for very little money, the wonder is that the styles are not more varied. The styles in the United States are more varied than those of the outer garments for men, but hundreds of cloaks of the same pattern may be seen in the streets of a city any day. Cloaks are garments on which women cannot show much originality in making them at home, as they can on dresses, and the styles are, therefore, fixed by the designers employed by manufacturers. In many instances the styles depend on the material to be used, as it would be useless to design a style with many puffs and folds for a thick and heavy material. Besides if the *style* be good the cloak is acceptable to many women whether it be suited or unsuited to their figures. In making cloaks, where the demand may be sometimes for 500 of a certain style, each piece of cloth is thoroughly examined by experts in regard to measure, texture, and color, and then it is sponged by machinery made especially for that purpose. All "smooth" cloths and those with finished faces are sponged by copper rollers, and the machinery is so arranged that from the time the cloth starts until it is folded dry, it is not touched by the operator. The cloth is then ready for the cutters, with all its imperfections marked. Each cutter has a separate check upon which have been entered the particulars about the cloth, style, and proper patterns. If the quantity be large enough for the cutting machine, it is marked and laid in folds, but small pieces are cut by hand with shears. After the cloth has been cut according to the provided patterns, the bundles are carefully compared with the orders, and then a ticket is made for each garment, on which is a place for each worker to put his or her number, so that a complete record is kept of every hand that works on the garment. The garments then go to the seamers, who are employed the year round to seam them on machines specially adjusted for that particular work, being provided with a fixed gauge that insures a perfectly uniform seam. Expert seamers can work at machines that make 3000 stitches a minute. For the detection of any possible mistakes and imperfections in the fit, the garments are tried on models before being sent to

the trimmers. The collars, cuffs, facings, etc., of each garment are cut according to the style designed, and, with the "body" sent to a workman who particularly excels in that portion of the labor. After leaving the finisher the garment is inspected again by the foreman, and if it be not satisfactory, it goes back to the workman for alterations. After the making of buttonholes and the sëwing on of buttons and ornaments, the garments go to the presser, and from here to the final examiners and model, who are responsible for the fit and workmanship, and who see that the materials and trimmings are right, and that any changes that may have been ordered to suit certain customers have been properly made. Then they are ready for packing and shipping.

Records of the shape, cloth, trimmings and buttons, or any other parts of the garment, are kept in duplicate, so that a copy of any garment can be made at any time. Sometimes cloaks that are in fashion in the East for a year do not reach the far West until a year or more afterward, when some particular style may be favored more than another, and the orders for it be larger than those for any other. By turning to the records, exact duplicates of any style can be made at any time, provided that the material be in the market. One of the most important if not the most responsible positions in a cloak factory is that of the model, or "figure," and upon securing good ones depends the prosperity of the establishment. The fact that women for the position of models are paid from $12 to $18 per week for comparatively easy work is an indication that they cannot be had in great numbers. It requires no experience to be a model, but it does require natural grace and fine physical proportions—in fact, "the female form divine." Good looks do not count, though a show-room figure must have attractions and dress much better than the fitting-model in the work-shop. Manufacturers as a rule require a woman of about 5 feet, 6½ inches in height. She seldom goes under that, but sometimes half an inch more is desirable. The professional figure has a natural grace about her that cannot be acquired by artificial means. Any young woman who has the heigth mentioned above, a bust measurement of 36 inches, waist 24 inches, length of back from 16½ to 17 inches, arms 24 inches, neck 12½ inches, hips 42 inches, and 13½ inches across the shoulders, is a perfect figure and can find steady employment in any cloak house at any time she chooses. The show-room models generally have a contract for all the year around and are paid in full for the same, but they seldom have anything to do except in January and Febuary when the buyers flock to market for the purchase of spring goods, and in July and August when they lay in a supply of fall and winter wraps. The workroom models are always kept busy. They are the hardest worked of any in the establishment, for upon her is tried twice at least every garment turned out. The sample, or trying-on model must be the most perfect. She, too, is compelled to toil the year round. Large houses employ from 12 to 15 models.

In Europe the method of cloak manufacture is not carried on as in

this country. In both England and Germany, and in Berlin especially, the cloakmakers, in a way, get their styles from Paris. They willingly pay a high price for the brains and ideas of the French fashion-makers. The majority of these come from Worth, the fountain-head of Fashion. When the season opens the manufacturers have a large assortment of patterns ready for all countries and tastes. The buyers come, select their styles, place their orders, with changes here and there, or with other combinations and sorts of materials. When the manufacturer has booked his orders, he buys his stock. Then he gets his cloakmakers, who take the goods, trimmings and belongings to *their* shops, where they have to do all the sponging, cutting, modeling, sewing, pressing and finishing and deliver the garments ready for shipment. If there are any defects in the work the cloakmaker has to make them good. The manufacturer has no further responsibility, except to pay the men the stipulated price, and no other function than the furnishing of the goods and patterns in the manufacturing operations.

Clock. [From Ang.-Sax. *clokke*, a time-piece, which, in its original form, was bell-shaped]. A term applied first in 1543 to a bell-shaped ornament or flower upon the sides of hoods and hose. At present, any figured ornament on the side of the ankle and leg of a stocking, either woven in the fabric or embroidered upon it.

Cloth. [Formerly *cloath*, origin uncertain.] A fabric or texture of wool or hair, or of cotton, flax, hemp, ramie, silk, or other fiber formed by weaving or intermixture of threads, and used for garments or other covering. Specifically, in trade, a fabric of *wool*, in contradistinction to one made of other materials.

Clothes. Garments for the human body. Dress; vestments; raiment; vesture; clothing; personal attire. According to statisticians, there are about five hundred millions of the human race who are well clothed—that is, who wear garments of some kind. Seven hundred millions cover only certain parts of the body, and two hundred and fifty millions go entirely naked. History teaches that man originated in tropical regions, hence it is reasonable to suppose, on account of the mildness of the climate, that in the first stages of his existence the garments adopted by man consisted of only such as were required for decency. As the population of the earth grew and gradually extended northward to less favorable regions, and was divided into nations and classes of society, additional clothing became necessary, both for comfort and as a distinguishing badge of nation or of class. Philosophers assert that clothes are our friends or our foes all the days of our lives. They control our very health to say nothing of our worldly credit, and are never without some influence, pleasurable or the reverse, upon our associates. [See DRESS, COSTUME, COLORS, FASHION.]

Clothier. A retail dealer in ready-made clothes for men; a clothing merchant. Merchants sold cloth ages ago, but ready-made-clothing mer-

chants were unknown in the world sixty-five years ago. Among twelve hundred millions of the earths' people clothing stores are still unknown and unheard-of institutions. One hundred years ago in all civilized countries tailors went from house to house and made up garments from home-made cloth. About sixty years ago tailors began keeping shops, where people took their cloth and had their garments made. Gradually the tailors began to keep cloths for sale, and were called merchant tailors, and a few years later clothing stores sprang up.

Cloth Measure. A standard system formerly employed for measuring the length and surface of cloth sold by the yard, but now practically out of use, the yard being divided into halves, quarters and sixteenths. The table is:

Yard.		Quarters.		Nails.		Inches.
1	=	4	=	16	=	36
		1	=	4	=	9
				1	=	2¼

Cloth of Gold. A splendid fabric of very ancient origin, first mentioned in Deuteronomy XXXIX, 3: "And they did beat the gold into thin plates, and cut it into wires to work it in the blue, and in the purple, and in the scarlet, and in the fine linen, with cunning work." Both round wires and flat strips of gold were early employed in weaving cloth of gold. In the latter case, the strips were wound round silken thread. Most frequently the gold threads were woven with a web of silk, but instances of stuffs wholly composed of gold are common. Some old historical writers, almost contemporary with the time of the great Jenghiz Kahn (1162–1227), the Mongolian emperor, state the latter had in his possession at the time of his death, "a piece of cloth beautiful beyond description, which he claimed was of pure gold, containing 130 shades of color." A shred of cloth of gold is still preserved at Leyden, Germany, which was discovered in one of the ancient tombs at Tarquinii, in Etruria (7th century, B. C.) In this, tissue gold forms a compact covering over bright yellow silk. The use of cloth of gold in England was most profuse from the reign of Edward I to that of Henry VIII (1239 to 1497). The House of Commons, in the reign of Richard II (1350), presented a petition, praying that no knight or lady under forty pounds land by the year "do wear any precious furs, cloth of gold, ribbon of gold or silk, on pain that they lose all that they have." In the various wardrobe accounts of the sovereigns of both England and France, from this time forward, frequent entries are found of cloth of gold, etc. At a very early date in mediæval ages, fraudulent imitations of gold threads were made from copper-gilt wire and from gold leaf hammered upon vellum and afterward cut into strips. The practice of covering fabrics with leaf-gold gilding had been sufficiently frequent as to call for the interference of Parliament. In England, in 1619, "the better to prevent the unnecessary and excessive vent of gold and silver foilate (gold-leaf) within

this realm, none such shall henceforth be wrought or used on cloths, etc.," armor and banners excepted. However, but little attention was paid to this edict. Two years later, a Scotch law was passed " whereby no persons were to wear cloth of gold or silver, nor gold and silver lace on their clothes, nor velvets, satins, or other silk stuffs," except certain persons of rank. Heavy silk, inwrought with gold and silver, the richest and costliest which textile industry in general can furnish has always been used for ceremonial garments by the Chinese and Japanese, and for the furnishing for the richer theatres and temples. The use of gold paper in Japanese brocade, or cloth of gold, has recently awakened great interest with silk manufacturers in various countries. The paper is cut into narrow strips and is then either spun around silk thread or is itself twisted into a thread and woven in. The fabric in this way looks just as if it were inwrought with genuine gold, but differs in that it is cheaper and more flexible than the actual gold. From historical records it will be seen that cloth of gold has been, in nearly all ages, worn almost exclusively by the nobility and the church until within the present century, when in the cycles of fashion succeeding, it has been appropriated for various articles of costume worn by ladies in general. [See BROCADE.]

Coal tar colors. A name given to a numerous class of colors derived from *coal tar* by various complex chemical methods. From ordinary soft coal is obtained the means of producing over 400 shades of colors, nearly all of which are useful in dyeing fabrics. They are more often and properly called *aniline colors*, as aniline was the first of them discovered. [See ANILINE.]

Coat. A principal outer garment; any covering for the body. Specifically an outer garment worn by men, covering the upper part of the body. In the early middle ages it was identical with what is now called a tunic, or sometimes with the cassock and corset (which see). Coats of modern form, fitted to the body and having loose skirts, first appeared in the regin of Charles II (1630-1685). Since the beginning of the 18th century the coat has been of three general fashions; a broad skirted coat, now called the Prince Albert, so named in honor of Queen Victoria's illustrious consort; the cutaway coat; and the sack coat which has no skirt. About 1860 the long-used swallow tail coat was discarded, and the Prince Albert took its place. This was too staid and uncomfortable a dress coat for young men, and very soon tailors improved upon it. They made it shorter, whittled the sides away to a tapering skirt and cut it to fit, and made it of fancy colored cloths as well as of the old broadcloth. This was the the modern cutaway coat, and it has taken such a hold with the public that it is now the most popular article of dress in men's clothing.

Coburg. A thin dress fabric woven of worsted and cotton, twilled on one side, and used as a substitute for merino and paramatta cloth. It was first introduced in England in 1838, shortly after Victoria's marriage with

Prince Albert of *Saxe-Coburg;* most probably aiming at popularity through that event. In England the term coburg is applied to all cotton-warp, twilled worsted dress fabrics either of double or single width.

Cobweb lawn. Fine white linen or cotton lawn. [See LAWN.]

Cochineal (kotch'-i-neal). A dyestuff consisting of the dried bodies of a species of insects. It colors a brilliant crimson, which can be changed by acids to an orange-red, and by alkalis to violet; a beautiful scarlet dye is also prepared from it. The cochineal insect is extensively cultivated in the tropical countries of America, in Algeria, Java and the Canary Islands, especially the island of Teneriffe, from whence about five million pounds are exported annually. The female only are valuable for their color, and are collected twice a year. They are killed by baking them in rude ovens or immersing them in boiling water. The cochineal is a fat, dark, spherical little body, looking like a black currant, and with neither head, legs, nor tail to the casual observer. In fact, he is so inanimate that one may crush him between finger and thumb without any qualm of conscience. He is nothing but a black currant sure enough and the ancient Greeks held the idea that they were a sort of berry, though the bright carmine from his body which serves him for blood and the dyer for dye, is a better color than the juice of the currant. A cochineal plantation has a singular aspect. The larvæ, like that of the silk-worm, being very delicate have to be tied upon cactus plants, which is to be their nursery and their nourishment at the same time. Thus may be seen hundreds of the shoots of the cactus all bandaged with white linen, as if they had the toothache. In this way the insects are kept warm and dry during the winter, and induced to adhere to the plant itself. When they are full grown, they are ruthlessly swept away from their prickly quarters, baked or boiled to death and dried in the sun. The shriveled anatomies are then packed in bags, and sold for about $25 per hundredweight.

Cocked Hat. A hat turned up evenly on three sides, such as naval and military officers wear on full-dress occasions. Such hats were in general use in the last century by the American patriots, and also by the Pilgrims.

Cockle. [Derived from *cockle-shell*, which is a variety having wrinkles or crimps over its surface.] A term in trade signifying to pucker or contract into wrinkles; to rise into frequent uneven ridges or puckers. Often used in reference to worsted or mohair fabrics when wet.

Cocoa Fibre. Cocoa matting and cocoa carpeting are made of what is technically called "coir," which is the thick, fibrous husk surrounding the cocoa-nut when first plucked from the tree. This husk is spun into a small cord and the matting or carpet is woven thick and heavy and rather open in texture to permit the dust and dirt to sift through it; especially used where much rough wear is expected. These husks, which are largely imported from India and Ceylon, were formerly considered useless, but are

now commercially more valuable than the nuts which they cover. Coir is particularly esteemed for ship ropes on account of its peculiar property of resisting the action of salt water, whereas fresh water makes it rotten.

Coiffure (koif'-ur; French pron. kwo'-fur). A head-dress; the manner of arranging or dressing the hair.

Collar. [From Latin *collum*, the neck.] Originally a peculiar badge worn around the neck by Knights of different orders. It consisted of a gold chain, enameled, etc., to which was attached the badge of the order to which the Knight belonged. It was worn at court chiefly on state occasions, which were called *collar* days. These bands were first worn during the 16th and 17th Centuries, and have varied from the plain band, which was nothing more than the simplest of collars, to elaborately trimmed falling bands, which ornamented with lace and needlework, fell far over the shoulders requiring a receptacle to themselves for storing away; hence was derived our present "band-box."

Collars and Cuffs. Articles of attire for both men and women, made usually of linen, and starched. The quality is denoted by the "ply," which ranges from 2-ply to 5-ply. Ladies' cuffs range in size from 7 to 9; boys' cuffs from 8 to 9; men's from 9 to 12. Men's collars range in size from 14 to 20; boys' from 12 to 14½; ladies' from 12 to 16. One "size" of both cuffs and collars is one half inch in their length.

Colors. In its relation to textiles, *color* is that quality or appearance of a fabric which is perceived by the eye alone independently of its form. *Hue* is the distinctive quality of a color; the respect in which colors may differ though possessing the same luminosity and chroma. Thus scarlet and crimson differ in hue, but buff and yellow chiefly in chroma. The word hue is always applied to the modifications which it receives from the addition of a *smaller quantity* of another color. *Chroma* is the degree of departure of a color from that of white or gray. *Tone* means the various modifications which a color is capable of receiving from white (which lowers its tone) or black (which heightens it). In fewer words, it is the modification which any color is capable of receiving from the addition of black or white. *Tints* are the colors considered as more or less bright by being modified by the addition of white. *Shade* is any degree or variation of a color, as lighter or darker. There are but three *primary* colors generally recognized: blue, red and yellow. These are called primary because they cannot be produced by compounding any other colors. The *secondary* colors are green, purple and orange. These are called secondary because blue and yellow make green; red and blue make purple, and red and yellow, orange. From these are derived the *tertiary* colors: olive, citrine and russet. Purple and green make olive; orange and green, citrine; purple and orange, russet. Thus we have the three classifications denoting all the colors proper extant. The varieties of tones, tints, hues and shades obtained from these three classes are as kaleidioscopic in their possibilities of combination as

the alphabet of letters. The hand of man or the skill of the artist will never exhaust them. At the present time there are recorded processes for the production of 16,000 differently colored dyes, each capable of forming a different color upon textile fabrics.

Cattle are excited by a bright red color because that color is the complementary one to green; and as the eyes of the cattle are all day long fixed steadily upon the green of the herbiage on which they feed, articles of a red color must necessarily impress their vision with greatly increased and contrasted intensity, with the result of causing them to grow madly excited. Colors not only influence cattle, but human beings also. On this point some curious experiments are reported to have occurred in the hospitals of Italy, as to the effect of colors on the nerves of the sick and insane. In many hospitals of that country special rooms are arranged with red or blue glass in the windows, and also red or blue paint on the walls. A violent patient is brought suddenly into a blue room and left to the effects of that color on his nerves. One maniac was cured in an hour; another was at peace in his mind after passing a day in a room all violet. The red room is used for the commonest form of dementia—melancholy, usually accompanied by a loss of appetite or a refusal to take food. After three hours in a red room, a patient afflicted in this way began to be cheerful and asked for food. Many sane persons are curiously sensitive to color and shapes in surroundings, certain combinations effecting them with almost physical pain. As no surroundings are so inevitable as people's clothes, dress must be held responsible for a certain amount of intended pleasure or annoyance to others. It is said that one's own apparel is not without a certain influence on the wearer's own mind. A new color seems to bring a new atmosphere with it, and changes oddly enough the level of thought. Balzac, the French author, says that a woman's character always finds expression in her favorite color. A woman who prefers orange or green gowns is, he thinks, quarrelsome. Those who sport yellow hats or who go clad in black without cause are not to be trusted. White indicates coquetry. Gentle and thoughtful women prefer pink. Pearl-gray is the color of women who consider themselves unfortunate. Lilac is the shade particularly affected by over ripe beauties; therefore according to this authority, lilac hats are mostly worn by mothers on their daughter's wedding day, and by women more than forty years old when they go visiting.

Wool has generally the strongest affinity to color, when it comes to dyeing. Next to wool silk and other animal substances receive it best. Cotton is the third, and hemp and linen follow successively. As a rule pigments and dyestuffs do not produce permanent colors, and some substance is required to produce an affinity between the cloth and coloring matter. The substances that are employed to act as this bond of union are called "mordants," [see CALICO and DYEING] whose uses were known to the Egyptians and other nations of remote antiquity. Specifically, mordants in dyeing and cloth printing, is a body which, having two-fold coloring par-

ticles, serves as a bond of unity between them, and thus gives a fixity to the dyes; or, it signifies a substance which, combined with the coloring particles in the pores of the textile filaments, renders them insoluble in soapy and weak alkaline solutions. Mordant is also the substance previously applied to the goods in order that they may afterward retain in part the dye. The chemical activity of the sun's rays is well known, and certain colors seem to be decomposed and precipitated more readily under the influence of *light*. It is not surprising, therefore, to find that light should also have a very marked effect upon *dyed* colors. Under the prolonged influence of light and air almost *all* colors fade, and according to their relative behavior in this respect they are broadly divided into two classes, namely, those which are "fast to light" and those which are "not fast to light." Each of the seven colored rays of the spectrum possesses a different fading power. White light is the most active, then follow the yellow, blue, green, orange, violet, indigo and red rays. Direct sunlight is more energetic than diffused daylight. The light of the electric arc acts in the same manner as the sun, but is less powerful. According to the best authorities on colors, the presence of moisture assists very materially in the fading action of light, so that even some fugitive colors, dyed for example, with safflower annato or orchid, do not fade if exposed to light in dry oxygen or *in vacuo*. The term "fast color" generally implies that the color in question resists the fading action of the light, but it may also imply that it is affected by washing with soap and water, or by the action of acids and alkalies, etc. In its wide sense it means that the color is not affected by any of those influences to which it is destined to be submitted, but its technical influence is often restricted. Many colors may be fairly fast to washing with soap and water, and yet be very fugitive toward light; or they may be fast to light and yet very sensitive to the action of acids and alkalies. The term "loose color" generally implies that the color is much impoverished, or entirely removed, by washing with water or a solution of soap; it may, however, also mean that it is not fast to light. The word "permanent" as applied to color, generally denotes that it is fast to light and other natural influences. A "fugitive color" is generally understood to be one which is not fast to light. In the absence of any definite meaning being attached to the above terms, it becomes imperative in speaking of the fastness of a color, to refer especially to the particular influence which it does or does not resist.

Combing Wool. See WOOL, WORSTED.

Comforts. The history of the manufacture of comforts, or "bed comfortables" as they were styled formerly, is an interesting one. For seventeen years the machine-made article has been turned out with constantly increasing improvement in the process of manufacture, but previous to that the old quilting frame and later the sewing machine were utilized, and nearly every family made their comforts at home. Now, the machine-

made comfort is produced at so low a figure that but few housewives take the time to make them by hand, to say nothing of the expense which would in all probability be more than it would cost to buy them ready-made. With the increase in the output of factory goods, has followed in turn a falling off in the sale of cotton bats to the trade, which were formerly so largely in demand by the ladies of this country in the making up of the article referred to. It is estimated that about 3,000,000 machine-made comforters pass into consumption annually, and as the average wholesale price is about $1.00, a very fair idea of the volume of business consumated each year can be formed. Prices range from $4 to $60 per dozen, the latter being of silk and down, and the former composed of the dust and shoddy of woolen mills. Sizes run from 60x72 up to 78x84 inches, but the average and best selling size is 75x78 inches. The fabrics of which comforts are made are all printed specially for the purpose and on very wide cloth. Prints are largely used, though satteen covering is increasing in use year by year. Down comforts are the best as well as the most expensive variety manufactured. Formerly all down comforts were imported and the high price of the foreign-made article placed it among the luxuries which were only within the reach of the well-to-do. Now, however, with improved machinery and a larger demand United States manufacturers are able to produce a down comfort which can be retailed for $5, bringing this beautiful and most comfortable of comforts within the reach of the average housekeeper.

Commission Merchant. An individual or firm who sells goods on a per cent, either in his own name or in the name of the foreign or domestic manufacturer, and intrusted with the possession, management, control and disposal of the goods sold; differing from a broker, who is an agent employed merely to make bargains and contracts between the jobber and manufacturer.

Composition Cloth. A material made from long flax, dressed with a chemical which renders it perfectly waterproof; used for trunk covers, and in the manufacture of canvas bags.

Convent Cloth. An extremely light weight dress fabric, with a silk warp and wool weft, the weave resembling that of linen momie cloth as seen in towels, etc. It comes in white and plain colors.

Cony Fur (co'-ny). The fur of rabbits and other burrowing animals, used for making felt for hats, and also in the manufacture of a cheap grade of fur caps. [See FUR.] In the 17th century the Mexicans made many beautiful cloths out of cotton and cony fur which they exported to England. The Abbe Clavigoro in his *History of Mexico* says: "They wove their cloths of different figures and colours, representing different animals and flowers, which were as delicate and fine as those of Holland. Of feathers interwoven with cotton they made mantles and bed curtains, carpets, gowns, and other things, not less soft and beautiful. With cotton

they also interwove the finest hair of the belly of rabbits and hares, after having made and spun it into thread; of this they made beautiful cloths, and in particular winter waistcoats for the lords."

Cope. A large, loose outer garment; a cloak; a mantle. A large mantle of silk or brocade worn by catholic priests in processions. As distinguished from the chasuble, the cope is a processional or choral vestment, while the chasuble is sacrificial or eucharistic. In the University of Cambridge, England, the ermine robe worn by a doctor in the senate-house on congregation day is called a cope.

Cordage and Twines. Cordage is a general term for all kinds of hemp rope, from cables 12 inches in circumference to common quarter-inch clothes line. Ropes were among the earlier necessities of man, and have been known in all ages, among all people. There is probably no fibre known but what man at some time has utilized in the manufacture of ropes. Of all these raw materials the one best adapted for making cordage, on account of its cheapness as well as wearing properties, is hemp. A good hemp rope is hard but pliant, yellowish or greenish gray in color with a certain pearly luster. A dark or blackish color indicates that the hemp has suffered from fermentation in the process of curing, and brown spots show that the rope was spun while these fibers were damp, and is consequently soft and weak in those places. Cordage is numbered by inches and fractions of inches of diameter. *Twine*, which is commonly known as a strong cord or string, is usually numbered as follows: Nos. 1, 2, 3, 4 flax ball twines, suitable for hardware merchants and manufacturers, express companies, etc.; Nos. 5, 6, 7, 8, fine flax, grey and colored twine for stationers, and Nos. 9, 10, 11, 12, 13, red, blue and other colors for druggists, etc.; Nos. 14, 16, 17 bleached flax twine for fancy goods, cutlery, etc.; Nos. 15 and 18 jute and cotton twines for grocers, dry goods stores, etc. There are about $8,000,000 worth of flax and hemp twines made in this country every year, not the big sorts, such as ropes and cables, but just the numbers one to eighteen, lumped under the broad head of twines. Besides these there is a large quantity of cotton string made, and here and there still a few paper ones, though the latter—invented when cotton was high-priced in the North during the war, and then quite common—are now seldom seen There are but 8 twine factories in the United States: 2 in New Jersey, 3 in northern New York, 2 in Massachusetts, and 1 (the largest) in New York City. The latter employs 800 hands and turns 14,000 pounds per day of finished twines and shoe thread, ranging in price from 14 cents to $1.50 per pound. In addition to these eight factories, there are scattered through the Eastern states a few small establishments, but there are none, large or small, in the West or South. [See FLAX, LINEN, HEMP.]

Corded Fabrics. A general term used in trade to signify reps, Bedford and whipcord, pipecord, ottoman and other novelties in dress goods

woven with a rib or cord forming the predominating characteristic of the fabric.

Cordovan (cor'-do-van). [From *Cordova*, a city of Spain, where it was first made.] Leather made from the hides of horses. Also called *cord-wain.*

Corduroy (cor-du-roi'). [French *cor du roi*, royal cord or King's cord]. A heavy cotton material, corded or ribbed on the surface. It is extremely durable, being especially used for the garments of men engaged in rough labor, field sports and the like. The construction of corduroy is the same as that of velvet (which see), with a twill foundation and a pile surface. The cords are produced by a peculiar disposition of the pile threads, they being "thrown in" where the corded portions are, and absent in the narrow spaces between them. After leaving the loom and subjected to the operations of "brushing" and "singeing" to give the cloth a smooth and finished surface, it is piece-dyed, usually in shades of olive, slate or drab. [See WEAVING.]

Cork. A species of oak, growing in the south of Europe, especially in Spain and Portugal and in the north of Africa, having a thick, rough bark, for the sake of which the cork tree is often planted. It grows to the height of forty feet, and yields bark regularly every eight years for 150 years. This outer bark, which grows to a thickness of two inches, is the common cork of commerce, and is used for many purposes, especially for stoppers for bottles, inner soles of shoes, etc.

Cork Leather. A variety formed of two sheets of leather with a thin layer of cork between them, the whole being glued and pressed together.

Corkscrew Worsted. [So-called from its fancied resemblance to the twists of a corkscrew.] A particular weave which has for several years been extensively employed in the manufacture of "worsted" goods, more especially in cloths intended for men's clothing. The prolonged duration and success of the corkscrew pattern has had but few parallels in the history of cloth manufacture, though, at present, clay worsted and cheviot are fast driving it out of popular favor. The structure of the ordinary class of corkscrew worsted is based on the sateen-twill principle. It is predicted that the time is not far distant when fickle fashion will cease entirely to smile on this particular weave, and then they will have had their run—together with broadcloth and doeskin, they will exist only as memories of things that have been. [See WORSTED, WOOLEN.]

Corset. [French *corse*, body; Latin *corsetus*, a close-fitting garment.] A close-fitting waist, usually made of quilted jean, stiffened with whalebone, etc., worn by women to give shape and support to the figure Corsets of various forms and eccentricities have been worn ever since the eyes of man have admired the graceful form of woman. Always with one aim and object in view, and that to more fully emphasize the beautifully rounded curves of the waist and hips. They have been known by many

names and in use by many peoples, but invariably for a single and selfsame purpose. The Romans knew them under the title of corsetus, the Italians, corsetto; the Spanish name was corselete, the Portugese corsolet; while the English have dubbed them successively corsete, bodice, stomacher, stays and corset. The Parliament of England in 1450 forbid the wives of persons not having the yearly income of $200, and widows of less possession, to wear corsets of silk made out of the realm, or any coverchief exceeding a certain price. In the 15th and 16th centuries corsets were elaborate affairs with skirts and sleeves attached to them and worked with lace and gold. They varied in length, shape and amplitude, being occasionally lined with costly furs and trimmings of every imaginable description. The old way of fastening a corset was to lace it up every time it was put on. This required considerable time. The later plan adopted by manufacturers and the one now universally used is to have at the front a pair of steel bands that are fastened by a little catch. These little catches are made of white metal, and there are four or five of them on each corset. The weight of a set of "catches" is not greater than an ordinary thimble, yet one Connecticut firm uses about 32 tons of white metal a year to make these catches. The steel required for the stays amounts to hundreds of tons, and there are separate factories devoted to the production of the steels. The steels are tempered to about the consistency of a watch spring, and there is a surprising amount of work for 10 cents a pair upon these. Corsets, like other ready-made clothing are made of all sorts and sizes, and from all prices from 25 cents to $50 each. A full "size" of a corset means 1 inch, expressed 18, 19, 20 up to 40, and representing the actual waist measure of the wearer. Imported corsets are the most expensive of the ready-made kinds, but when made "to order" the highest prices are reached. Ordinary women will get along with a couple of corsets a year, costing $3, but when it comes to corsets made of silk or satin, and trimmed with costly lace and made to suit certain whims or different costumes, the cost becomes a very considerable item. Formerly corsets depended for their stiffness entirely opon whalebone, but when gas and coal oil destroyed the whale fishery and whalebone grew scarce and expensive, steel was introduced and substituted for whalebone. This was good for the fronts, but has never been available for the small bones at the sides. The principal substitute for whalebone is horn. This is chiefly manufactured in France from South American horns, and the stuff is imported cut into narrow strips ready for use. Efforts have been made to substitute celluloid, various kinds of wood and hard rubber strips, but nothing has yet been found so good as the whalebone or the horn. There are great corset factories at Newark, Detroit, New York and Chicago, but the larger part manufactured in this country are made in Connecticut and Massachusetts. The figures of the 11th Census show that there are over 10,000 persons employed in the United States making corsets, the value of what they produce being about $10,000,000. Besides this, immense quantities are imported

from France and England, the total consumption being not quite 60,000,000 a year. The names and shapes of corsets are patented, and in the past ten years there has been much costly litigation over patents that would appear to be insignificant outside of the trade.

Corset Jean. A double-fold, calendered cotton drilling, used principally in the manufacture of corsets and for lining the waists of ladies' dresses. [See JEAN.]

Cote de Cheval (cote de chee'-val). A light-weight wool dress fabric, with a slight mixture of camel's hair, woven with a longitudinal cord like corduroy, in color both mixed and plain; known also to the trade as *cashmere chevron.*

Cotton. Among all the materials which the skill of man converts into comfortable and elegant clothing, that which appears to be the most extensively useful, though it was the last to be generally diffused, is the beautiful product of the cotton plant. The native botanical home of cotton is in the far East. Since the 5th century B. C., India almost everywhere throughout her wide-spread domain has arrayed, as she still arrays, herself in cotton, gathered from a plant of the *Gossypium* family, which has its wild growth there. More than two thousand years before England conceived the idea of applying modern industry to the manufacture of cotton, India had matured a system of hand weaving which during all that vast period received no recorded improvement. The people, though remarkable for their intelligence whilst Europe was in a state of barbarism, made no attempt to improve upon their laborious hand processes, nor was the cultivation of the plant either improved or considerably extended. Possessing soil, climate, and all the requisite elements from nature for the production of cotton to an almost boundless extent, and of a useful and acceptable quality, India for a long series of years did but little toward supplying the manufacturers of other countries with the raw material which they required. With the discovery of America, however, a competitor arose in the production of this valuable staple, which was soon to take first rank in the cotton-producing countries of the world. Tardy and uncertain as was the development of our cotton industry prior to 1792, the invention of the cotton-gin by Eli Whitney in that year, gave it a magical impetus which in a hundred years has placed the United States foremost among all nations for production and manufacture of this fibre. We have accomplished more by adpating the cotton-gin to this industry in one century, than India has accomplished in twenty, and have every reason to be proud of our record. It would be impossible to enumerate the results of this great mechanical invention. Its influence extends to all ranks of society and to every region of the world. Like the telegraph, the steamboat, and other great inventions, the cotton-gin has had a striking influence upon modern civilization. It changed the occupation and modes of life of great multitudes in both Europe and America; it demanded and brought

about new inventions to supplement its work; it transformed the sluggish life of the South into a life of activity, power and wealth. Its effect upon the production of cotton was immediate and striking. Cotton was an unimportant factor in the colonies prior to this invention, but a small amount being grown annually. In 1786 attention was called to the possibility of raising cotton for the English market, and more vigorous efforts were made. In 1791 the South produced 2,000,000 pounds, of which 190,000 pounds were exported. The following year, however, the exportation was but 50,000 pounds. So difficult, in fact, was the process of ginning (removing the seeds) that tobacco, indigo and rice bade fair to be the chief and permanent products of the Southern states. In the winter of 1892—93 came the invention of the cotton-gin. Encouraged by the hope of its success, the planters during the following season (1793) raised 5,000,000 pounds of cotton, and sent a half-million pounds to Europe. During the following year the use of the cotton-gin became more general in Georgia and South Carolina. It is not surprising, therefore, to find a product of 8,000,000 pounds in 1794, and an exportation of over 1,500,000 pounds. Year after year the area of the cotton-producing country, the number of planters and their slaves, and the amount and value of the crop, showed rapid growth. In 1800 the product was 35,000,000 pounds; in 1810, 85,000,000; in 1820, 160,000,000; in 1830, 350,000,000; in 1840, 880,000,000; in 1880, 3,200,000,000; in 1892, 4,500,000,000. The debt which the nation and the world owe to Eli Whitney is proclaimed by the eloquence of statistics. They indicate that Robert Fulton was not wrong when he said that "Arkwright, Watt and Whitney were the three men who did most for mankind of any of their contemporaries." Nor was Lord Macaulay too extravagant in saying, "What Peter the Great did to make Russia dominant, Eli Whitney's invention of the cotton-gin has more than eqalled in its relation to the power and progress of the United States." Whitney's tomb at New Haven, Conn., bears the following inscription:

ELI WHITNEY,

THE INVENTOR OF THE COTTON GIN,

OF USEFUL SCIENCE AND ARTS, THE EFFICIENT PATRON AND IMPROVER.

IN THE SOCIAL RELATIONS OF LIFE, A MODEL OF EXCELLENCE.

WHILE PRIVATE AFFECTION WEEPS AT HIS TOMB, HIS COUNTRY HONORS HIS MEMORY.

BORN DECEMBER 8TH, 1765.—DIED JANUARY 8TH, 1825.

The sowing-time for cotton extends from the beginning of March to the end of April, the early part of the latter month being considered the most eligible because of there being less danger to the young plants from the occurrence of frost—that fearful bane to the cotton planter. The seed

is sown in ridges, paralleled by furrows, for the purpose of draining off the superfluous water. After the plants have attained a moderate height they are thinned out, so as to remove those that promise badly, and to leave sufficient space to those that are vigorous ; this space varies from 10 to 20 inches. The soil is carefully weeded and the plants are still further thinned, if their luxuriant growth should require that process as the season advances. As the summer approaches, and the frost has disappeared, the crop is liable to injury from the heavy rains and the attacks of a caterpillar which feeds voraciously upon the leaves of the plant. The blossom then appears, varying in color from yellow to red, and lastly brown. From the blossom the pod is formed which in time bursts into a boll of snowy white. It is said that no crop in the United States presents an appearance so beautiful as growing cotton, especially at the gathering season, when the globes of snowy wool are seen among the glossy dark green leaves, exhibiting on a single stem the expanding blossom, the bursting pod and the snowy flakes of ripe cotton. The season of picking commences in the latter part of July, and continues without intermission to the Christmas holidays. The work is not heavy, but becomes tedious from its sameness. Each hand is supplied with a basket and a bag. The basket is left at the head of the cotton row ; the bag being suspended from the picker's shoulder by a strap, and used to hold the cotton as it is taken from the boll. When the bag is full it is emptied into the basket, and this routine continued throughout the day. Each hand picks from 150 to 200 pounds of seed cotton each day ; however, some negroes of extraordinary ability go beyond this amount. The problem of gathering cotton from the plant in a more expeditious manner than is done at present by hand has racked the brains of mechanics for a generation, and a hundred devices more or less, have been patented which were designed to accomplish this purpose. The difficulty encountered by this host of inventors has been so great that up to the present time cotton is still gathered by hand exclusively. There has, however, been recently invented a machine which experts and planters, who are interested, think has at last solved the cotton-gathering problem. The new machine resembles the frame of a wagon on four wheels, and straddles the rows, so to speak ; a driving-wheel, set revolving by the machine as the horses draw it along,, turns several wheels placed horizontally on top of the machine. These wheels turn perpendicular rods that reach down on each side of the cotton row. To these rods are attached at right angles pieces of wires which describe rapid half circles, beating the cotton plant in their sweep, or "agitating it." This agitation knocks off the cotton, which falls on a movable floor and carries the fibre back to a huge bag fastened to the rear of the machine. A slight blow will usually cause the cotton to drop, but if any remains, fans in the top of the machine create an air current that blows off the residue. The ripening of cotton proceeds in three stages, that nearest the ground ripening first, then that about the middle of the plant, and lastly the top crop. The first

picking is usually small and unrenumerative; the second picking is the heaviest, while the third or top picking is frequently poor, and in many cases abandoned entirely, so that it is estimated that of the cotton actually grown fully 10 per cent. is lost by abandonment, as it does not pay to keep the hands together for picking.

The three principal varieties of cotton cultivated in the United States are the "Sea Island", the "New Orleans", and the "Upland" varieties, which taken together are unequalled by the products of any other part of the globe. The Sea Island cotton, grown in the soft and balmy climate of low-lying islands off the coast of Georgia, Carolina and Florida, where frost is scarcely known, has surpassed all other varieties of cotton in the length and beauty or its staple. The delicate and silken filaments render it highly valuable for the production of the finest yarns. It is never introduced into the coarser muslins, but is used for the most delicate fabrics, and exclusively for the manufacture of sewing thread, being also consumed in large quantities by silk manufacturers, the fine, soft and glossy fibre rendering a mixture with the thread of the silk worm difficult to be detected. The largest crop of Sea Island cotton ever harvested was picked in 1891–'92, amounting to 68,000 bales, or about 40 per cent. more than any former crop. The average price is about 30 cents per pound. Over half of this cotton is annually shipped to Europe, to be manufactured into the finest grades of cotton fabrics. The long, bright fibre is also used largely in the manufacture of fine "silk" striped silesias for coat and sleeve linings, producing a stripe that no more visual and tactual examination can distingush from silk. "Upland" cotton is generally a light, flimsy cotton, of a weak and very unequal staple, used ordinarily for the filling, or weft threads. "New Orleans" cotton is superior to Upland, and has the preference on account of its clean, soft, and glossy appearance. It is rather short in staple, but even and strong. [See EGYPTIAN COTTON.]

The following is the classification of the different grades of raw cotton in the markets of the United States:

Fair, barely fair, strict middling fair, fully middling fair, barely middling fair.

Strict good middling, fully good middling, good middling, barely good middling, strict middling, fully middling, middling, barely middling.

Strict low middling, fully low middling, low middling, barely low middling.

Strict good ordinary, fully good ordinary, good ordinary, barely good ordinary, strict ordinary, fully ordinary, ordinary.

The *full* grades are fair, middling fair, good middling, middling, good ordinary and ordinary.

The *half* grades are designated by the prefixes "barely", meaning the mean point between the half grade and the next full grade above, and "fully" meaning the mean point between the half-grade and the next full grade below.

The average yield of cotton in the South varies from 140 to 180 pounds per acre. A bale of cotton, as it appears in commerce weighs 500 pounds, to produce which 1600 pounds of seed cotton is required ; and at the rate of 80 cents per 100 pounds for picking, it costs to pick one bale of cotton $12.80, or to pick the crop of 1892, of 9,000,000 bales, there was expended the fabulous sum of $120,000,000. "Seed cotton" is the term applied to the staple before it has been cleansed of its weighty proportion of seeds by the "gin". Every boll of cotton contains seeds resembling unground coffee, which, when removed, leave only about one-third in weight of clean cotton. After leaving the gin, it is wound in a fleecy state upon a large wooden roller and transferred to the carding machine.

Carding of cotton is the process of disentangling and arranging in parallel rows the *fibres* of the cotton so as to facilitate the *twisting* of them together. Carding may be compared to the combing and brushing of one's hair, and the *card* combines the properties of the comb and brush, being a large brush with wire teeth instead of bristles. These teeth are inserted in strips of leather, which are fastened to the surface of a cylinder. Several of such cylinders are so arranged that the ends of the teeth are nearly in contact, and the cotton being brought to them is caught up, passed from one to the other and combed out, as the cylinders turn round, in the form of beautiful films or fleeces. These films, which are the width of the cylinders, are next contracted to a narrow ribbon by being passed through a funnel and drawn out in order to make them ready for the next process, called spinning.

For spinning cotton there are two kinds of machines used—"throstles" and "mules." The throstle is employed in the spinning of yarn for warps. This yarn has its fibre more closely twisted than that spun upon the mule, and is more esteemed for certain purposes, especially for making sewing thread. The mule, or mule-jenny, differs from the throstle in that it spins a yarn much finer and softer, though more woolly in texture than throstle-yarn; mule-yarn, besides forming the weft of cloths, is also doubled and used for a variety of purposes wherein a lightly-twisted, thread-like yarn is not required. The principle of attenuating the yarn is, however, the same in both machines, consisting of several pairs of rollers turned by means of machinery. The *lower* roller of each pair is fluted or furrowed, and the *upper* one is covered with leather to induce it to take hold of the cotton. If there were only *one* pair of rollers, it is clear that the fibre passed between them would be drawn forward by the revolution of the rollers, similar to running a string through a clothes-wringer; but the cotton would merely undergo a certain degree of compression or flattening from their action. No sooner, however, has the fibre begun to pass through the *first* pair of rollers than it is received by a second pair, which are made to revolve four times as fast as the first pair, thus attenuating it, and so on through several sets of rollers, drawing the thread out finer and finer. By this ingenious

contrivance the mass of cotton may be drawn out into a thread of any desired length or size

Cotton after being spun is folded in hanks of 840 yards each. The *number* or "size" of this cotton yarn depends upon the number of hanks, 840 yards long, that weigh one pound, as illustrated by the following table:

Of	No.	10	yarn,	10	hanks	of	840	yards	each	weigh	one pound
"	"	20	"	20	"	"	840	"	"	"	" "
"	"	50	"	50	"	"	840	"	"	"	" "
"	"	60	"	60	"	"	840	"	"	"	" "
"	"	70	"	70	"	"	840	"	"	"	" "
"	"	80	"	80	"	"	840	"	"	"	" "
"	"	90	"	90	"	"	840	"	"	"	" "
"	"	100	"	100	"	"	840	"	"	"	" "

Cotton is never woven in its natural state, that is, as it comes from the spinning frame. It always receives a dressing or coating of some kind of liquid "size," which is allowed to dry on the yarn before the weaving begins. The object is to diminish the roughness on the surface of the threads, and to increase their tension power, thereby facilitating the weaving. A manufacturing firm in Connecticut, some years ago, produced the finest cotton yarn ever woven into muslin by machinery—700s. The same firm has produced since yarn No. 2150, but this was merely for experimental and not for weaving purposes. A *pound* of the finest Sea Island cotton spun of this fineness would be a thousand miles in length. Some idea of the tenuity of cotton fibres may be formed when it is remembered that 14,000 to 20,000 individual filaments of American cotton only weigh one grain, so that there are about 140,000,000 to every pound, and each hair weighs only about the 1-17,000 part of a grain, and if the separate fibres were placed end to end in a straight line, one pound would reach 2,200 miles. The beauty or excellence of some cotton cloths consist in the closeness of their texture; that of others, in the openess and regularity of the intervals between the warp apd weft threads. Recent experiments have shown that cotton may be heated to 248° F. for three hours without apparent injury. The same is true of printed cottons. The temperature, however, if continued for a long period, will slightly alter the color of cotton, but will not otherwise injure it. According to the most reliable historical and manufacturing authorities, no cotton sheetings, shirtings, ginghams or checks were made in the United States prior to 1790. All these classes of goods were then imported, being of English manufacture, and of linen warp with cotton weft.

The accompanying table gives the number of cotton spindles in the United States in 1880 and 1890.

	1880.	1890.
Alabama	49,432	96,647
Arkansas	2,015	13,700
California	....	....

	1880.	1890.
Colorado	....	....
Connecticut	939,376	1,023,928
Dakota	....	....
Delaware	46,188	61,714
Florida	816	1,300
Georgia	198,656	442,148
Idaho	....	....
Illinois	4,830	26,000
Indiana	33,396	61,868
Iowa	....	6,000
Kansas	....	....
Kentucky	9,022	42,500
Louisiana	6,096	61,168
Maine	695,924	812,722
Maryland	125,706	176,800
Massachusetts	4,236,084	5,905,875
Michigan	5,100	....
Minnesota	1,708	....
Mississippi	18,658	54,800
Missouri	19,302	17,500
Montana	....	....
Nebraska	....	....
New Hampshire	944,053	1,207,312
New Jersey	232,221	351,068
New York	561,658	619,472
North Carolina	92,385	321,070
Ohio	13,327	26,152
Oregon	....	
Pennsylvania	425,391	445,962
Rhode Island	1,746,539	1,948,958
South Carolina	82,334	351,040
South Dakota	....	....
Tennessee	35,736	116,788
Texas	2,648	17,734
Utah	432	288
Vermont	55,081	62,775
Virginia	44,340	79,612
Washington	....	....
West Virginia	....	....
Wisconsin	10,000	32,128
Wyoming	....	....
Total	10,653,435	14,385,024

England in 1890, had in operation 42,740,000 cotton spindles; European Continent 23,380,000; East India 2,490,000; Canada, Mexico aud South America 600,000, and Japan 100,000. The largest cotton mill in the world is that of Kranholm, in Russia. This colossal establishment contains 340,000 spindles, and 2,200 looms, and gives employment to 7,000 hands.

CROP OF THE UNITED STATES FOR SIXTY YEARS.

Year.	Bales.	Year.	Bales.	Year.	Bales.	Year.	Bales.
1829	870,415	1844	2,030,409	1859	3,851,481	1877	4,485,423
1830	976,845	1845	2,394,503	1860	4,669,770	1878	4,811,265
1831	1,038,848	1846	2,100,537	1861	3,656,006	1879	5,073,531
1832	987,487	1847	1,778,651	1862-1865	No record	1880	5,757,397
1833	1,070,438	1848	2,347,634	1866	2,193,987	1881	6,589,329
1834	1,205,324	1849	2,728,596	1867	2,019,774	1882	5,435,845
1835	1,254,328	1850	2,096,706	1868	2,593,993	1883	6,992,234
1836	1,360,752	1851	2,355,257	1869	2,439,039	1884	5,714,052
1837	1,422,930	1852	3,015,029	1870	3,154,946	1885	5,669,021
1838	1,801,497	1853	3,262,882	1871	4,352,317	1886	6,550,215
1839	1,360,532	1854	2,930,027	1872	2,974,351	1887	6,513,624
1840	2,177,835	1855	2,847,338	1873	3,930,508	1888	7,017,707
1841	1,634,945	1856	3,527,845	1874	4,170,388	1889	6,935,082
1842	1,683,574	1857	2,939,519	1875	3,832,991	1890	7,313,726
1843	2,378,875	1858	3,113,962	1876	4,669,288		

The average net weight per bale is 440 pounds.

EXPORTS AND DOMESTIC CONSUMPTION OF AMERICAN COTTON.

	1889-90.	1888-89.	1887-88.	1885-86.	1886-87.	1884-85.	1883-84.
Export to Europe-	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
Consumption U.S.,	4,885,326	4,700,198	4,602,248	4,296,825	4,414,326	3,898,905	3,880,466
Canada, etc	2,431,757	2,372,641	2,259,606	2,087,785	2,265,324	1,764,326	2,042,867
Total	7,317,083	7,072,830	6,861,650	6,384,610	6,679,650	5,663,231	5,923,333

COTTON CONSUMPTION OF THE ENTIRE WORLD.

Consumption Bales, 400 lbs.	Great Britain.	Continent.	Total Europe.	Total United States.	Total World.
1880-81	3,572,000	2,956,000	6,528,000	2,118,000	8,640,000
1881-82	3,640,000	3,198,000	6,838,000	2,197,000	9,035,000
1882-83	3,744,000	3,380,000	7,124,000	2,375,000	9,499,000
1883-84	3,666,000	3,380,000	7,046,000	2,244,000	9,290,000
1884-85	3,433,000	3,255,000	6,688,000	1,909,000	8,597,000
1885-86	3,628,000	3,465,000	7,093,000	2,378,000	9,371,000
1886-87	3,694,000	3,640,000	7,334,000	2,423,000	9,757,000
1887-88	3,841,000	3,796,000	7,637,000	2,530,000	10,167,000
1888-89	3,770,000	4,069,000	7,839,000	2,685,000	10,524,000
1889-90	4,027,000	4,277,000	8,304,000	2,731,000	11,035,000

SOURCES OF COTTON SUPPLY.

	Total.		Total.
	Bales.		Bales.
America	7,434,000	Brazil, W. I., etc	290,000
East India	1,740,000		
Egypt	460,000	Total	9,964,000
Smyrna	40,000	Average weight	455.1
		Bales of 400 lbs	11,336,000

Cotton Flannel. See CANTON FLANNEL.

Cotton Damask. A material woven in different colors, used for curtains and upholstery. [See DAMASK].

Cotton Rep. A heavy, corded cotton cloth used for the lining of curtains, etc. [See REP].

Cotton Wadding. See WADDING.

Cotton Velvet. See VELVETEEN.

Cottonade. A coarse heavy variety of cotton cloth, woven plain or twilled, used for men's cheap clothing. Of recent years cottonade has lost its former popularity, on account of the more stylish cotton "cassimeres" and "worsteds" which have come into fashion, and also from the fact that shoddy woolen goods can be purchased for almost the same price. Many of the old cottonade mills which once did a flourishing business now do not make the old fabric except in small quantities for special orders.

Countermand. [Latin *contra*, against, *mandare*, command]. An order in direct opposition to an order previously given, thereby annulling it and forbidding its execution.

Counterpane. [A corruption of French *counterpoint*, point against point, in allusion to the *panes* or squares of which bed covers were often composed.] The top cover for a bed; a coverlet or quilt; specifically a coverlet woven of cotton, with raised figures, now called a *Marseilles Quilt.* [See QUILTS, MARSEILLES.]

Coventry Blue. Thread principally used for purposes of embroidery, of a vivid blue, very popular in England in the 16th century, and for many years manufactured at Coventry, whence the name. In a letter attributed to Shakespeare, with the long-winded title of *A Compendious and Brief Examination of Certain Complaints of divers of our Countrymen in these our days, on the decay of Towns*, the writer says: "I have heard say that the chiefe trade of Coventry was heretofore in making blue threde, and then the town was riche, even upon that trade in manner only; and now our threde comes all from beyond the sea; therefore that trade is now decayed, and thereby the town likewise."

Coverlet. Quilt, coverlid, coverlet, counterpoint and counterpane at different times have been used to describe the same article. Our Saxon ancestors were not so nice in their night garments as we are. As a matter of fact, they lay during the night destitute of clothing, which we find denounced in the practice of servants throwing their chemises at candles to put them out. The bed for the common people was a trough filled with straw, and over this was placed a skin or cloak, which is said to have been called a cover-lid. Painted or embroidered coverlids for the nobility were termed chalons, from their having been originally brought from Chalons, a town in France. The trade of making these bed coverings brought about the current surname of chaloner. In 1454 an Act of Parliament related

that York City had been formerly supported by sundry handicrafts, and most principally by making coverlets and coverings for beds, whereby great numbers of inhabitants and poor people in that city and suburbs have been constantly employed. But that of late years "sundry evil-disposed persons, apprentices not expert in that occupation, had withdrawn themselves out of that city into the county, and divers other persons inhabiting the villages and towns of that county and nigh to the said city, have intermeddled with the said craft, and do daily make coverlets, neither of good stuff or proper size and do hawk and sell them abroad in the country, to villages and men's houses, etc., to the great deceit of the King's subjects," therefore it was enacted, that no person whatever, within or nigh to the county of York, shall make any coverlets for sale, but inhabitants alone dwelling within the city of York and its suburbs.

Cowl. A hood attached to a gown or robe, and admitting of being drawn over the head or of being worn hanging on the shoulders; worn chiefly by monks, and characteristic of their dress or profession.

Crape. [The same word as French *crepe*, formerly spelled *crespe*, from Latin *crespus*, crisp, curled, frizzled.] A thin, semi-transparent fabric made of silk or cotton, finely crinkled or crisped, either irregularly or in long parallel ridges. It is made white, black and also colored. The black has a peculiarly sombre appearance, and is hence considered especially appropriate for mourning purposes. Mourning or "hard" crepes are woven of hand-spun silk yarn "in the gum", or natural condition, the crimp being produced by pressing the fabric between heavy steel rollers, the surface of which are so creased and indented as to produce the pattern desired. Commercially the qualities are distinguished as "single", "double", "3-ply" and "4-ply". *Albert Crepe* is a variety composed of a union of silk and cotton. *Victoria Crepe* is of all cotton. *Canton Crepe* is a very cheap, soft cotton material woven with a wrinkled effect similar to Crepe de Chine. *Crinkled Crepe* is another airy fabric, woven after the manner of crinkled seersucker, dyed in solid colors. *Imperial Crepe* is a crinkly gossamer silk fabric used for ladies' neckwear. *India Crepe* is a fine silk crepe gauze, of extremely light texture. *Japan* or "soft" crepe is, after silk damasks the favorite fabric of the Japanese for dress, and of late years has become very popular in the United States. The wavy appearance of this fabric is due to the peculiar manner in which the weft thread is prepared, the yarn from bobbins being twisted together in the reverse way, that is, one to the left and the other to the right. The cloth is then woven with two shuttles, four wefts being beat up of the *left*-twisted thread from one shuttle, and the same number of the *right*-twisted thread from the other shuttle. On the removal of the cloth from the loom it is placed in a bath and boiled for some hours, and then washed, after which it is found to have shrunk considerably in breadth. It is then stretched and rolled on a wooden cylinder, and dried in the sun

When finished the cloth has the uneven surface liked by the Japanese, and which it will always retain. Formerly Japan crepe was woven in narrow widths, from 12 to 14 inches, but at present the width in the cheaper qualities runs from 24 to 27 inches. From the weaver the cloth passes to the printer. The printing factories are, like all those which are truly Japanese in origination and management, very small and primitive, from 20 to 40 workmen being usually employed. The sheds are open on three sides, and are filled with rows of long narrow tables or boards on trestles. On these are stretched the cottons or crepes to be dyed, and to the rafters above are hung the boards on which the stuffs partly printed are drying before completion of the process ; the machinery consists solely of a few stencil plates, brushes and saucers of fluid paints, and the human hands—which, however, are the most ingenious, obedient and successful machines when guided by the mind of an artist workman. The process is simple. Imagine, for example, that a real Japanese pattern, such as that of a white fan decorated with a design of birds, is being printed. Each fan may contain a different design if wished ; the method is the same. A stencil plate made of stout water-proof paper is temporarily fixed by broadawls to the cloth and table beneath, and with a bamboo spatula a paste made of rice and other materials is spread rapidly and evenly over the surface of the plate. The paste passes on to the cloth through the patterned spaces of the stencil plate, and thus covers the parts it is intended to leave white in in the design. The plate is then removed and the rice paste allowed to dry. The workman passes down the long table, which is the length of the entire piece of cloth, and, using the same stencil plate, he quickly covers over the intended white spaces throughout the whole extent of the cloth. A series of stencil plates are then used in succession in order to draw in the outlines and put in the colors and shades of the design.

Thus, one plate will give the outlines of one-half of the birds and flowers, the rest of the outlines being completed by the next plate. With a third plate the brown tints of the birds' wings are put in, with a fourth their beaks and claws, with a fifth any other color of their plumage, with a sixth the pink shades of the plum blossoms, with a seventh the green leaves, and so on, the number of the stencil plates being only limited by the complication of the design and by the variety of the color and tints in it. The colors are laid on moist, with flat round brushes. The depth, tone, and shading of the colors depend on the taste and skill of the workman, and it is delightful to watch him at work and to find how instinctively and rapidly he feels that a tone is here too strong, there too weak, and to see him shade and temper it by dipping his brush into the dish of clean water always at hand, or deepen it with a few strokes of the paint brush. Rapidly the design in all its complication grows beneath the apt fingers of the printer, and soon the long strip of cotton or silk crape is covered with fans and birds and flowers; but the base of the cloth still remains white. To dye it blue the parts which have been already printed are covered with a thick l ayer of

rice paste. When dry the whole surface of the cloth is brushed over with a paste of indigo and rice, or, it is dipped into the indigo vat. The cloth is then steamed to obtain fixing of the colors by the mordants with which the dyes are mixed, add finally the rice paste is washed off, when the design of birds and plum blossoms, on a white fan on a blue ground will appear as clean and distinct as if just drawn with the brush. The simplest designs of mere dots and lines are executed by the same process, as well as the most elaborate.

Crape Cloth. An all-wool dress fabric, dyed in all colors. It is of an irregular weave, similar to Japan crape.

Crash. A general term used to denote a strong coarse linen fabric; chiefly used for toweling, tarpaulins, packing, etc. Crash and towels, both in their use and title, have remained unchanged for a long period, even if they have ever known change. The Egyptians 4,000 years ago wove crash and toweling out of the same fibre that they are made of at the present day; wove it out of finer threads and made it more durable than it is possible to do with our modern machinery and acquired skill in weaving. It is often assumed that manufactures can be most successfully conducted in factories, and that modern machinery has quite superseded the old-fashioned, but ever deft human hand and fingers. This is an error. Some of the most exquisite linen manufacturers of the world were wrought by the ancient Egyptian peoples, and are carried on even yet by the hands of peasants in remote valleys and mountain solitudes. It is also an error to suppose that Ireland grows more flax and produces more linen or more crash than other countries. The latest correct statistics show as follows: Flax grown on the Continent of Europe, 3,700,000 acres; Ireland 123,000 acres (about one-half the area of an ordinary county in any of the States), and in the United States 1,284,812 acres. Of this Minnesota raised 167,264 acres; Dakota 488,993; Iowa, 265,000; Nebraska 150,932, besides a large acreage in the western part of Wisconsin. Ireland in 1891 imported 90,000 tons of flax from Russia and Belguim, and this imported fiber is better than they raise at home. Ireland manufactures less than one-fourth of the linen produced in the world, and but an infinitesimal part of the crash consumed in this country. In no country in the world does the cultivation of flax attain such large dimensions as in Russia. Russia alone produces more flax than all other countries of Europe combined. Out of the total area sown in Europe with flax, and amounting to about 5,700,000 *acres*, more than 3,700,000 acres are sown in Russia. Notice at the same time must be taken of the fact that while in all European countries without exception the area of land under the cultivation of flax is being annually more and more reduced, it is in Russia, on the contrary, being increased. The total quantity of flax fibre produced in the whole of Europe is estimated to be 1,354,000,000 *pounds*. The share of the total quantity which Russia annually produces is exactly two-thirds. It is from Russia that the

crash manufacturers in the United States procure their unbleached linen yarn for the manufacture of toweling, though there is no crash manufactured in this country above 14 cents per yard wholesale. Within a radius of 400 miles of Minneapolis, Minn., there was raised in 1891 over 500,000 acres of flax. The new linen mills established in that city manufacture several grades of crash which are pronounced to be superior to that of European mills. Each piece of cloth sent out is branded: "This crash is guarranteed. Made by the Minneapolis Linen Mill, of pure American flax-fibre. It is superior to the imported fabric." These mills turn out 2,000 yards of cloth per day, with a capacity of 6,000 yards. They also manufacture twine of an excellent quality. [See LINEN.]

Cravat. [From German *crabat.*] A piece of folded silk, satin or other material worn about the neck, generally outside of a linen collar, by men. In 1736 a regiment of German soldiers arrived in Paris, France, in the dress of which one characteristic was much admired by the Parisans—a neck-wrapper of silk (called a *crabat*) worn by the men and muslin by the soldiers, all alike tied in a bow with pendant ends, and used by them, it is said, to support an amulet worn as a charm against sword-cuts. The gay Parisians speedily adopted the novelty; and whenever Paris starts a fashion the balance of the world meekly follows it. In time cravat came to denote any kind of a scarf not made up, which was tied after being placed around the neck. When first introduced it was commonly of linen, edged with lace. At the beginning of the 17th century it was worn very long, and it is often seen in pictures passed through the buttonhole of the coat or waistcoat. In 1840 and earlier the cravat consisted of a triangular silk kerchief, usually black, wound twice round the neck. Formerly, when starched linen cravats were worn, perfection in the art of tying them was one of the eviable accomplishments of a dandy. The cravat differs properly from the scarf, in this, that whether tied or passed through a ring or held by a pin, hangs down over the shirt-front in pendent ends.

Cravenette (crav-en-et'). A system of water-proofing woolen fabrics. It is applied to a large variety of materials, which are used in the manufacture of mackintoshes, etc., for ladies.

Crazy-quilt. A kind of patch-work quilt, in which irregular pieces of silk and other material are applied upon a foundation in fantastic patterns, or without any regular pattern, and having their edges stitched and embroidered in various ways.

Crepe de Chine (crape de sheen). A variety of extremely thin and highly lustrous crape dress-silk distinguished by its changeable or "shadow" surface. [See CRAPE, CHINE].

Crepe-Lisse (crape-leece). A fine thin silk material, plain woven; used for women's ruching, dresses, etc. [See LISSE].

Crepon (crep'-on or cre-pon'). A dress fabric resembling crape but

not so thin and gauzy, made of silk or wool or silk and wool mixed; a term applied to crinkled effects in general. Crepon novelties are frequently woven with narrow satin stripes, or cords. Cotton fabrics are also printed in crepon effects.

Cretonne (cre-ton'). [Derived from the name of the first maker, *M. Cretonne*, of Paris]. Originally a strong white fabric of hempen warp and linen weft, with various textures of surface, sometimes plain but oftener twilled or "momied." Forty years ago, when chintzes went out of fashion an enterprising Philadelphia manufacturer saw the beauty which might lie in printing the white cretonne with delicate patterns and finishing it with a glaze, and forthwith placed his inspiration upon the market. The fabric came into immediate and permanent popularity. It is used for many household purposes, chiefly however for curtains, chair and sofa coverings. [See CHINTZ.]

Crewel. [From German *clew*, a ball of thread]. A kind of fine worsted yarn, used in embroidery and fancy work.

Cricket Flannel. See FLANNEL.

Crinoline. [Fr. *crinoline*, hair cloth, from Latin *crinis*, hair and *linum*, linen]. When first invented crinoline was woven of horse hair and linen, but is now altogether woven of cotton, and used as a cheap material for stiffening ladies' dresses, linings and the like, after the manner of buckram. The original material made of horse hair and linen, began to be used about 1852 in the manufacture of ladies' stiff skirts or "crinolines;" and when this fashion was followed by that of wearing greatly projecting skirts of wire springs, the word "crinoline" continued to be used to designate the latter article. The first crinoline-skirt for expanding the dress was invented by Empress Eugenia of France, just before the birth of the Prince Imperial, and the fashion was adopted by Her Royal Highness Queen Victoria when Princess Beatrice was expected. [See HOOPSKIRT, FARTHINGALE, HAIR CLOTH.]

Crofting. The process of bleaching linen by exposure to the air on grass. This method in Ireland and Scotland is yet in use for the full and soft bleaching of certain fine grades of linen fabrics. It necessitates the possession of very extensive grass parks in connection with works, and renders the process both tedious and subject to the influences of the weather. By far the larger part of linen is bleached by the use of chemicals, principally chlorine. [See BLEACHING, LINEN.]

Crown Lining. Fine crinoline or stiff tarlatan, used by milliners for lining the crowns of ladies' bonnets.

Curtains. See HOLLAND, LACE CURTAINS.

Cut Cashmere. A variety of twilled, double fold dress goods, distinguished by the presence of fine sunken lines traversing the length of the web, producing an appearance of "dropped threads" or incisions. Also known as *Sebastopol*, and woven all-wool, and with a cotton warp.

D

Damask. A textile fabric woven in elaborate patterns, of various designs, as flowers, leaves, foliage, etc., woven in the loom. So called not because of having been originally woven at Damascus (as is so often stated) but on account of the perfection at one time attained by the Damascene weavers. China, no doubt, was the first country to ornament its silken webs with a pattern. India, Persia and Syria followed, but at long intervals between, in China's footsteps. Fabrics richly figured brought with them to Europe the name of "diaspron" or diaper, bestowed upon them at Constantinople. But about the 12th century the city of Damascus, even then long celebrated for its looms, so far ourstripped all other places for beauty of design that her silken textiles were in demand everywhere, and Damascus cloth became synonymous with excellence and splendor of weaving; and thus as often happens, traders fastened the name of Damascene or Damask upon every silken fabric richly wrought and curiously designed, no matter whether it came or not from Damascus. At present the term signifies either of two entirely different materials: (1) *Curtain Damask*, which is made of silk and wool or silk and cotton, in large vari-colored patterns woven up in the loom, used chiefly for curtains, portieres and furniture covering; and (2) *Table Damask*, which is a fine twilled linen fabric, used solely for table linen (which see). It is, with a few exceptions, ornamented with a pattern that is shown by the opposite reflections of light from its surface, without contrast of color. This effect is produced by the satin principle of twill weaving. [See SATIN]. While damask is not a perfect type of the satin principle of weaving, yet it comes as near to it as is possible consistent with the fact that both sides of damask must be equally perfect, and not one side only. An examination of a damask cloth either in linen or worsted will convince even the merest tyro of this, and more especially when compared with satins, which are not figured after the style of damasks. Instead of there being a fine, unbroken surface, presenting only one set of threads to the eye, either in the ground or the figure, and all the points of interweaving of the wrap with the weft being hid, the weft will be seen coming through to the warp surface (which can not be discerned in satin). The thicker the threads employed the more apparent will this be and the finer the threads the less will this be visible. The reason is not hard to find. Where threads are thick the point of interweaving is more difficult to cover, by reason of their bulk; hence, fine-threaded damask always presents a more perfect appearance than thick-threaded ones, although the diameters of the threads in both bear exactly

the same ratio to the number in a given space. In respect to fineness of fabric and beauty of designs the French linen Damask long bore pre-eminence, but latterly has been surpassed by that of Silesia and Saxony, and still later by that of Ireland. The fine double damask of Irish manufacture has of late reached a higher excellence in point of weaving and bleaching than it ever before attained, and the finest qualities now produced at Belfast are not equaled by the choicest products of Saxony. Considerable quantities of damask are made in Scotland, particularly at Dunfermline, Lisburn, and at Ardoyne, near Belfast. Dutch and Italian damask are also imported by this country. The designs for damasks are first drawn by artists, and any pattern can be executed such as initials, crests, names, etc., with the admirable machinery now in use. *Double damask* is an 8-leaf twill, and *single damask* is a 4-leaf twill; that is, in which the pattern is formed by the warp passing over 8 and 4 wefts respectively and then under one weft and over 8 or 4 more respectively and under one again, and so on. In double damask the pattern always appears with more distinctness than in single. *Turkey red damask* is a cotton fabric, used for table covers. The "Renfrew" brand is one among the few fast colors of this material.

Damasked. Fabrics ornamented on the surface with flowers or other patterns having a running figure, produced by weaving and not by printing or stamping. The word "damasked" when applied to linen textures or to mixed materials when used for upholstery purposes, has much the same meaning as "brocaded" when applied to silk and wool textures.

Damasse (da-ma-sa'). Woven with a rich pattern, as of flowers or large running figures: said of certain silks for ladies' wear.

Damassin (dam'-a-sin). A kind of damask with gold and silver flowers woven in the warp and woof; an ornamental fabric of which the surface is wholly or almost wholly gold and silver, used in the decorative arts. The material is subjected to heavy pressure to make the surface uniform and brilliantly metallic.

Darning Needles. A long needle with a large eye, used for darning with yarn or heavy cotton; sold at wholesale by the thousand, the sizes varying from 12 coarse to 18 fine, with usually a rise in price of 10 cents per size; double long darners are sized 0 and 00. [See NEEDLES.]

De Beige (de-bazh'). See BEIGE.

Delaine (de-lane'). [French *mousseline de laine*, muslin of wool]. An expressive title which signifies fully what manner of fabric they properly should be. Delaine was originally a plain woven, muslin-like dress fabric, made of fine "woolen" yarn, but afterward degenerated into cotton or mixed materials, and frequently printed. The old-fashioned, soft, plain-woven wool delaine is easily recognized at present under the name of challi. The endurance of these fabrics is especially commend-

able ; they do not wrinkle easily, and when made up and properly draped possess an essentially feminine and dainty look.

Demi-Castor. An inferior quality of beaver fur ; hence, a hat made of beaver of this quality.

Denim. [A trade name; origin unknown]. A coarse cotton twilled material used for men's overalls and working shirts; the quality is denoted by the weight in ounces per square yard, ranging from 6-oz (light) to 12-oz (heaviest). This fabric has since 1889 been utilized to a small extent for curtains and portieres, and the denim which is so familiar with the trade in the peculiar grayish blue, is now made for drapery purposes in browns, golds, olives, reds and all of the various shades likely to please the best elements of the trade. The goods are 50 inches wide, and embroidered in the same character of cord work that is seen in tambour lace curtains. [See TAMBOUR].

Designing. A figure or representation of some character must be originated and drawn suited to every class of cloth that is woven. This is called designing. The artist first sketches the design for a fabric on plain paper, then transfers it to finely-ruled paper, painted in the exact colors that are to appear in the cloth, having due regard for economy in weaving. Designing silks and fine woolen goods is something that employs and pays well for much of the best artistic talent in France and England. A pattern that "takes," means fortune to the mill that makes it. Nearly every mill has its own pattern makers, and guards jealously the fruits of their labors. A pattern cannot be protected by letters patent, and in consequence of this a custom has sprung up throughout the trade of copying or adopting the patterns of competitors in the production of fabrics. This appropriation of designs of other mills is universally followed, so that it is about as fair for one as for another, so far as taking an advantage is concerned. Foreign manufacturers have complained for several years past that they have no protection against the American manufacturer who, as soon as the new goods are placed on the market, proceeds at once to bring out the same identical patterns in a much inferior cloth. This, when placed alongside of the imported fabric, appears to all intents and purpose fully as handsome and elegant, and is quickly taken up by the lower classes, who always desire to appear as well dressed as their more fortunate sisters. The result is that their expensively originated fabric is practically killed, for as soon as the fabric becomes common, so to speak, the best trade will not use it any longer, and this cause is responsible for the heavy losses which are frequently sustained by importers in closing out the season's novelties. There are several agencies in Paris and other leading trade and fashion centres of Europe which make a business of supplying samples of foreign manufacturers' new styles to the manufacturing trade of this country, some charging a certain figure per 100 samples, while others have a subscription price per year, they agreeing to furnish samples of everything new as fast

as placed on the market. The majority of our mills producing dress goods, silks, wash fabrics, etc., subscribe to the agencies referred to, and from the samples received are able to secure many novel effects and unique designs, and there is no denying the fact that the same are of great assistance to our home manufacturers. They, however, when bringing out their duplicated productions of these same samples, are very chary about showing them openly until the season's output has been well placed, as with competition so strong as at the present time should a rival mill discover any special pattern was going well, the chances would be that a reproduction of it would appear, perhaps in a cheaper cloth, practically killing the sale of the finer article. Among the weavers of Lyons, St. Etienne and other great weaving centres of France, much attention is devoted to anything in any way connected with the beautiful, either in the figure or the color of textiles. Weavers may be seen in their holiday leisure gathering flowers and grouping them in the most engaging combinations. They are constantly suggesting new and tasteful designs to their employers, and are thus the fruitful source of elegant patterns. Hence the French flower patterns are remarkably free from incongruities, being copied from nature with scientific precision. This constitutes one of the chief secrets of French manufacturing prosperity, for so long as Fashion worships at the shrine of beauty, enough people will be found to purchase the fabrics of France, even though France should be prohibited from purchasing those of other countries. Fashion is to France what the mines of Peru were to Spain, what the wheat fields of India are to England, what the cotton industry is to the South. In both France and England under the fostering care of their respective governments have been planted many schools of design, where boys and girls are taught the art of originating and drawing beautiful patterns for the textile manufacturers. For hundreds of years England, especially, has encouraged and assisted her people to become more proficient in the art of designing, hence it is small wonder that she has such a tremendous power in the commercial world; for an elegant pattern will always induce the sale of a fabric with less difficulty than superior quality. No other people make such intelligent, well-directed, persistent and long continued efforts in this direction as they. While we Americans pile up the tariff mountain high in a vain endeavor to bolster up our manufacturing interests, the English educate their artists to make a beautiful pattern, and the result is that the goods possessing the most elegant designs invariably have the preference. There are probably more technical schools devoted to textile interests in England, than in all the rest of the world put together. The time has come in the history of textile manufacture in the United States, when "we must educate or perish."

Diagonal. A term introduced in the United States in the year 1875 denoting a variety of worsteds used in the manufacture of men's fine clothing, especially for coats and vests; it is twilled in such a manner that the diagonal ridges are somewhat prominent and noticable. The Supreme

Court of the United States has decided that an importation of cloths known as "diagonals" was, under the law as it existed before the passage of the Worsted Law, dutiable at 24c. per pound and 35 per cent. advalorem, as "manufactures of worsted not otherwise provided for," and not at 35c. per pound and 35 per cent. as "manfuactures of wool". These goods are known to the trade as "worsteds", therefore they are held to be dutiable under the paragraph relating to "worsteds" regardless of the fact that they are wholly the product of wool.

Diaper. In this term we have an example of a fabric possessed of a proud ancestry, in its time second to none in the family of splendid fabrics, degenerated to the most insignificant and ignoble purpose that is possible for a fabric to be used—a body-clout for the mewling infant. Diaper was originally a silken fabric, held everywhere in high estimation for wellnigh a thousand years. We know this from documents beginning with the 10th century. The origin of the name, however, is uncertain. Possibly, in order to indicate a one-colored yet patterned silk which diaper then was, the Greeks of the early middle ages invented the term *diaspron*, "I separate" to signify "what distinguishes or separates itself from things about it," as every pattern does in a one-colored silk. With this textile the Latins took the name for it from the Greeks, and called it "diasper," which in English has been softened into "diaper." By degrees the word "diaper" became greatly widened in its meaning. When "samit," having long been the epithet betokening all that was rich and good in silk, was forgotton, diaper from being the very word significant of pattern, became a term descriptive of merely a part of an elaborate design. Not only all sorts of textiles, whether of silk, or linen, or of worsted, but the walls of a room were said to be diapered when the self-same ornament was repeated and sprinkled well over it. At present in the manufacture of cotton and linen white goods the term is applied to those which have small patterns of geometrical regularity, such as diamonds, arrowheads, birds'-eyes, etc., woven in their texture.

Diced. A term descriptive of a pattern woven in cubes or squares—that is, with the sides of the cubes or squares shaded by the run of the thread; less properly, a weave of squares or lozenges touching one another, without a ground.

Dickey. A separate shirt-front worn over the breast in place of a shirt, or to hide a shirt not fit to be seen. These were at one time called *shams*, and by economical persons were worn over plain shirts during the first half of this century.

Dimity (dim-'i-ty). [Supposed by early authorities to have been derived from *Damietta*, Egypt, where the fabric was once manufactured of fine linen. This is now known to be erroneous. The term is from the Greek word *dimita*, meaning two threads. The Greeks coined many names for their fabrics from the different combinations of the threads, as "amita,"

"dimita," "trimita," "exhimita," etc.] A variety of white goods distinguished by raised threads or cords extending the length of the fabric. It is sometimes printed with various figures, but oftener finished plain white.

Discharging. A method employed in calico and silk printing for the purpose of imprinting a pattern upon a ground of solid color. If, for example, a piece of calico cloth previously dyed a solid color be marked over with blocks covered with a paste containing tartaric acid wherever the latter touches the cloth, its color will be removed or "discharged," thus producing white spots. Numerous modifications of this principle with other discharging agents, and various coloring matters, are of frequent use for producing colored patterns on solid grounds. In the process most practiced the goods are either padded all over or on one side only, with mordant and dried, and afterward the pattern printed on the portions discharged. [See CALICO, BANDANNA, MORDANT].

Discount. A part deducted from the count; hence in trade an allowance or deduction, generally of so much per cent., made for prepayment or prompt payment of a bill.

Distaff. The "staff" or stick which holds the carded material in hand spinning. Generally it was a stick about 3 feet long with a forked top, on which was wound a quantity of wool or flax to be spun. The lower end of the distaff was held between the left arm and the side, and the thread, passing through and gaged by the fingers of the left hand, was drawn out and twisted by those of the right, and wound on a suspended spindle made so as to be revolved like a top, which completed the twisting. In Asiatic countries and in some districts of Europe, especially Italy, the primitive distaff and spindle are still used; but after the introduction of the spinning-wheel into Europe, about the 15th century, the distaff became an attachment only of that designed for flax, and thus continued in general use till a recent period.

"——The loaded *distaff* in the left hand placed,
With spongy coils of snow-white wool was graced;
From these the right hand lengthening fibres drew,
Which into thread 'neath nimble fingers grew."

The "distaff" side, or "distaff side of the house," was formerly an old collective phrase for the female members of a family, as the distaff was always used by the women, and was common among all ranks; used especially with reference to relationship and descent, and opposed to the "spear side" which on account of the men alone using this weapon signified the male portion of the family; as, he is connected with the family on the *distaff side*; or, he traces his descent through the *spear side* of the house. [See SPINNING WHEEL, HOME WEAVING.]

Ditto. [From Italian *ditto*, meaning that which has been said, Latin *dictum*, said.] A duplicate. The same thing. Abbreviated *do*, and is also expressed by two inverted commas (″), sometimes by the dash (–), and

sometimes, especially in writing, by two minute-marks (''). A *ditto*-suit is a suit of clothes of the same color or material throughout.

Dobby-Machine. A loom built purposely for weaving fancy patterns, constructed on a principle similar to the Jacquard loom. [See JACQUARD.]

Doeskin. [So called from the fancied resemblance of the fabric to the skin of a doe, on account of its softness and pliability]. A compact, twilled "woolen" cloth, finished partially felted, with a smooth surface. Doeskin has been extensively used for men's fine pantaloons. The French excel all other nations in the manufacture of this fabric, their product being far superior in make, finish, and coloring to the American doeskins. [See WEAVING, WOOL, FELTING, TEASLING, SINGEING].

Dog Cheap. [Early English *dogge cheape* and *dog chepe*, from *dog*, as a type of worthlessness]. Very cheap; in little estimation.

Dogskin. A term applied for the purpose of deception to a variety of sheepskin leather. It is somewhat thicker than the leather of which kid gloves are made, and is used for gloves for men's wear, driving gloves, etc. [See GLOVES].

Dolly Varden. [From *Dolly Varden*, a character in Dickens' "Barnaby Rudge."] A gay-flowered calico worn from 1865 to 1875.

Dolman. [From Turkish *dalama*, a long robe open in front, worn by the Turks over their outer garments]. A style of ladies' winter wrap, characterized by a hanging piece over the arm instead of a sleeve, of various lengths, from very short to almost reaching the ground.

Domet. A soft, loosely woven material similar in construction to flannel, napped slightly upon either side. *Domet shirting* is of the same organization, woven in checks, stripes and plaids, termed indiscriminately *teasle cloth*, *tennis cloth* or *outing cloth*, the latter name being patented. Domet was formally an English fabric, of cotton warp ahd woolen weft, generally employed for shrouds, and sometimes by dressmakers in the place of wadding. The present fabric owes its popularity to the introduction of the negligee shirt, in 1888, and forms a curious instance of a popular craze for an intrinsically worthless fabric. Their low price and the pleasing effects of color, rendered soft and delicate by the napped surface, make them attractive to the masses. It is stated that during the season of 1890 there were manufactured by mills in the United States over 100,000 miles of the fabrics known under the general head of domet. [See FLANNELETTE.

Donsky. [Russian *Donskoi*, of the river Don]. A variety of Russian wool of coarse quality introduced into English and American woolen manufacture about 1840.

Dornick. A term now used for stout linen cloth, especially checkered table linen or damask having a simple diaper pattern; supposed to have derived its name from the pattern resembling

the *dornick*, which is a small pebble or cobble-stone. Since 1552 the word has been spelled many ways, *dornix*, *darnex*, *dornex*, *darnec*, *darness*, and many other varieties of arbitrary orthography. According to some writers the term is said to have been derived from the town of Dorneck, in Scotland, where there was a large weaving industry established early in the 18th century.

Double-dyeing. A method of dyeing mixed woolen and cotton goods, by which the wool is first dyed with a color which has no affinity with cotton, after which the cotton is dyed with some color having no affinity for wool.

Double-faced. Cloth having both surfaces finished, so that either may be used as the right side.

Doublet. An outer body-garment such as was worn by men from about the end of the fifteenth century until the middle of the seventeenth century. Originally it was characterized by short skirts, and was girded round the body with a belt. Later it was cut and adjusted with great care, and even stuffed or bombasted into an exact shape. At this period it occasionally had short skirts, but was more often made without them. Throughout the sixteenth century the doublet usually had sleeves; under the reign of Charles I of England it became universally an undergarment, being made without sleeves and worn under the coat, and was thus the immediate ancestor of the modern vest.

Dowlas (dow'las). Like the names of many other cloths, dowlas is from a town-name, said to be from *Doullens*, a town in the department of Somme, France. Until the introduction of machine-woven cotton cloth, dowlas was a strong and coarse linen fabric, used for purposes not requiring fine linen, principally common shirting, ladies' skirts and chemises; it was a species of what was known at that time as holland (which see). The name is still perpetuated in a strong calico made in imitation of the linen fabric.

Down. The fine, soft covering of fowls under the feathers, particularly that of swans, ducks, geese, and other water-fowls. Down-feathers are characterized by a downy structure throughout. They more or less completely cover the body of the fowl, but are always hidden beneath the contour feathers, and serve as a sort of padding about the bases of the latter. The eider duck yields most of the down of commerce. [See EIDER-DOWN.]

Doyley. [Also spelled doi'-ley. Said to be so called from the name of its first maker, Sir Jno. D'Oyley.] A fringed napkin, made of linen or cotton, white or colored. [See TABLE LINEN, DAMASK, LINEN.]

Drap de Alma (drap-de a'l-ma.) A fine close, flat-twilled dress fabric of wool, or silk and wool, finished on but one side; somewhat heavier than cashmere. The twill weave of Drap de Alma is very similar to Satin Royal, and only different from a Satin Rhadame twill in the diagonal lines being closer together.

Drap de Te (drah-de-ta'). A species of worsted dress goods, woven in fine longitudinal cords, sometimes dyed in shades of brown and drab, but usually black; also used for men's summer coats and vests.

Draper. *Drap* is a French word meaning cloth, and "draper" in England, and "drapier" in France are the terms used in those countries to designate a dealer in cloth or clothing, dry goods or textile fabrics of any description; as, a linen-*draper*, a woolen-*draper*; being synonymous with merchant, or dry goods merchant in the United States. The "Drapers Company" of London, is a very important and influential body of merchants, having been incorporated since 1364, and at the present time owning two large buildings, called Halls, where they hold regular meetings twice a month. The company is a combination board of trade and benevolent association, and their objects seem to be to secure special city legislation favorable to their business, and to assist unfortunate members who are worthy. Some of the company's rules are interesting. Apprentices are received as members by paying a certain initiation fee, after which the Company becomes responsible to an employer for their good behavior. If these apprentices become wayward and require correcting, they receive a flogging by two tall men disguised in canvas frocks, two penny worth of birch rods being expended on the moral improvement of each delinquent.

Drapery. The occupation of a draper; the trade of making or of selling cloth. Cloth or textile fabrics of any description. Specifically such variety of cloths as are used for upholstery, curtains, etc. *Cotton Drapery* is heavy cotton flannel napped alike upon both sides and dyed in solid colors or printed.

Drap Sanglier (drap san'-glier.) A loosely-made, all-wool French dress fabric, 44 inches wide. It is of rather coarse grain, plainly woven, and has a good deal of nap or roughness on the face. It is more especially designed for purposes of mourning.

Drawing-frame. A machine in which the slivers of cotton, wool, etc., from the carding-engine are attenuated or drawn out by passing through consecutive pairs of rollers, each pair revolving at a higher rate of speed than its predecessor. [See CARDING, SPINNING.] In *spun-silk* manufacture, a machine in which the fibers of the floss or refuse silk are laid in a parallel position preparatory to being cut into short lengths by the cutting-engine, to be afterward worked like raw cotton.

Drawn-work. A kind of ornamental work done in tidies, towels, etc., by cutting out, pulling out, or drawing to one side some of the threads of the fabric while leaving others, or by drawing all into a new form, producing fancy patterns in the cloth. This work was the original form of lace, the addition to it of needlework producing the first and simplest varieties of lace. The early name for this was *cut-work*.

Dress. A garment or the assemblage of garments used as a covering

for the body or for its adornment; clothes; apparel; skill in selecting, combining, and adjusting articles of clothing. Dress is only one of the countless forms of fashion. Its super-importance is evidenced at every turn, whether dictating the arrangements of the christening, the marriage, or the funeral. The standard of good dressing varies much in different parts of the world. The king of Tahiti thinks himself well dressed in a belt and necklace, or possibly a wrap of cloth or a coat, regardless of his nether extremities, while his queen struts in countless strings of gaudy beads, enveloped in dirty wraps wound in disorder about her body. The fashionable heathen miss of the Fiji islands is satisfied with a fringe of colored grass about the loins, while her sister, the Christian belle, cares nought but for a cloth reaching from the waist to the knee, decorated with delicate creeping ferns or bright golden croton leaves, cunningly fastened so as to overlap each other and form a short petticoat. The Indians of both sexes are contented with the ornamented furs and skins of wild animals, supplemented occasionally with a crimson blanket of wool. The Roman matron considered herself gorgeously arrayed in her purple tunic of silk, while her noble husband held a similar opinion enveloped in the flowing folds of his toga. The East Indian woman winds herself up in her chudder, as the Scotch shepherd does in his shawl, each happy in the thought that their form of dress is the best. Among all nations and all peoples the objects and origin of dress are the same—comfort and adornment.

Among civilized peoples the primary object of dress is, of course, to protect the body from extremes of climate. But another object is to beautify, or perhaps to emphasize beauty is a happier way to express it. The problem of good dressing, which is so seldom solved, is to discover a person's two or three fine points, bring these into relief and conceal the many deficiencies. Happy is that woman who, acknowledging her deficiencies, constructs her dress to emphasize her finest points. She will make the most profound impression, and unconsciously and unintentionally become the merchant's best advertising medium.

The first thing to be considered by a woman of taste in selecting a dress, is the general effect as a *whole*, and this can only be secured properly by the study of the form, height, breadth, length of waist, carriage of the head, gait and general deportment. After this follow color, line, mass, trimmings, ornaments, etc. Many women dress as if the face was the only consideration, yet we see the face once where we see the whole person twenty times, as across a room or the street. Again, some dress as if they were a half-length portrait, not considering what is below the waist. A short woman too often thinks she looks taller for wearing a very long waist. So she does in her short mirror, forgetting that what she adds *above* she cuts off *below*, and were she to look into a long glass, she would see that by apparently shortening her limbs she loses far more height than she gains by lengthening her waist. The shorter the woman, the shorter should be her waist.

It does not take an artist to see that the natural form is beautiful, with its graceful curves, its perfect proportions and its flexibility of motion. It is always a mistake or a blind and willful disregard of the laws of nature, when a woman dresses in defiance of the laws of beauty. The loose, soft waist which the "dress reformers" urge, is no less hideous than the French corset which ruins the figure. It does not serve its ends, as it conceals all the beautifully rounded curves which should be emphasized. The present close-fitting dresses, defining the graceful lines of the hips and falling in slightly below the knees, are strictly in accordance with the natural lines of the body, and are far from ugly on a well proportioned figure. Dress should not alter the natural shape, nor the general effect of the physique; it must only seize upon the prominent beauties of figure, complexion, carriage, style, and by dexterously making the dress harmonize with these an effect is produced which is marvelous. But this is one of those subtle truths which requires a delicacy of comprehension possessed but by few. It is probable that Charles Frederick Worth, the man-milliner of Paris, has this faculty developed to a greater degree than any other person living. Worth was born in 1834, and is consequently now but little past middle age. He is a stout, genial, pleasant-looking gentleman, with a peculiarly low-toned voice and very quiet manner. He is not only the head of that vast establishment in Paris, but its soul and brain as well. He creates the pattern dresses, orders materials and trimmings to be manufactured from his own designs, and superintends in person all the delicate finishing details of a toilette, such as shaping and trimming of a corsage, the tying of scarfs or of ribbons, to the placing of artificial flowers on the skirt. He excels in combining colors, sweeping aside piece after piece of silk till the exact union of hues that is at once the most effective and most artistic has been reached.

In selecting a dress pattern the buyer should first consider height and rotundity of the figure, how it may be apparently increased or lessened by judicious arrangements of drapery. A general rule may be given to this effect: Division lessens the appearance of size either in width or height. The repetition of upright lines gives the effect of added height, because it divides the rotundity. The repetition of horizontal lines gives the appearance of greater rotundity, because it divides the height. In the art of dress, fulness produces an esthetic effect which tends to give size, but it must not change the natural shape; it must simply increase it *apparently* in the size of the dimension either way. Thus the *line* is of great importance in arranging a dress. Long lines from the shoulder to the foot, in the arrangement of draperies, will have the effect of making a short, stout woman appear taller, and thinner, while *vice versa* lines extending around the figure will increase the rotundity. As an illustration: if stout ladies would only be content to give themselves the advantage of their roundness, and not, by lacing, attempt to disguise themselves as slender women (a most apparent subterfuge) they might pass for artistically dressed persons.

The beautiful arms and hands and neck, which always accompany stoutness, being the finest points, should be advantageously displayed by wearing close-fitting garments, but with the long lines of grace prevailing from the shoulder to the foot.

Drilling. [German *drillich* (from *drei*, three), a 3-cord fabric.] A twilled material of either linen or cotton, very stout and used for waist linings, underwear, summer trowsers, pockets, etc.; found in all colors; also called *drill* and *drills*.

Drugget. [From French *droguet*, trash]. A large square rug or mat, felted or woven, either of one color or printed on one side, and used as a protection for a carpet, covering only the middle portion of the floor. A finer fabric of the same sort is used for table and piano covers. The character of this article has wonderfully changed as compared with that which once bore the title. In 1739 druggets are described as "plain and corded," and enumerated among other stuffs of combing and carding-wool. Silk druggets are mentioned among stuffs of mixed material, as long wool and silk, or mohair and cotton. Chambers, in his Cyclopedia of 1741, gives a description of them which leaves no doubt that some druggets were far from trashy:

> DRUGGET, in commerce, a sort of stuff, very thin and narrow, usually all wool and sometimes half wool and half silk, having sometimes the wale (twill), but more usually without, and woven on a hard worsted chain. Those without the wale are wove on a loom with two treddles, after the same manner as linen, camblet, etc. M. Savary invented a kind of gold and silver drugget, the warp being partly gold and silver thread, and the woof linen.

Twilled drugget was once commonly known in trade as "corded" drugget, but when of linen warp and woolen weft as "threaded" drugget, and were particularly an English manufacture. Its use as an article of clothing, common ever since the fabric has partaken of the character of baize, has now entirely ceased, so that we only know it as proper to the carpet department.

Drummer. A commercial traveler who is an agent or representative of a manufacturer, importer or other wholesale dealer who procures and transmits orders for the goods of his firm in quantity, by personal solicitation and the exhibition of his samples. He is not a pedler, for he carries no goods, makes no direct sales, and does business only with dealers, never with consumers.

Dry Goods. Textile fabrics, and related articles of trade; as, cloth, shawls, wraps, ready-made garments, blankets, ribbons, thread, yarn, hosiery, millinery, etc., in distinction from hardware, groceries, etc. In this sense the term is used almost exclusively in the United States, though not, as generally supposed, a term of American origin. The first recorded use of the term "dry goods" to describe textile fabrics collectively, occurred in a report to the English House of Commons in the year 1745, relating to the infamous practice of smuggling, and containing the following passage: "From Yarmouth His Majestie's officers give account that on the 22d of

October, one hundred and twelve horses were laden on the beach with smuggled *dry goods* by upwards of ninety men, guarded by ten persons with firearms; and on the 20th of the same month forty horses were loaded with *dry goods* at Hartley by riders well armed." In both England and Canada at present "mercery" and "drapery" are the terms used to describe dry goods.

Recent government statistics indicate that in the United States there is more money invested in the dry goods business, in its various branches, than in any other industry, the total amount slightly exceeding $20,000,000,000. That coming next in point of money invested, is railroads, with $12,000,000,000. The extraordinary industrial progress of the United States during the past thirty years, or since the Civil War, is the greatest wonder of modern civilization. It is a glorious proof of the unlimited power of of human exertion, and of the superiority of American genius. Thirty years ago the United States had but 30,000,000 souls; in 1890 it had above 65,000,000. Then we had only 141 cities, with 5,000,000 inhabitants; the last census showed 443 cities, with 12,000,000 inhabitants. The woolen industry in the year referred to put on the market $80,000,000 worth of goods; in 1890 these figures were increased to $280,000,000. In 1860 we imported 227,000,000 yards of cotton fabrics; in 1890 only about 25,000,000 yards. Moreover, our spinning mills and factories of cotton goods now export annually over 150,000,000 yards of their products. The silk industry thirty years ago employed only 5,000 individuals, to-day it employs 35,000 individuals. The products of the silk factories then amounted to $6,0000,00. In 1891 they were worth $40,000,000. In 1860 the Union had 22,000,000 sheep, thirty years after it had 40,000,000, while the wool produced increased from 40,000,000 pounds, to 260,000,000 pounds. In these thirty years while the population has only doubled, the industries have, in most cases, increased four-fold, and in a few instances five-fold, while we exported last year three times as much as in 1860. The merchant who peruses this retrospect may well feel proud of the record of his calling, which is absolutely without parallel in the world's history. The dry goods element is one of the greatest features of our Nation's commercial life, and has undoubtedly done the largest share toward developing our national and industrial prosperity. The dry goods store is found in every village and hamlet, and is the center of trade and barter in all rural communities. In the larger towns and cities the dry goods interest forms one of the most important departments of business, and greatly helps in sustaining all other branches of trade. The consumptive demand for dry goods increases in ratio corresponding with the increase of population. A business of such magnitude, involving so much capital, and so intimately interwoven with the wants of our modern civilization, requires the best management possible to make it successful. Year by year dry goods stores are growing larger and larger with added lines of merchandise, until it is now possible to procure at the large department stores almost any article in common use by mankind.

The two largest department stores in the world are in Paris and London, the "Bon Marche," in Paris, and "Whitely's," in London. The story of the Bon Marche, owned by Aristide Boucicaut, is one that blends enterprise and philanthropy, individual genius and cooperative thrift, man's invention and woman's perseverance in a way unmatched elsewhere in history. Boucicaut was born in France in 1810. His coming into the world was so unimportant that he never knew his birthday. The boy received no education. Barely able to read and write enough to keep rude accounts, natural energy made him adopt the humble and not cheerful occupation of a peddler. With $25 worth of miscellaneous goods known in France as *noveautes*—novelties we say—he took to the road and patiently plodded through hamlet and village until he had made enough money to buy a half interest in a small store in Paris called the "Bon Marche" (cheap market). In 1877 the peddler who had laid aside his pack 40 years previous, died the absolute head of the Bon Marche dry goods establishment, whose capital had became millions, and whose 3,000 employees mourned him as a father. He was most happily married. His wife was of his own disposition—frugal, far-sighted, sagacious. She helped all his plans, made their home happy and has carried on the immense business since his death. Boucicaut, seconded by his wife, opened evening schools for their army of clerks. He had clever teachers of various languages, of mathematics, drawing, writing, music, dancing, reading, theatricals. The life of the miserable "calicoes" of Paris prior to his time was as squalid as it was despised. He created for that class, pleasure, dignity, reward, opportunities never before contemplated as even possible. He founded a home for his women and girl employees, and opened a dining-room where both men and women are fed at the expense of the store. Later he opened a boarding house for the men and boys. There is no charge in the restaurant, open to employees only, except for "extras." There are more than 2,500 men and women living thus, under a form of socialism, that has proved wholly free from danger and rich in blessing. Married employees have their own homes apart from the establishment. All others can find lodging and subsistence under its protection. There is a smoking-room for the men, there are hair-dressing rooms, music-rooms, billiard-rooms, a medical staff and dispensary—all free. At sixty years a pension is provided for men or for those at any age who have been with the house twenty years. Women at fifty are retirable on pension, or after fifteen years continuous service. There is free delivery of goods for fifteen miles outside as well as in the city. Goods are always exchanged without question if unsatisfactory for any reason. The success of the establishment is due, first, to excellence in quality of goods; second, to politeness and intelligence in clerks; third, to prudence in spending money on mere show; finally, to affording in each stock variety enough in grade and price to suit alike the poorest and the richest.

Whiteley's great London shop is a strange mingling of commercial

elements. He does not pretend to be a merchant, but announces himself as a "universal provider." When it is investigated what this means, there will be found a great store stocked with everything to eat, drink and to wear that the human imagination can conceive. He prides himself that no customer can send an order to him for anything in the world that he will furnish him, even to a wife. The character of wages paid, and the general conduct of the business is a marvel, and one of the greatest curiosities of commercial life in the world.

Duck. [From Swed. *duk*, cloth.] A strong linen fabric, plain-woven, without twill, lighter than canvas, and used for small sails, tents, and for men's summer clothing; in color usually white or unbleached, but sometimes dyed in plain colors. Cotton duck is made in imitation of the original linen, and is always distinguished by being woven with a double warp; used for men's overalls, tents, awnings, etc. The quality is denoted like denim by the weight of the cloth in ounces per square yard. *Russia duck* is a white linen canvas of fine quality.

Due-bill. A brief written acknowledgment of indebtedness differing from a promissory note in not being payable to order or transferable by mere indorsement.

Dundee Goods. A term applied to a large class of coarse fabrics of flax, hemp and jute, made in and about Dundee, Scotland, such as crash, huckaback, burlaps, baggings, ducks, sail-cloth, coarse sheetings, paddings, cot bottoms, etc.

Dupion (du'pion). A double cocoon formed by two silk worms spinning together. The coarse silk furnished by such double cocoons.

Dyeing. The art of coloring fabrics by immersion in a properly prepared bath. The matters used for dyeing are obtained from vegetables, animals and minerals, and the subjects to which they are applied are porous materials in general, but especially wool, cotton, silk, linen, fur and feathers. The great diversity of colors obtained in dyeing is the result of the combination of two or more simple coloring substances with one another, or with certain chemical re-agents. To render the colors permanent, the subsequent application of a mordant, or the precipitation of the coloring matter by the direct use of a mordant, is usually required; but when aniline and some other artificial dyes are used no mordant is necessary. The superficial application of pigments to fabrics, as in painting or as in cheap processes of calico printing, does not constitute dyeing, because the dyes so applied do not penetrate the fiber, and are not intimately incorporated with it. The most important dyestuffs are cochineal, madder, indigo, logwood, fustic, and the various preparations from aniline.

That dyeing was practiced in the most ancient times is abundantly proven by the frequent mention of dyed colors in the oldest extant writings; that it was not a common art seems apparent from the uses to which colored garments were devoted, and the high distinction which they con-

ferred upon the wearers. The bright colors, "blue, purple and scarlet," mentioned in the book of Exodus, as well as the "Tyrian purple" so often referred to by Roman writers, were so costly as not to be available for general and common use. From the perishable nature of textile fabrics and their comparatively small intrinsic value, very few ancient examples of the dyer's art have been preserved. There is, however, one account of cloth containing dyed yarn which may have been in the dyer's hands in Egypt 1,000 years before the Christian era; and there is still in good preservation ecclesiastical garments containing dyed silks which are certainly 600 to 700 years old. Some of the mummy cloths taken from the Pyramids have a border of blue and fawn color made by colored threads introduced in the loom. At the Centennial Exposition in 1876 there was in the Peruvian Department a piece of woven cloth taken from the tomb of the Incas at least 2,000 years old, and in an excellent state of preservation, with the colors scarcely dimmed through a cycle of many centuries. Stuffs dyed with purple were one of the most considerable branches of the commerce of the ancients. The purple disputed value with gold itself in those remote times, and was the distinguishing mark of the greatest dignities of the universe. This sort of dyeing now constitutes one of the lost arts. The earliest account of the processes and materials used by dyers is found in a French collection of manuscripts written in 1410, and the earliest printed account of dyeing processes occurs in an Italian work published in 1510. In this work mention is made of woad and methods of making indigo from it; of indigo imported from India, called *bagadel;* of sumac, gall nuts, and the berries of buckthorn, to be used for yellow; and of sandal wood and madder for red. It is very clear from these works, and from numerous existing samples of colored fabrics, that dyeing was well understood in Europe in the fifteenth century, and that the materials at the command of the dyer were sufficiently numerous and varied to enable him to produce all desired shades of color. The discovery of America was soon followed by the introduction of cochineal. Logwood or campeachy was also an introduction from the New World, and greatly enlarged the power of the dyer, though from the looseness of the colors it yielded it brought his art into some disrepute, but eventually settled down as the principal ingredient in the common black dye. In 1810 quercitron bark was discovered in America and introduced for dyeing yellows, which has from its superior richness, and less cost, displaced all other materials used for that purpose. Of the natural dyes introduced in the present century probably the most important is catechu. The discovery of the use of bichromate of potash as a mordant for woolen goods belongs to the latter half of this century, and has been of the highest benefit to the dyer.

In the year 1858 commenced the discovery and application of a series of artificial coloring matters, which have created a distinct era in the history of dyeing. Up to that date the coloring matters used in dyeing were either the spontaneous productions of nature or simple preparations

of the same. In this year was produced a dyeing material from aniline. Other discoveries rapidly followed, and in the course of a few years it may be said that a hundred patents were taken out for methods of making artificial coloring matters from aniline and its preparations; these alkaloid bases, under the transforming hands of chemists, supplied the dyer with every shade and hue which could be desired. Imitating more or less closely the colors obtained from natural coloring matters, they have no similarity of chemical composition, but are in every respect fundamentally different from them. In 1870 a German chemist by means of chemical investigation succeeded in transforming an extract of aniline into alizarin, the latter being identical in chemical composition as well as tinctorial properties with the coloring matter of madder, one of the most anciently known and most valuable of all natural dye-stuffs. This was the first instance in which chemistry had produced one of the old and well-known colors of the dyer; in a short time after its discovery it was made practically available for the trade, and has at this date (1892) almost entirely driven from the market the native product—accomplishing a revolution which has no parallel in the history of coloring matters. [See ANILINE, ALIZARIN, WOAD, MAUVE, MADDER, LOGWOOD, PIGMENTS, INDIGO, MORDANT, PURPLE, TURKEY RED, COCHINEAL, COLORS, CALICO PRINTING].

E

Ec'ru (eck'-ru). [French *ecru*, "raw" or "unbleached" when applied to linen, silk or other textile fabrics]. Having the color of unbleached silk or linen, hence by extension having any similar shade or neutral color, as the color of hemp or hempen cord.

Edging. Narrow lace or embroidery especially made for trimming frills and parts of dress. [See EVERLASTING.]

Egyptian Cotton. Cotton raised in Egypt, of a yellowish color and superior quality, not as fine and silky as the Sea Island cotton raised in the United States, but ranking next to it in price and grade. It is, however, somewhat irregular in staple, and prepared for shipment in a bungling, slovenly manner. No description of cotton loses less in carding, and it mixes freely with cotton of a shorter staple. The best and cleanest is generally used by manufacturers for spinning a superior quality of yarn for hosiery.

Eider-down. Down or soft feathers of the eider-duck, such as the bird plucks from its own breast to line the nest or cover the eggs. The commercial down is chiefly obtained from this species of duck, and is used in the manufacture of many beautiful fabrics, as coverlets, robes, tippets, boas, muffs, etc. The down is one of the very poorest conductors of heat, as well as an extremely light substance, thus preserving great warmth

with very little weight, and is by far the most valuable of any down-feathers imported. The eider-ducks build their nests in great numbers in almost inaccessible rocky situations on the coast of Ireland, Scotland, Lapland and Spitzbergen; and these nests are, at great risk of life, annually plundered of their down by fowlers. Eider-down comes to this country in the form of balls weighing three or four pounds. It is so fine and soft that if one of these balls is spread and warmed over hot coals it will expand and fill a bed big enough for two persons. Eider-down is only used as a covering for beds, and never should be slept upon, as it thereby loses its elasticity. The down procured from the nests, being plucked by the duck from her own breast, is most valued, and is known as "live down," that plucked from the dead bird is much less elastic, and consequently lightly esteemed. About half a pound is the quantity usually procured from each nest.

Eiderdown Cloth. A heavy-napped woolen fabric invented in 1882, by Mr. Robert Ward, of Philadelphia, and extensively used in the manufacture of children's garments, caps, cloaks and robes. It is also used for ladies' sacks, jackets, opera cloaks, dressing gowns, and for counterpanes, afghans, mats, and lap robes. Though of delicate texture, it will stand wear to a remarkable degree. The especial qualities of lightness, warmth and elasticity which the fabric possesses are not due to the material alone, but largely to the peculiar construction of the cloth. This will be understood when it is remarked that Eiderdown is a knit cloth produced by the same process as crochet work. By this means at least double the surface is secured that is possessed by woven cloth of the same weight. In fact to produce a woven cloth with the same weight would cost at least twice as much. Eiderdown comes in a great variety of patterns, from plain white and the different shades of red, blue, pink, to fancy squares and stripes. All plain cloths in the various tints and colors are simply dyed, but stripes, squares etc., are embroidered into the fabric by machinery, previous to napping. Fancy effects in stripes and checks are produced by a combination of different colored yarns knitted into the cloth by the same machine which constructs the fabric.

Elastic Web. A material for suspenders, garters, etc., made in bands from half an inch to twelve inches in width. The slender rubber slips or *shirrs* as they are technically called, are cut from wide thin sheets of india rubber and these lie parallel to the warp in weaving. Ordinary silk and cotton elastic are woven plain, or "single," but the heavy grade for suspenders is "double-woven," that is, with two sets of warps and two sets of wefts, interlaced together so as to form a solid and compact band, with the slips of rubber in the center. First manufactured in 1820. Bolts of elastic web are put up in 12 yard lengths. Elastic cord comes put up in 36 yard lengths.

Electoral Cloth or Biretz. A double-faced dress fabric woven of wool,

or silk and wool, with a cashmere twilled face upon one side ,and a round close-ribbed or "repped," surface on the other, usually reversible. [See EMPRESS CLOTH.]

Ell. A long measure, chiefly used for cloth, of different lengths in different countries. The English ell, not yet obsolete, is a yard and a quarter, or 45 inches. Ell is identical in meaning and origin with the word *aune*, which is also a cloth measure for one and quarter yards. Both of these words are derived from *alna*, elbow or fore-arm.

Embossed Velvet. See VELVET.

Embossed Felt. An upholstering material; used for table covers, borders, friezes, or dados for applique purposes. Ordinary thick felt is embossed under pressure of heavy cylinders upon the surfaces of which are cut out the patterns. By the action of heat or acid, the color is brought up in tones, giving the effect of two printings.

Embroidery. The art of working with the needle flowers, leaves, vines and other forms, upon wool, silk, cotton, or other woven textures. That it is of the greatest antiquity is proven by the testimony of Moses and Homer. It takes precedence of painting, the earliest method of representing figures and ornaments being of needle-work traced upon canvas. In olden times embroidering was the chief occupation of women of all ranks, from the palace to the cloister, and sharp rivalry existed in the production of sacerdotal vestments and ornaments. Nuns embroidered robes adorned with sacred subjects; girls produced admirable embroidery in appropriate designs for the monasteries; chasubles and mantles were embroidered on silk, embellished with gold and gems by the fair hands of queens and princesses. From the ninth to the fifteenth century was a glorious period for needle-work. Not only were figures and portraits produced, but also floral, rococco, and arabesque ornamentation; flowers in the grandiose style wrought with arabesques of gold and silver were characteristic designs of the period. From an industrial point of view, embroideries may be ranged into two classes: First that described above, in which Persia, China and Japan are the greatest masters in modern times; second, white, or flat-stitch embroidery, applied to dress and furniture, upon cloth, cambric, swiss, etc., in which Swizerland holds first place and Germany next. Eastern Switzerland, with St. Gall as a center, for one hundred years has been headquarters of the flat-stitch embroidery industry of the world. Although the Swiss embroider at a marvelously low rate, they cannot weave the cambric for the foundation. These cloths, cambrics, swisses, etc., upon which the Swiss embroider, are all obtained from England, being for the most part manufactured at Manchester. In the year 1890 cotton embroideries to the value of $18,000,000 were shipped from St. Gall to various quarters of the earth. More than $8,000,000 worth of these came to the United States. Should these large importations continue, and the tariff on embroideries remain at the present high rate of 60 per cent., the customs

income would amount to nearly $5,000,000 annually. The present hand-machine for embroidering was brought into use in 1827. Embroidering by hand alone had long been practiced by the Swiss peasants, but it had only become an organized industry (home-industry) early in the present century, and was confined, as now, almost wholly to the mountainous part of eastern Switzerland, that is, in the cantons of Appenzall, Thurgan and St. Gall, with St. Gall town as headquarters for shipping. A great industry grew. The technical skill and readiness of hand of the Appenzall women was marvelous, and gradually the exquisite embroidery made by them became famous all over the world. Many thousands of people are now engaged wholly in the skilled business. Girls are trained to it from early childhood. Prior to 1827 all the beautiful work was done with the hand and in the people's homes; but the introduction of the hand-machines rapidly changed the whole situation. At present possibly not 5 per cent. of the embroideries are made exclusively by hand, and these only of special articles, fine and expensive. The hand-machine was soon in the houses of half the peasants, and factories were founded where many machines were collected and worked—but still by hand-power only. The character of the work was then, and remains now, excellent, but the production is comparatively slow. The Swiss manufacturers are, as a body, wealthy people, but their workmen have not too much of the good things of of life. The profits are usually large to the dealers; but the embroiderer barely makes a good living, as it is always necessary for him to pay an assistant, known as the "threader," to help work his machine. This common old embroidering hand-machine of 1827, with few improvements, is the one that is used today for the millions of fine embroideries that are sold to all quarters of the globe. There are about 30,000 of them in use in Switzerland, the number of needles averaging about 250 to the machine, and the number of stitches not exceeding 2,000 to the needle, daily. As embroiderers are paid on the stitch basis only, they have very small earnings left after paying their threaders and other expenses. At the present time 50 cents, sometimes less, is a fair average of the daily earnings of a hard-working embroiderer, who must toil all day long with head, hands and feet, working his machine.

A steam embroidering machine that may more than triple the present enormous production of hand-machines, and produce embroidery even of a better quality than the present, is one of the latest inventions. It is called the Arbon. To the many thousands of Swiss people who earn their livelihood by hard labor at the hand-machine, this invention is one of vital interest. A machine that would increase the number of stitches per day, and with less labor, has been the effort of inventors for nearly fifty years. In 1875 a machine, called the "Schiffli," was invented and worked by steam. It produces, however, only simple patterns of inferior quality. The embroideries made by this machine are usually known as "Schiffli goods." The Arbon machines, when placed two together, with the single automatic

pantagraph acting for both, will it is claimed, produce 12,000 to 15,000 stitches daily. Two hand-machines, worked by two men and two girls, may if they are experts, produce 5,500 stitches daily, but even then the Arbon machines would nearly triple the production. Hand-machines cost $400; Arbons $1,000 to $1,500. At present the hand-embroiderers of Switzerland regard the new invention of embroidering by steam power with contempt, but this feeling usually exists among skilled laborers with reference to radical revolutions in textile industries. The French hand-weavers 100 years ago ridiculed the invention of the Jacquard loom; seeing it a reality, their next act was to try and burn it up and mob the inventor, because it had revolutionized their industry in a night. There is a possibility that the Arbon steam-machine may yet do for the embroidery industry what the Jacquard loom did for silk weaving.

In the United States there are in operation about 300 Swiss embroidering hand-machines. The men working these are all brought over from Switzerland. They are employed mostly on silk embroidery, fancy trimmings, embroidering of robes in silk and wool. Most of the work could be imported, tariff paid, and sold cheaper than the American work on which they are employed. But one very strong protection of home industries exists which is not found in the statute books. This is protection in the supplying of *immediate* demands by agencies in touch with the marts and tastes of this country.

In the manufacture of wholly hand-wrought goods, Chinese embroidery is probably the most remarkable that ever came from human fingers. Any lady who has ever attempted embroidery understands the difficulty of giving a neat appearance to the work on only one side of the article embroidered, but the Chinese embroider both sides, so that by turning the work it is impossible to detect a difference or to say which is the neater, and this, too, on material so thin that it seems impossible to work with it at all. The Japanese, as usual in these things, borrowed the art from China, and at present Japanese taste and skill is universally acknowledged, although China was the original exporter of the quaint designs on quaint materials, worked in still quainter colors. The number of firms engaged in the embroidery trade in China and Japan number about 350, which represents a very large number of persons employed in the business. Men obtain an average rate of about $6 a month for first-class embroidery, $4 second class, and $3 third class work. Up to 1886 the trade was comparatively small, and orders were seldom received for more than 100 dozen articles of the same pattern. Now, however, 2,000 and 3,000 dozens of one pattern is not by any means an uncommon demand.

The Persians used silk for their embroideries at least two thousand years ago. Marco Polo in the 14th century wrote of the rare skill of the women of Persia, especially in the South, in the needlework of silk. Many choice stuffs are still in existence, wrought by them centuries ago, of silk and gold and silver thread; and to this day they can be seen still busy with

the needle, rivaling their sisters of Cashmere on the east, and surpassing the women of Turkey on the west. A curious fact connected with Persian embroidery is the circumstance that the art is practiced not only by the women but also by the men. The latter work chiefly in the bazars, and go, if required, to do special work at the houses of Europeans. Perhaps the handsomest embroideries of Persia are those called Siliseh, made in Kerman, the most southern province, bordering on the Indian Ocean. Both in material and workmanship they are but little inferior to those of Cashmere, which they resemble. The needle work is sometimes of silk, but generally of woolen thread, which has a very soft, silky appearance.

Embroidery Silk. The fancy colors are usually put up 10 yards to a spool, each spool being equal to four ordinary cards or skeins. All colors except black and white are EE in size (equal to No. 300 in knitting silk). Black and white are made in four sizes, E, EE, F, FF, from fine to coarse in the order named.

Empress Cloth. [So called on account of the weave having been originated for, and worn first by the Empress Eugenia, of France]. A variety of dress fabric, medium heavy, with a finely repped or corded surface, frequently with a cashmere or sateen twill on the opposite side; also called Biretz and electoral cloth.

Empress Gauze. A fine, transparent stuff, made of silk, or silk and linen, and having a design, usually of a flower pattern, woven in the mesh.

Epingle (ep'in-gle). [French *epingle*, a slender pin wire.] A descriptive term for a variety of thin silk, woven with prominent lustrous raised cords, as if a fine wire had been inserted in place of the weft to make the cords more noticable; though in point of fact hard-twisted worsted threads are used for this purpose in the better grades, and cotton for the cheaper. The patterns in Epingle silks vary, sometimes there being but a single cord at close and regular intervals, and again two or three together at uneven distances apart. The cords possess a high polish, forming a striking contrast with the lusterless ground. This silk is frequently used for ribbons and cravats.

Equestrian Tights. A woman's knit undergarments, consisting of drawers and stockings combined, reaching to the waist. [See PANTELLA.]

Ermine. A small quadruped inhabiting the northern regions of Europe and America. The fur of the animal is snow white, with the tip of the tail a jet black. The ermine is a near relative of the weasle, the ferret, and the European polecat, all of which belong to the same genus. The ermine fur of commerce is chiefly obtained from Northern Europe, Siberia and British America, and is in great request. When the fur is prepared for ornamental purposes, the black of the tail is inserted at regular intervals so that it contrasts with the pure white. The fur, with or without the black spots, is used for lining and facing certain official and ceremonial garments, especially in England the robes of judges, hence by extension,

the term "ermined" has come to signify one who is invested with judicial power, or with the office or dignity of a judge.

Estamene (es'-ta-mene'). An all-wool French dress fabric woven similar to serge, but having a rough and nappy surface, and uniformly measuring 25 inches in width. In weather suitable for the wearing of serge, estamene is a fitting substitute, but at the same time is a superior kind of dress material to the former.

Estamin (es-tam'-in). A woolen stuff made in Prussia, used for sack cloth, plush caps, etc. [See TAMMY.]

Etamine (et'-a-mine). A coarse description of woolen bunting or canvas, of a more or less transparent texture. It is employed as a dress material and is generally intended to be worn over a contrasting color. The threads are of a fluffy character, dyed in the prevailing colors and shades. It is also made in cotton. [See TAMISE.]

Everlasting. A variety of very durable white cotton edging, distinguished by being made in rows of continuous holes surrounded and separated by a light, flat braid or cord. Its width is indicated by the number of rows of holes, from one-hole narrow, to 8-hole wide.

Everlasting. A strong mohair or worsted cloth used for the tops of boots and shoes. Better known under the terms *lasting* and *prunella* (which see).

F

Fabric. [From Latin *fabricus*, a work shop.] A woven or felted cloth of any material or style of weaving; anything produced either by weaving or interlacing; destinctively called textile fabric; cloth; texture; stuff.

Factory. A term which originally implied the residence of factors; that is, agents or brokers whose duty was to buy or sell goods for merchants who resided elsewhere; to see them packed and shipped to the persons for whom they were bought. The modern significance of the term is a building or group of buildings appropriated solely to the manufacture of goods. The factory system has arisen from the rapid growth of the woolen and cotton industries, and the consequent subdivision of labor which rendered necessary the centralizing of various departments of manufacture. It has gradually developed to its present dimensions since the year 1770, through the invention of the humble barber of Preston, Richard Arkwright. Prior to this invention, silk, wool, linen and cotton yarns were spun by hand, a single yarn at a time, but with the invention of Arkwright's spinning frame, a vast number of threads of any degree of fineness and hardness can be spun [See WEAVING, SPINNING]. Instead of hand-spinning being performed by single families in isolated communities, the work was transferred to the spinning frame where large numbers of hands were

employed to operate them under a single roof. Year by year new inventions and improvements upon old ones have been made, until the present day witnesses the ever-increasing tendency to combination and centralization of the weaving industry.

. The tendency of the manufacturing establishments of this country to decrease in number and increase in size is strikingly demonstrated in the eleventh census bulletin on the woolen industries. From this it appears that there were 678 less woolen factories in 1890 than in 1880; and 1,579 less than in 1870. The number of factories devoted to the manufacture of wool reported in *active operation* in 1890 was 2,503, against 2,689 in 1880, and 3,791 in 1870. On the other hand, the capital invested in the 2,503 factories in 1890 was $314,309,044, as against $150,091,869 invested in the 2,689 in operation in 1880. In other words, while the number of mills decreased nearly one-fourth during the decade, the capital invested was nearly doubled. The increase in the number of hands employed was about 60,000; the employees numbering 161,557 in 1880, and 221,032 in 1890. The amount of wages paid increased from $47,389,087 to $76,741,266; the cost of material used from $164,371,551 to $203,095,642, and the value of the manufactured product from $267,252,913 to $338,231,109. These statistics do not include 271 idle establishments, nor those engaged in the manufacturing of shoddy, which amount to no inconsiderable item. These figures furnish a striking illustration of the tendency toward large combinations of capital in more extensive factories. The day of the small woolen mills, scattered through nearly every county in the country and manufacturing the wool clips of the immediate locality, as well as supplying the manufactured products for local consumption, is past. Whether or not the concentration of the woolen industry in fewer and larger factories is an unmixed evil, the simple fact is, that the decrease in the number of sheep kept by the small farmers east of the Mississippi, and the decay of the small woolen manufactories have gone hand in hand, and the decrease in the East has not been made good by the number of new woolen mills started in the West.

In the cotton manufacturing industry cheap coal or abundant water power is now no longer, as it once was, the first requirement of the factory owner. It is still an important one, but it has become secondary to that of cheap transportation. Cotton is cheap, bulky, heavy; fabrics and garments made of it are but one-fourth as durable as wool; there are immense quantities consumed, hence the freight charges enter more largely into the cost of manufactured cotton than is the case of woolens. There are parts of New England the water power of which is possibly great enough to supply the motive power for all the spindles and looms in the country, and yet in districts which once were centers of manufacturing industry, of large and contented communities of working people, there remain in abandoned works and deserted tenements nothing but monuments of a former prosperity. The cheap motive power is still there, but the greater

desideratum of cheap transportation is lacking, and because of it poverty and ruin prevail in many of the once prosperous districts of New England. The cotton factories, contrary to the facts cited in the case of the woolen industry, are slowly and surely moving West and South, following the center of population. It is predicted that another generation will see the cotton manufactures of this country produced entirely in the Southern and Central states, on account of recently developed railroad facilities and the nearness to the raw material. The ten years between 1880 and 1890 witnessed an increase of 10,000 looms in seven Southern states, and it is estimated that these seven states produce 34 percent of all brown cotton manufactured in America.

The silk factories are located in the extreme East, and will in all probability remain permanent fixtures of the Atlantic coast, unless the time should come when the United States shall succeed in raising silk equal in quality and quantity to that now produced in Europe and Asia—an extremely unpromising conception. [See SILK.] The ocean freight on raw silk from Asia is but 6 cents per pound. Compared with cotton the bulk annually consumed is insignificant, hence transportation charges enters but a small degree into the cost of the manufactured article.

Factory Cotton. Unbleached cotton muslin, as opposed to bleached or imported fabrics; called also "factory" and "domestic."

Factory Yarn. Coarse 2-ply or 3-ply unscoured woolen yarn, or yarn "in the grease." It is usually made by the interior woolen mills, and is used by country people for the knitting of heavy winter hose. Frequent washings remove the grease, leaving the knitted article clear, soft, and extremely warm and durable. It is generally put up in hanks 4-to-the-pound, and unlike fancy yarns weighs out full 16 ounces per pound.

Fagoting (fag'-ot-ing). In embroidery, an operation in which a number of threads in the material are drawn out, and a small bunch of them tied in the middle, or "fagoted." This is continued until all the threads in the row across the cloth is tied into fagots. The term is also applied to a similar effect produced by knitting, and in the manufacture of towels. tidies, etc.

Faille (fail). Originally a hood covering the face, worn by French nuns of certain orders. In the 16th century the term was adopted to describe a peculiar heavy silk veiling, worn at first by nuns, but later by women of all classes. The word has had several different meanings from the 13th to the 18th century. At present faille indicates a popular variety of soft, ribbed dress silk distinguished by a prominent grain or cord extending from side to side of the fabric. The cord is not so heavy as that found in ottoman, but about twice as large as that found in grosgrain. It is finished without "dressing," possesses a slight gloss, the fabric generally appearing better in light than dark colors.

False Hair. See HAIR.

Fans. [From Latin *vannus*, an apparatus for blowing the chaff from grain.] A hand article for cooling the face and person by agitating the air. The first fans were composed of feathers, representing the joining of two foul wings, an obvious evidence of their Oriental origin, where similar kinds are still in use. The feathers of the peacock, ostrich, parrot and pheasant were used in their construction, and the handles were frequently formed of very costly materials. The present use of the gorgeous peacock fans by the attendants of the Pope on ceremonial occasions, is a survival of the custom of the slave waving a fan before a priest of Isis, made of feathers and painted at the top. The fans that stir the air before the rulers of Asia are of the same shape as noted above. The oldest Christian fan transmitted to us dates from the 6th century, and belonged to Queen Theodelinda, the saintly princess who possessed a nail of the holy cross, which was hammered and set in the interior of the Iron Crown of the kings of Italy. This fan is preserved in the Castle of Monza, near Milan, and is shown to the tourist as a relic. It is of leather and is divided into two leaves, which, when the fan is not in use, are folded one upon the other. The most ancient Egyptian fans known are over 3,500 years old. Its form is shown in a bas relief of Nimrod, which represents a slave in the act of cooling a liquid contained in a pitcher, with a fan shaped like a palm leaf. This is a frequent subject of Egyptian decoration. Whether Catherine de Medici obtained the folding fan from the East, or not, is unknown; but at any rate it was she who introduced it into France in 1580, and covered it with painting and jewels. A little later (1591) one set with diamonds of great cost and beauty was presented to Queen Elizabeth of England. Possibly the fan came into Spain from Mexico; if it did not, its use was greatly increased with the coming of Mexican wealth and dazzle, as the Emperor Montezuma had several of gold and the wonderous feather-work of his country, beautiful as any painting. But from whatever source it came, the Spanish senoretta adopted it at once into the armory of her attractions, and has wielded it with consumate perfection as an accesory to her bright eyes, ever since. In Japan the fan is as universal as a garment, constituting as truly as any other article, one of their necessities of life. It is at all seasons an inseparable part of Japanese dress. It is his shelter from the sun, his protection from the rain, his note-book and his plaything. The umpire at wrestling and fencing matches uses a heavy one, shaped like a huge butterfly, the handle being the body, and rendered imposing by heavy cords of silk. The various motions of the fan constitute a language, which the wrestlers fully understand and appreciate. Formerly in times of war, the Japanese commander used a large fan formed of a frame of iron covered with thick paper. In case of danger it could be shut, and a blow from its iron bones was no light affair. The originality of design and unique ideas used by the Japanese in making fans is proverbial One notable variety of fan is made of waterproof paper, which can be dipped in water, creating great coolness by evaporation without wetting the clothes.

The flat fan made of rough paper is often used as a grain winnow, to blow the charcoal fires and as a dust fan. The Japanese gentleman of the old school, who never wears a hat, uses a fan to shield his eyes from the sun. His head, bare from childhood, hardly needs shade, and when it does he spreads an umberella, and with his fan he directs his servants and saves talking. The varieties of these fans would form a curious collection in respect to form as well as quality. Paper enters largely into their composition. Bamboo forms a material very handy for the frame-work of the cheaper kinds. The paper is either decorated with paintings in all the different styles of Japanese art or else brightly colored and sprinkled over with silver and gold leaves. Such fans are manufactured in all possible qualities and prices, from 50 cents per hundred to 75 cents each. The very cheapest folding fan jobbed in the United States is 25 cents per dozen. The Japanese fan trade including all the different grades imported amounts to about $3,000,000 per anumn. Parchment paper is very extensively used in their manufacture, on acconut of holding its shape. In order to make the paste adhere well to the bamboo sticks, the dry season of the year is always selected for fan work. The most costly fans for general use are made of ostrich feathers and pearl sticks. These fans bring $60 apiece, but singularly these articles are only used in the winter season. The great demand for ostrich feathers to trim ladies' costumes has increased the price of these goods to such an extent that fans made of ostrich feathers have in the past few years about trebled in price. Common ostrich fans formerly jobbed in this country for $24 per dozen. It now costs $33 to land them, and they job for $48 per dozen. To offset this the French have brought out an imitation ostrich fan, which is quite as pretty as the genuine, but can be retailed for $1 and $2.

Farmer's Satin. A variety of lining for men's coats, made with cotton chain and a woolen weft, satin wove, and finished with a high luster.

Fashion. A term which admits as little of an exact definition as of being referred to as an intelligent principle. The French term it *la mode*. In every age and in every country there has been a recognized costume or general style of male and female attire, along with certain niceties in the color, shape and texture of dress, which, fluctuating according to taste or caprice, are known as Fashion. This whimsicality constantly begins and ends in two things it most abhors—singularity and vulgarity. It is the perpetual setting up of a certain standard of taste and elegance, formed by the prevailing distraction of the moment, and then disowning it; which was yesterday ridiculous from its being new, and to-day essentially proper, will to-morrow become odious from its being too common. To quote the words of the English moralist, Hazlett, "It cannot be lasting, as it depends on contrast, change and shifting; it cannot be sterling, for if it were, it would not depend on the breath of caprice; it must be superficial

to produce its immediate effect on the gaping crowd; and frivolous to admit of its being assumed at pleasure by those who affect it in order to be distinguished from the rest of the world. It is not anything in itself nor the sign of anything except perhaps the sheer vanity of those people whose very existence depends upon what others may think of them. It takes the firmest hold of weak, flimsy, and narrow minds; of those whose emptiness conceives of nothing excellent except it be regarded in a like manner by others. Fashion is the abortive offspring of vain ostentation and exclusive egotism; it is haughty, trifling, affected, servile, despotic, mean and ambitious, precise and fantastical all in a breath, tied to no rule and bound to conform to every rule of the minute." Fashion is the arbitress of weaver and dyer, and the terror of wholesale and retail buyers, and yet their main dependence for profits. If stamped out of existence in a night, the next morning's sun would shine down on a million work-people who depend upon her for a livelihood. Fashion, however, throughout all its vagaries, has this one principle of humanity in it, that it is almost always designed to help those who want help, to cover up deficiencies of nature, to conceal the havoc wrought by time of face or form, and to make those look their best to whom no special charms have been given. [See DRESS, CLOTHES.]

Fayetta (fa-yet'-a). A variety of light weight, double-fold dress silk, twill woven, with a twisted silk warp and a weft of fine wool. The side of the fabric is "finished" on which the silk predominates, thus resembling pure silk goods. The weft is composed of superior wool, and counts 146 picks to the inch. The fabric measures 42 inches in width, and in many respects is similar to gloria silk, possessing the same graceful draping qualities. [See GLORIA.]

Featherbone. A substitute for whalebone, made from the quills of domestic fowls; patented in 1882. The quills are slit into strips which are twisted, the resultant cords being wrapped together with fine threads and pressed flat. Featherbone made of enameled quills is largely used in the manufacture of buggy whips. It possesses a unique combination of qualities, being flexible, tough and fibrous, with the fibres intertwisted and at the the same time filamentous, consequently it has wonderful elasticity, strength and durability. Water, heat of the sun, or the action of climate do not injure it.

Feather Cloth. A mixture of cloth and feathers woven together, the cloth being undyed and produced in drabs and grays; the material usually measures one yard and a half in width. It has a very unfinished appearance, as the feather-ends protrude from the face here and there throughout, yet are woven into the web sufficiently well to preclude their falling out. The cloth is naturally a warm one, comparatively light, and waterproof without being rendered so by artificial means. "Feather Cloth" is also the the term applied to a variety of extremely light weight silk-and-

wool material, woven with a basket pattern; so called it is presumed on account of its feathery lightness.

Feathers. [Literally, *that which flutters;* German *feder,* Dutch *veder.*] Feathers as ornaments were not used by civilized people until the close of the 13th century and from that time until the close of the 18th century used almost exclusively by men. It is impossible to enumerate all the birds whose beautiful plumage supplies the manufacturer with ornamental feathers. The feathers of the bird of paradise, the gold and silver pheasants, the peacock, the flamingo, the beautiful wing and tail feathers of the Argus pheasant, and the wing of the partridge and ptarnugan are worn in all children's and ladies' hats, and used more or less in the manufacture of fabrics. The feathers of the domestic goose form a staple item of commerce. Cock's feathers furnish plumes for the French soldiers; eagles' feathers are worn in the hat and bonnet in Scotland, and a plume of them is a mark of distinction among the Indians of North America. The wing and side feathers of the turkey supply trimmings for articles of ladies' apparel, and are made into victorines, boas and muffs. Artificial flowers made of feathers were once much worn by ladies. For the decoration of ladies' hats the feathers from the breasts and heads of humming birds are at present utilized. To provide these the delicate and defenceless humming birds are slain during the mating season, when the color of the plumage burns with the most intense splendor. They are skinned alive, because it is only by skinning while the body still quivers and the blood is hot that the full vividness of color is preserved for the bonnets of womanhood. The feathers of many species of birds are also worn as articles of clothing. The skin of the swan, after being properly prepared, is used for muffs, linings, and a variety of other articles of dress; the skin and feathers of the penguin and eider duck are worn as clothing in northern latitudes on account of their beauty and warmth, supplying suitable material for victorines, tippets, boas, cuffs, muffs, and other articles of winter attire. The native inhabitants of the Arctic regions, in some parts, make themselves coats of bird-skins, which are worn with the feathers inside. Confucius, the Chinese philosopher, writes that ere the art of weaving silk and hemp was understood, mankind used to clothe themselves with the skins of beasts and with feathers; and it is very certain that the Chinese are now very skillful and ingenious in the art of plumagery, or feather-working. They manufacture garlands, chaplets, frontals, tiaras and crowns of very thin copper, on which purple and blue feathers are placed with much taste and skill. Cortez, the Spanish discoverer, is said to have found abundance of curious works in feathers in the palace of Montezeuma, the emperor of Mexico, which were so excellent that they are described as being "so artificial and neat that they cannot be described in writing, or presented to the imagination, except a man sees them," and so difficult that no Spaniard could make in silk, wax or needlework anything

comparable to them. The best description of what this work was like in detail is that of Prescott, who says: "When the Spaniards became masters of Mexico they found Montezuma and his nobles arrayed in wonderful feather cloaks, almost more splendid than we can imagine. Still less can we conceive what a gorgeous spectacle must have been presented when such things were worn by a number of people together. Their beautiful cloaks had all the effect of a brilliant mosaic. The glittering plumage of the tropical birds, especially the parrot tribes, afforded every variety of color, and the fine downs of the humming birds, which reveled in swarms among the honeysuckle bowers of Mexico, supplied them with soft aerial tints that gave an exquisite finish to the garment. These feathers painted on a fine cotton web, were wrought into dresses for the wealthy, into hanging for apartments and ornaments for the temples." From time immemorial the plumes from the the back, wings and tail of the ostrich have in all civilized countries been used as the crowning ornament of ladies' head gear, and at the present time the various sorts of the plumage of this bird is used for an almost endless variety of purposes, by man as well as by women. [See OSTRICH FEATHERS.]

Feather-stitch. A stitch used in embroidery, producing a partial imitation of feathers by small branches that ramify from a main stem. In mediæval embroidery this pattern was called *opus plumarium.*

Felt. Woolen cloth united without weaving. The word *felt* appears to have signified at a very early period a material formed of wool not woven, but compacted together, suitable for every form of garments. To felt or feltre is to form a matted tissue of wool or other short hair in which the fibres are so interlaced by their curls, and so closely united to one another by the almost imperceptible notches of their scaly coats as to form a consistence like that of thick cloth. The term "felting" is chiefly employed in the manufacture of hats, but the operation of thickening woolen cloth, by means of a fulling mill depends on the same principle. [See FULLING, BROADCLOTH.]

All accounts of the discovery of the principle of felting are traditional, thus proving the extreme antiquity of felted materials. By one it is ascribed to Oriental shepherds; another attributes it to an early English monarch, who putting some wool into his shoes to keep his feet warm, found that the combined heat, pressure, and moisture had produced a new fabric. According to some writers, a monk on a pilgrimage, having used some carded wool in his sandals, found that the fibres, by long friction between the foot and the sandal had matted together so as to produce a firm texture resembling cloth. From this hint the manufacture is said to have originated. An old hatter informed the writer that in his youth an annual festival was held in honor of this saint on the 23d of November, and that in Ireland and other Roman Catholic countries, the hatters still hold their annual festival on St. Clement's day, the saint who is the reputed inventor of felt. Again,

it is asserted that as wool will sometimes, though rarely, felt upon the back of the living animal, that this may have led to the natural process being observed and imitated. There is, in any case, no doubt as to the antiquity of the process. It was known among the Greeks; Pliny mentions that the Gauls of his day made a kind of felt which was so firm and strong that it would resist a sword cut, more particularly when vinegar was employed during manufacture. Saxon writers continually mention the *fellen* hæts—hats of felt—then used by their people. The Turcomans are said to dwell even to this day in huts covered with black and white felt, which they make by treading with their feet the raw wool while it lies upon the ground; and hence it is suggested that some of the wanderers among the Crusaders might have brought the art from Asia to Europe.

The manufacture of felted materials, which are all *non-shrinking*, has of late years considerably improved since the microscope revealed the philosophy of the process, and thus indicated how alteration for the better might be affected. The secret of the felting of wool fibers has been a mystery in all ages, and until 1860 was at best only surmised. Upon this property alone depends the whole art of hatting and of felt making whether in sheets or otherwise, as well as the fulling of cloth and the shrinking of flannels, and all articles the material of which is made of wool, hair or fur. A few facts dependent upon the felting quality of hair will aid the illustration. When a hair is held by the root, and drawn through between the finger and thumb, it feels quite smooth, but when held by the top, a rough and tremulous motion is perceived. Again, place a hair three or four inches in length by the middle between the finger and thumb, and twirl it a few times, when the hair will be found to proceed toward one end, as the twirling and rubbing are continued, and invariably advancing root end foremost, whichever way the hair is placed between the fingers. If two hairs are used in this example, lay the root of one on the top of the other, and their respective motions will be doubly discernible. The cause of this singularity of hair and wool fibres will now be explained as explicitly and concisely as possible: The above mentioned phenomena are the result of that same long-hidden property, and which is nothing more than a certain covering, entirely surrounding the stem of every hair in the form of minute scales, so very minute, indeed, that it requires the aid of a very powerful microscope to enable the beholder to discern them, and even then but faintly. These scales, which cover thickly every filament of animal hair, wool, fur, etc. are thin and pointed, somewhat similar to the scales on a fish, and overlapping each other as do the shingles upon a house. The task of counting the number of these scales that cover the body of each hair is tedious and difficult, but it has frequently been successfully accomplished. On a single filament of merino wool, as many as 2,400 barbed scales, like teeth, projecting from the center stem have been counted in the space of an inch. On Saxony wool there were 2,700, while other wools were as low as 1860, and none were found to

have so few as 1,000 to the inch. No vegetable fibre whatever, such as cotton, flax, hemp, etc., have any such appendage upon their fibres, consequently they can never, alone, become suitable material for felting purposes, every fibre being smooth from end to end in either direction, and in contradistinction to wool, which though equally smooth as the cotton *one* way, rebels triumphantly when irritated in the contrary direction, as already described.

The grand cause of that mysterious and curious operation called felting, fulling, milling, shrinking, thickening and solidifying of a fabric, whether of original loose wool, fur or other stuff, or of that spun into yarn and woven into cloth, is the presence of these scales. Till lately, the best posted mamufacturer and the investigating philosopher were equally at a loss to explain upon what principle such effects were produced. Take for instance, a handful of wet fur or wool, which is merely an assemblage of hairs; squeeze and press it, work it a little in the hand, and then observe the effect; for immediately upon pressing it a certain locomotion is thereby conferred upon every fibre of that assemblage, which is increased by every turn of position that is given to the body of wool. The rolling and pressing change the position of each fibre. A friction is produced upon every member composing the mass; a footing as it were is obtained from the scales of each, and the fur or wool being all bent or curled, a progressive motion goes on, interlacing each other in their travels, resulting in a compact, dense body which will challenge the goddess of patience to undo. Every hair has been traveling in its own direction, boring, warping, grasping, holding and twisting amongst its fellows like a collection of live worms.

The manufacture of felt was formerly accomplished entirely by hand. The first step in this operation was to mix in proper proportion the different kinds of wool or fur intended to form the fabric, and then by the vibratous strokes of the bowstring, to toss them up in the air, and to cause them to fall as regularly as possible on the table, spread and scattered. The workman then covered this layer, or "lap" of loose fibre with a piece of thick blanket cloth, slightly moistened. This he pressed with his hands, moving the hairs backward and forward in all directions. Thus the different fibers get interlaced, by their ends pursuing ever-tortuous paths; their traveling motion being always, however, root foremost. As the matting became denser, the hand-pressure was increased in order to overcome the increasing resistence of the solidifying fibres. A first thin sheet of soft spongy felt being thus formed, a second is condensed upon it in like manner, and then a third, until the requisite thickness was obtained. These different pieces were successfully brought together and disposed in a way suitable to the wished-for article, and united by continued dexterous pressure. Of late years, however, machinery has been invented for the manufacture of felt. In machine work, the first operation consists first of carding the wool out into exceedingly fine uniform gossamer-like laps. These laps, of the length

and breadth of the web to be made, are laid one on top of another in number corresponding to the thickness desired in the finished article. The layer that is to appear on the face of the fabric is usually of finer texture than the body and the mass when ready for felting has the appearance of a huge sheet of cotton wadding. In this state the compound lap is passed between a series of opposite pressing rollers partly immersed in water, some of which are solid and heavy, and others hollow and heated internally by steam, imitating as nearly as possible the variable pressure of the human hand. In its progress the lap is not only squeezed between the rollers, but an oscillating motion being given to the upper series, it is at the same time submitted to a rubbing action, corresponding to the to-and-fro motion in the hand work, the result being that after a few hours in the machine it issues forth a dense, compact sheet of felt of uniform thickness. Felt so made is afterward dyed, printed, and otherwise finished by the ordinary processes applicable to woven tissues.

As has been noted, felt may be made of any kind of animal fur, wool, or hair, provided it be bent, crimped, or curled; for if straight as a bristle it would work out of the mass as readily as into it, and lose itself in the operation. Wool of any great length of staple, after being carded, is pressed and either clipped, cut or chopped into shorter lengths, which facilitates the rapid felting, and also improves the solidity of the felt that is produced. The felting of wool necessitates either a damp or wet process with the aid of heat, and the facility for thickening or solidifying is hastened by the application of soap to the mass of fibres under operation. Or the water may be mixed with acid for the same purpose, as either of these acts as a penetrating solvent upon the natural oil of the wool which still remains between the scales and the stem of the hair, thus baring the barbed points of the crusty scales, the better to catch and hold their grip upon each other. Oil or grease, on the contrary, when applied directly upon wool, covers up these minute scales, thereby preventing their hold upon each other and destroying their felting power, as is well known to all wool spinners, however little they may understand the real cause of its being so, further than the fact of giving to it a smooth, gliding effect, so necessary for the object of their business. In the carding and spinning of worsted, in which the object is as far as possible to prevent the fibre from felting, the mass of wool is always greased with lard that it may be more easily worked. [See FULLING.]

Fiber. [From Latin *filum*, a thread, whence also the words *file* and *filament*.] A thread or filament; any fine, thread-like part of a substance, as a single natural filament of wool, cotton, silk, or asbestos. There is a distinct and interesting difference between the fibers of wool, silk and cotton. As the silk worm makes its fiber it is a soft mucus, the fluid being secreted from the the nose, as it were, in two streams which combine at once in an infinitesimal double thread. This thread is perfectly smooth symmetrical and solid, not hollow like cotton and linen fibres, and without,

the minute branchlets the latter have upon them. Wool has scales or hooks, and is spiral, also, which is the reason it shrinks. It creeps together more and more as it is dampened and rubbed, becoming condensed and stiff. The shrinkage of flannel is not wholly to be laid to the washerwoman's ignorance—it is the inherent nature of the stuff to shrink and felt together. Perspiration mats and stiffens it, and so does every form of dampness. Silk is a great absorbent because its fibres are so glassy fine—a sort of spidery catgut—and fluids, water or oil creep between the fibers and are held, but will pass out quickly, evaporating and drying, or will wash out readily. It is like glass, in that nothing clings to it. For this reason it is necessarily hygienic and salutary. In its natural color silk accumulates no germs of disease and moths and bugs find no home in it. Cotton and other vegetable fibers grown from seeds, consist of single elongated tubes, hollow throughout, and without curl or kink. Flax fibre, like cotton, is smooth and hollow, and is jointed at regular intervals after the manner of the stalks of cane, or fishing poles.

Textile fibers in their commercial acceptation includes all substances capable of being spun, woven or felted, numbering at present about 75 separate and distinct varieties. Frequent additions are being made to the list; improved methods of cultivation and preparation, as well as increased facilities of transport, tending to bring into general use numerous kinds of fibers which formerly had only local and limited applications. All textile fibers of recognized commercial importance, will be found classified in the following table, and some points noticed of interest common to all:

NAME OF FIBER.	LOCALITY.	REMARKS.
Cotton	United States, South America, Egypt, India	
Silk-Cotton	Sunda, West Indies, Brazil	Used only for stuffing.
Vegetable Silk	India, Senegal, West Indies, North America	Used only occasionally for stuffing.
Flax	Europe, N. America	See LINEN, FLAX.
Hemp	India, Southern U. S.	See HEMP.
SunnHemp, Jubbulpore Hemp	India	Used as cordage as a substitute for hemp.
Gambo	India	Resembling and used like jute. See JUTE.
Sida fiber	India and Australia	A cordage fiber.
Yercum	India	A valuable fiber, difficult of extraction.
Jettee	India	Same as above.
Jettee	Russia, Siberia and Asia	Prepared flax, and much used locally.

NAME OF FIBER.	LOCALITY.	REMARKS.
Nettle Fiber	Europe	Occasionally used for textile and paper.
Hemp Nettle	Siberia, South Sea Islands, Japan	Used only in their native countries.
Nilgherry Nettle	India, China	Cultivation restricted on account of the sting.
Alleghanian Nettle, China Grass, Ramie, Rhea	United States, Asia, Java, Nepal	Closely allied fibers. See Ramie.
Puya	Nepal	Same as above.
Jute	Bengal	See JUTE.
Raibhenda, Ochro, Porush	India	Used in India like jute and sunn hemp, which they resemble.
Porush	South America	Used for coffee bags in British Guiana.
Bun Ochra	Bengal	
Mahwal, Bun-raj, Narwali, Sebestena	India	Makes exceedingly tough useful ropes used for coarse cloth, twine and nets.
Lime Tree Bast	Europe	Extensively used for mats.
Tapa	South Sea Islands	Beaten into native cloth.
Baobab	West Africa	Cordage and paper making.
Sterculia	India	Cordage.
Wawla	West Indies	Not strong.
Warang	West Indies	Like lime bast.
Cuba	West Indies	For cigarette wrappers.
Rameta	Deccan	A very strong and almost colorless bast.
Chitrang	India	Like the above.
Lace Bark	West India	Ornamental purposes.
Pine Wool	Germany	Surgical wadding.
Phormium or New Zealand Flax	New Zealand	Coarse cloth.
Manilla Hemp	East India	Ship cordage.
Plantam Fiber	Tropical regions	Cordage.
Bowstring Hemp	India, Ceylon	A strong fiber.
Sisal or Grass Hemp	Central America, W. Indies	Cordage, brush-making, etc.
Agave Fiber	Central America, W. Indies	Cordage.
Silk Grass	South America	Cordage.
Pina Fiber	Phillipene Islands	Woven into very fine textures.

NAME OF FIBER.	LOCALITY.	REMARKS.
Vegetable Horse-hair	Central America	Upholstery purposes, like animal horse-hair.
Screw Pine	Maurituns Yucatan.	Panama hats, strips for matting.
Panama Screw Pine	Central America	Panama hats, strips for matting.
Orin Vegetal	Algeria	Substitute for horse-hair.
Tucum	Brazil	Fine twine for hammocks.
Tibisire	Brazil	Cordage.
Cabbage Palm	Australia	Used for hat making.
Tolipot	India	Matting, baskets.
Kitul	Ceylon	Brushes, cordage.
Piassava	Brazil	Brushes, cordage.
Gomuti	Java	Native ship ropes.
Rattan	East India Islands	Strips for chair seats; fibers for stuffing.
Coir	Ceylon, etc	See COIR.
Silk	Italy, France, Asia, United States	See SILK.
Wool	In every civilized and semi-civilized country on the globe	See WOOL.

Fibres of animal origin are few, but of the highest value while vegetable fibres are of an endless variety, and of the most diverse character as to quality. Animal fibres may be classed under two heads, silk and wool, using the terms in an extended sense. Animal and vegetable fibres present marked differences, not only in appearance, feel, and structure, but also in chemical character, and can be readily recognized in any mixed fabric by appropriate tests. Thus analine dyes, which communicate strong permanent colors to wool and silk, only produce on vegetable fibres a fugitive, easily-washed-out stain. Vegetable fibres in a mixed fabric may be distinguished by boiling a fragment of the material in a solution containing 10 per cent. of soda, whereby the animal fibres dissolve, leaving the vegetable fibres intact. The sulphur contained in wool, from which silk is free, gives a ready means of distinguishing a mixture of these two fibres. In a solution of plumbate of soda wool becomes black, while silk is quite unaffected. For further tests see COTTON, SILK, LINEN, WOOL.

Fiberlia [fi-ber'-lia]. A recently introduced flax fibre made from the stalk of American flax, which can be combined with cotton or wool, or used alone, in the manufacture of fabrics. This has been a problem with textile manufacturers for over half a century. An English inventor, in 1851, announced he had found a process whereby it could be done, but after

practical tests it failed. The trouble was that the long straight fibre of flax which was cut to match both cotton and wool in length, had blunt flat ends, which showed in the manufacture of goods. By the new invention of fiberlia the flax fibres are free from such defects and match in length either cotton or wool without being cut. The material ready for use is soft and pliable and will take dyes of the finest tints. The cost of production does not exceed 8 cents per pound, and can be furnished by the Northwestern States in practically unlimited quantities. In 1891 it was used in a limited way in the manufacture of blankets, about one-quarter fibrelia and three-quarters wool. It has also been used for toweling, and in the manufacture of cotton and woolen hosiery. In addition to its being used in the making of fabrics, it can be substituted for absorbent cotton in hospitals, as it possesses the same properties of scraped lint or pure linen.

Fichu (fe'-shu). [French for *ladies' neckerchief.*] A triangular piece of lace worn around the neck instead of a collar, of various lengths; sometimes it is a combination of cape and scarf, pointed between the shoulders and crossing at the bosom, the long ends of which are allowed to hang loose. It was a favorite article of attire with Marie Antoniette, who brought it first into popularity in 1785.

Filament. A fine, untwisted thread; a separate fiber of any vegetable or animal tissue, natural or artificial. [See FIBER.]

Filature. A reel for drawing silk off from the cocoons; an establishment for reeling silk. Producers rarely reel the silk from cocoons, but instead ship them to the large filatures where the work is usually performed by skilled hand-labor.

Filibeg. The Scotch kilt in its primitive form, consisting of one piece of cloth, covering the whole body, and girt around the waist. At present the term is applied to a pleated petticoat or skirt, reaching only to the knees; a kilt.

Filoselle (fil-o-zel'). A loose, slackly-twisted silk thread used in fine-art needlework. It is put up in skeins, the strands of which can be divided or separated into six smaller ones, each suitable for being used in fancy work.

Filling. The woof or weft in weaving.

Fish Hooks. An article to be found in nearly every well-selected stock of notions, and one, also, which suggests the wonderful strides made by American manufacturers in the past few years. It has been but a short time since all of the small Yankee notions consumed in this country were imported from abroad, but at present in the manufacture of many of these articles foreign makers are completely shut out, and foreign markets even supplied by American industry. In fish hooks this is eminently the case. Even yet American-made goods are used by some dealers packed with foreign labels, to deceive consumers, who foolishly believe the foreign

makes are better. The American Needle and Fish Hook Co. now produce the best tempered and most reliable fish hook in the world, in all the various sizes. There is a little machine which turns out fish hooks in six strokes. Stroke number one bites off a morsel of steel wire; number two makes the loop where the line is fastened; number three hacks the other end; number four flattens and bends the barb; number five makes the point; number six bends the wire, and the fish hook drops into a little bucket ready to be japanned and packed in gross boxes.

Flags. It is probable that almost as soon as men began to collect together for common purposes some kind of conspicuous object was used, as the symbol of a common sentiment, as the rallying point of the common force. In military expeditions, where any degree of organization and discipline prevailed, objects of such a kind would be necessary to mark out the lines and stations of encampment, and to keep in order the different bands when marching or in battle. And, in addition to all this, it cannot be doubted that flags or their equivalents have often served, by reminding men of past resolves, past deeds, past heroes, to rally to enthusiasm those sentiments of family pride and honor, of personal devotion, patriotism, or religion, upon which, as well as upon good leadership and numerical force, success in warfare depends. Among the remains of that people who have left the earliest traces of civilization—the Egyptians—the records and forms of objects used as ensigns are frequently to be found. These are of such designs as there is reason to believe were associated in the minds of men with feelings of awe and devotion. Sacred animals, boats, emblems, a tablet bearing a king's name, were raised on the end of a staff as standards, and the office of bearing them was held a peculiar privilege and honor. Somewhat similar seem to have been the customs of the Assyrians. The Persians bore an eagle fixed to the end of a lance upon their standard, which appears to have been formed of some kind of textile, and was guarded with the greatest jealousy by the bravest men in the army. The Carian soldier who slew the great Cyrus was allowed the honor of carrying a golden cock at the head of the army, it being the custom of the Carians to wear that bird as a crest on their helmets. The Greeks bore a piece of armor on a spear in early times; afterward the Athenians bore the olive and the owl, the Corinthians a pegasus, the Thebans a sphinx. The Dacians carried a standard representing a contorted serpent, while the dragon was the military sign of many peoples. The North American Indians carried poles fledged with feathers plucked from the wings of eagles, and similar customs seem to have prevailed among other semi-savage peoples.

The flags of the United States were many and various both before and after the Declaration of Independence, and even after the introduction of the stars and stripes these underwent many changes in the manner of their arrangement before taking the position at present established. Since 1818, however, it has consisted of thirteen horizontal stripes, representing the thirteen original states of the Union, seven red and six white, placed alter-

nately, with a blue field having displayed on it one white five-pointed star for each state in the Union. It is asserted by historians that the design was originated by Washington, copied partially from the coat-of-arms of the Washington family in use prior to their removal from England.

The manufacture of flags falls naturally into three large classes. The first is composed of those that are made out of some appropriate material, either bunting, silk or cotton, sewed together and thus made into one ensign. The second includes the clamp-dyed bunting flags, which are the most expensive examples in wool that are manufactured. The third class consists of the printed cotton flags, vast quantities of which, of a very cheap sort, are used for special and temporary purposes, such as decorating soldiers' graves, the garnishing of banquet halls and the beautifying of stores on holdiays. The bunting of which our national emblem is formed is composed entirely of wool of a strong fiber, to enable the flag to stand any amount of flapping and stress of weather. For this purpose the staple selected is long, and generally of so coarse a quality that it would be used for no other purpose than frieze cloth or carpets. The yarn is strongly twisted and feels in the cloth to be very harsh and hard. Until the close of 1864 the whole of the bunting used in the United States was shipped from England, and it was in this year that some one asked General Benj. Butler who was largely interested in the United States Bunting Co., why he did not *make* bunting. This led the company, who had previously been importing their goods to make experiments, which resulted in the successful manufacture of American bunting. Tests were made by military men of the relative value of American as against foreign bunting, and the result was so satisfactory that large orders were given out, and the General's company enjoyed a long run of prosperity. The effect on prices since then has been extraordinary, for the bunting which in 1864 sold at $30 to $40 per piece, now sells at $5 per piece. The bunting is woven in the natural white color of the wool, and is then either dyed in the whole piece, or clamp-dyed. Clamp-dyeing consists in dyeing a single wide piece of bunting with alternate bars or stripes of red, in order to avoid the the necessity of sewing together separate stripes to constitute the colors. It is an expensive process, for in order to prevent the part of the piece not intended to be colored from taking the dye it is covered up and squeezed by two pieces of wood. As it is both tedious and expensive, clamp-dyed bunting plays only a small part in flag making. The general way is to take the piece and have it dyed the proper colors, and from these to fashion the flag. The stars are cut out with dies and sewn by sewing machines on the proper place. The stripes and colors are done in the same manner. As to durability there is little to choose between either process, but the clamp-dyed flags make the lightest as well as the most attractive emblems when examined. It would be difficult to estimate the aggregate annual production of flags of all sorts, but the amount is something enormous, and it may well cause wonder, as in the case of pins, where they all go to. In the ag-

gregate, the commercial harvest based upon the love of our people for their national emblem is a rich one. The industry supplies thousands of good Americans with steady work during campaign seasons, and as the patriotic effect of having the flag so universally unfurled cannot but be helpful to the public, all engaged in the manufacture and sale of these articles can feel a solid satisfaction in a comfortable combination of gain and public spirit.

Flannel. [From Welch *gwlanen*; in the Middle Ages known as *flannella* and *flannen*.] Wales appears to have been the home of flannels, and this one fabric has long been the only textile manufactured in that country, while it has been of so much importance there that fairs have been commonly held solely for the exhibition and sale of flannels. The high estimation in which Welch flannels are still held is attributed to the fact that hand labor is much employed in their production. Flannels are woven of "woolen" yarn, but slightly twisted in the spinning, the object being to have the cloth soft and spongy without particular regard to strength. The manufacture is identical with that of other "woolen" goods, their organization being closely allied to that of blankets (which see). The best grades of flannels intended for men's shirts, ladies blouses, etc., commonly known under the term of *Cricket flannels*, are always shrunk more than the common qualities, because of the numerous cleansing processes they must necessarily undergo after being made into garments. The "shrinking is accomplished by folding a bolt-length of flannel between heavy wet sheets, and letting it remain there 24 hours. The pieces are then hung upon rails to dry in rooms heated by hot pipes. The next process is to fold them in specially prepared papers, which have a very glossy surface. They are then pressed, some mills using hydraulic, others large hand presses, worked by 8 or 10 men. The more pressure the more "clothy" they feel. Cheap flannels are never shrunk, because they will not stand it. When being made into wearing apparel by factories they do not even make the acquaintance of the tailor's goose, as they would contract a full "size" or more from the heat. Flannel is recommended by medical men for clothing in both hot and cold countries, from its property of promoting insensible perspiration, which, being absorbed by the spongy material, is immediately distributed *equally* throughout by the whole thickness of the fabric, and thus being exposed over a large surface is carried off by the atmosphere, keeping the body at the same time at an equal temperature. Like other woolen fabrics, flannels are bleached by the steam of burning sulphur to improve their whiteness. The quality of domestic flannel is denoted by the ounces of weight per square yard. [See WOOL, WOOLEN, SHAKER, CANTON, VEGETABLE, TRICOT, OUTING, BASKET, OPERA, FLANNELLETTE, UNDERWEAR.]

Flannellette (flan-el-et'). A soft loose-woven cotton fabric, white, self-colored, or woven in stripes or checks, with a short nap raised on both

sides, which gives them the appearance of flannel. Known also under the names of outing cloth, gypsy flannel, domet, etc. These fabrics are finished by the simple process of teasling on a machine specially made for the purpose. The cloth is sometimes run through the machine twice. Some machines are made to raise the nap on both sides at one passage of the cloth, according to the strength of the cloth and quality of nap required. As the nap is obtained by a partial cutting of the fibers on the surface of the cloth, the latter is somewhat weakened in strength, and therefore flannellettes do not wear, as a rule, as well as plain calicoes. However, the "feel" is softer and warmer to the skin. The nap is not very permanent, although there is great variation between different makes of flannellette; in this respect much of the durability of the nap depending upon the quality of the cloth used: the stronger and more closely woven the cloth the better they wear. Sometimes flannellettes are dyed and printed after the nap is raised; in such cases, as both these processes are destructive to the nap, only good cloths well napped can be used. [See DOMET.]

Flat goods. A term used to designate woolen or cotton knitted underwear as distinguished from Jersey or ribbed underwear.

Flax. [The common name for the plants of the genus *Linnum*.] The term flax is employed at once to denote the fiber so called, and the plant from which it is prepared. Like most plants which have been long under domestic cultivation, it possesses numerous varieties, while the wild or parent condition is not known. As cultivated the plant is an annual, with an erect stalk rising to the height of 20 to 40 inches, branching only at tne top into panicles of bright blue flowers. The stem by various processes described hereafter, is freed from all useless matter, leaving the elongated inner part in the form of a soft, silky fiber. The cultivation and preparation of flax are the most ancient of all textile industries, reaching back to the very earliest periods of civilization. Its use was most extensively and variously applied in the lake dwellings, even in those of the stone period. But of the mode in which it was planted, steeped, heckled, cleansed, and generally prepared for use, no idea can be formed, any more than what can be derived from the tools unearthed employed by the settlers in the cultivation. Rough or unworked-flax is found in the lake dwellings made into bundles, or what are techincally called heads, and, as much attention was given to this last operation, it was perfectly clean and ready for use. That flax was extensively cultivated and was regarded as of much importance at a very early period in the world's history there is abundant testimony. Although flax is to be found in a semi-wild state in many parts of Great Britain, it is very doubtful whether for many ages our British ancestors were aware of the use of this plant for clothing purposes: they would otherwise have left behind them some shred of linen in one or other of their many graves. Following, as they did, the usage of being buried in the best garments they were accustomed to, or most loved when alive

their bodies would have been found dressed in some small article of linen texture, had they ever worn it. We must go to the valley of the Nile if we wish to learn the earliest history of flaxen textiles. Time out of mind the Egyptians were famous as well for the growth of flax as for the beautiful linen which they wove out of it, and which became to them a most profitable, because so widely sought for, article of commerce. Long before the oldest book in the world was written, the tillers of the soil all over the land of Egypt had been heedful in sowing flax, and anxious about its harvest. It was one of their staple crops, and hence it was that in punishment of Pharoah, the hail plague, which at the bidding of Moses fell from heaven, destroyed throughout the land the flax just as it was getting ripe. Flax grew also upon the banks of the stormy Jordon, and in Judea generally; and the women of the country, like Rahab, carefully dried it when pulled, and stacked it for future hackling upon the roofs of their homely huts. For many ages, even down to the early part of the 14th century, Egyptian flax occupied the formost place in the commercial world, being sent into all regions with which open intercourse was maintained. Among Western nations it was, without any competitor, the most important of all vegetable fibers till towards the close of the 18th century, when, after a brief struggle, cotton took its place as the supreme vegetable fiber of commerce.

From the earliest periods the inhabitants of Ireland were acquainted with the valuable qualities possessed by the fiber of the flax plant, and manufactured it for clothing. By whom, however, or from what country it was introduced, there exists no satisfactory record. The Irish name for flax is "*lhin*," which word is also applied to thread, while the term "*anairt*" is used to express coarse linen cloth. For many years past the production of Irish flax has been on the decline. It is one of the most distressing facts of that distressful country, that while the linen industry of Belfast has been growing and prospering, the native cultivation of the raw material has been steadily and miserably diminishing. Russia, Holland, Belgium and Germany each send their quota of flax to the manufacturers of Belfast.

According to competent authorities, this state of things does not arise from the national inferiority of Irish flax, or to the unsuitability of soil or climate. It is even stated that the soil of no country in the world possesses the properties for the production of fiber equal to the soil of Ireland. The failure of Irish flax to be accepted and encouraged by the manufacturers of Belfast is on account of the defective way in which the crop is cultivated; due to the ignorance and lack of skill on the part of the Irish farmer. There is this all-important difference between the flax industry of other European countries and that of Ireland: In Ireland, the farmers produce the crop and prepare it for the cloth manufacturer. In Belgium, in Holland, and in Russia, on the other hand, the farmer concerns himself solely with the cultivation of the crop. The preparation of the fiber is in the hands of persons specially skilled and trained in this particular line of

work, consequently they have a much better prepared fiber to offer the manufacturer than that of the Irish farmer, and at the same price. The continuance in Ireland of the old system is known to entail much loss and waste, and while it is seemingly on account of a better soil and higher quality of flax, the difference in reality arises from the superior preparation of fiber that the Belfast manufacturers prefer the foreign to the home-grown article.

In all countries, after the farmer has sown the seed and gathered the crop, several processes remain before the flax can be used in the cloth mills. Flax is always pulled up by the root, and under no circumstances is it cut or shorn like cereal crops. The pulling is done in dry clear weather, and care is taken in this, as in all subsequent operations, to keep the root ends even, and the stalks parallel. At the same time it is desirable to have, as far as possible, stalks of equal length together—all these conditions having considerable influence on the quality and appearance of the yarn when spun. The next operation, termed *rippling*, immediately follows the pulling, and consists in removing the head and seeds of the flax. *Retting*, or *rotting*, is the operation the flax next undergoes, for the purpose of separating the fiber from the woody core and softening it in order that it may be fitted for spinning. This is an operation of the greatest importance, and one in connection with which in recent years numerous experiments have been made, and many projects and processes put forth, with a view of improving on the primitive method or altogether supplanting it. From the earliest times two leading processes of retting have been practiced, termed respectively "water retting" and "dew-retting," and as no method has yet been invented which satisfactorily supersedes these old-time operations, they will first be described.

Water-retting.—For this (the process by which flax is generally prepared) pure soft water, free from iron and other materials which might color the fiber, is essential. The ponds in which this operation is conducted are of variable size, but are uniformly about four feet in depth. The rippled stalks are tied in small bundles and packed roots downward in the water; over the top of each upper layer is placed straw or rushes fastened with stones of sufficient weight to keep the flax submerged. Generally in from ten days to two weeks the process is complete, and when it is found by being frequently examined that the fiber separates readily from the core, the bundles are removed from the water, and spread evenly over a grassy meadow, where it is left for two weeks to dry. At this point the peth will be ready to remove by the process of "scutching."

Dew-retting is the process by which the larger portion of Russian flax is prepared. By this method steeping in water is entirely dispensed with, and the flax is, immediately after pulling, spread on the grass where it is for two or three months subjected to the influence of air, sun-light, night-dews and rain. The process is tedious, and the resultant fiber is brown in color, though peculiarly soft and silky in structure.

Scutching is the process by which the fiber is finally freed from its woody core and rendered fit for market. For ordinary water-retted flax two operations are required; first *breaking* and then *scutching*, and these are done either by hand labor or by means of small scutching mills, driven by steam power or water power. The breaking is done by passing the stalks between grooved rollers, and the broken cores are beaten out by suspending the fiber in a machine fitted with revolving blades, which, striking violently against the flax, shake out the rotten and broken woody cores. The inferior parts of the flax removed by these operations is called "tow."

In regard to the process of retting, it may be said that different methods prevail in different countries, according to local circumstances. In Holland, stones are scarce, so that the flax has to be laid on the surface of the water and then covered with mud raked up from the bottom of the pond. To a large extent retting continues to be conducted in the primitive fashions above described, though numerous and persistent attempts have been and are, at present, being made to improve upon it, or to avoid the process altogether. The latest invention is by an expert in Minneapolis, Minn., who, with the aid of the microscope, has discovered that the rotting is performed by a microbe that devours the glue, which makes the fiber adhere to the wood. He claims it is possible to breed a great number of these microbes in an inconceivably short time. The results expected is that months will be reduced to hours in linen production, and that it will be only a matter of a few years when linen cloth will be as cheap as cotton, yard for yard. It is needless to suggest that it is highly improbable that the inventor's views will be borne out by the lapse of time.

Flax, after undergoing the operations of breaking and scutching, are shipped to the linen mills where it is prepared for weaving by the processes of *roving* and *spinning*. These do not differ greatly from the processes used in the spinning of cotton (which see). Spinners make up their yarn into "bundles" of twenty hanks, each hank containing ten "leas" of 300 yards each—3,000 yards. The quality and size of all linen yarn is denoted by the number of "leas" (300 yards) in a pound; thus, 50-lea yarn indicates that there are fifty leas of 300 yards each in a pound of the yarn so denominated.

No. 60 yarn = 60 leas of 300 yards each, or 18,000 yards to the pound.
" 100 " = 100 " " 300 " " " " 30,000 " " " "
" 200 " = 200 " " 300 " " " " 60,000 " " " "
" 500 " = 500 " " 300 " " " "150,000 " " " "

Commercial qualities of yarn range from 8- up to 160-lea. Much finer yarn, even up to as high as 550, may be spun by machines found in many factories, but these fine counts are used only for fine thread and the making of lace. Exceedingly high counts have sometimes been spun by hand. For the preparation of the finest Brussels lace, it is said the Belgian hand spinners must work in damp cellars, where the spinner is guided by the

sense of touch alone, the filament being too fine to be seen by the eye. The lace made of this is reported to have been sold as high as $1200 per pound. [See LACE]. In the great Exhibition in London in 1851 yarn of 760-lea—equal to 130 miles to the pound of flax—was shown which had been spun by hand by an Irish woman 84 years old. The various operations connected with linen weaving, such as winding, warping, dressing, and beaming do not differ materially from cotton weaving, the looms being the same.

It is an error to suppose that Ireland grows more flax than other countries. The latest correct statistics show as follows: Flax grown on the Continent of Europe 5,700,000 acres; Ireland 123,000 acres, and in the United States 1,318,658 acres. Of this Minnesota raised 167,264 acres; Dakota, 488,993; Iowa, 265,000; Nebraska, 150,922; besides a large acreage in Wisconsin. Ireland in 1892 produced only 25,000 tons of fibre, and imported 90,000 tons from Russia and Belgium, and this imported fibre, as before stated, is better than they produce at home. The average annual production of flax is as folllows: Russia, 270,000 tons; Austria, 53,000; Germany, 48,000; Belgium and Holland 38,000; France, 37,000; United Kingdom, 25,000; Italy, 23,000; United States, 12,000; Scandinavia, 4,000—total, 510,000 tons. In no country in the world does the cultivation of flax attain such large dimensions as in Russia. Russia alone produces more flax than all other countries of Europe combined. Out of the total area sown in Europe in 1891 with flax, and amounting to about 5,700,000 acres, more than 3,700,000 acres were sown in Russia. Notice must at the same time be taken of the fact that while in all European countries without exception the area of land under the cultivation of flax is being annually more and more reduced, it is in Russia, on the contrary, being increased. The total quantity of flax fibre produced in the whole of Europe is estimated to be 1,354,000,000 *pounds*. The share which Russia has in the total quantity produced in all Europe is exactly two-thirds. About one-half of the flax fibre produced in Russia is exported abroad, the other half remaining in the Empire, being worked up by the peasants at their farm-houses into thread and linen for their own use, as well as for sale. The home trade is entirely in the hands of small dealers, who drive from village to village and make their purchases in small lots. The flax thus collected is then sent in considerable quantities to the towns which serve as centres to the flax trade.

The finest flax in the world comes from Courtrai, Belgium, and is the most valuable staple in the market on account of its fineness, strength, and particularly bright color. There the flax is dried in the field and housed during the winter succeeding its growth, and in the spring of the following year it is retted in crates sunk in the sluggish waters of the river Lys. For many miles both sides of the river are used as steeping grounds, presenting a curious sight to the tourist. In all the operations necessary to prepare flax the greatest care is taken, and the cultivators being peculiarly favored as to the soil, climate and water, Courtrai flax forms a staple of unapproached excellence.

The census report of 1890 shows the total area of land devoted to the cultivation of flax in the United States to have been 1,318,658 acres, and the production of flax-seed 10,250,410 bushels, the amount of flax sold 207,527 tons, and the total value of all flax products $10,436,228. Although flax-seed is reported from thirty-one states, Minnesota, South Dakota, Iowa and Nebraska produce 80 per cent. of the total amount. Throughout the greater portion of the principal flaxseed producing regions, *flax straw* is of little or no value, and much of the so-called fiber is only an inferior quality of tow, used chiefly for upholstering purposes. There are indications, however, of the revival in the United States of a linen industry that will afford a market for fine flax fiber of domestic production and revive a branch of agriculture and manufacture that for many years has been almost extinct. [See LINEN, CRASH, BLEACHING, WEAVING].

Fleece. The coat of wool that covers a sheep, or that is shorn from a sheep at one time. In commerce, wools are distinguished as *fleece-wools* and *dead-wools*, the former being obtained from living animals at the annual shearings, and the latter from animals that have been killed; as at the various packing houses over the country. [See WOOL.] In the United States the heaviest shearing sheep are the Merino breed, the heaviest recorded fleece being that taken from a ram owned by Reynolds & Daved, of Mulvane, Kans., the weight of which was 52 pounds. The heaviest recorded ewe fleece weighed 30 pounds, from the same flock, and 13¼ pounds represents the weight of the heaviest fleece of scoured wool. The term fleece is also applied to a fabric with a soft, silky pile, used for warmth, as for lining garments, gloves, and caps; such articles are said to be *fleece-lined.*

Fleur-de-lis (fleur-de-lee'). [From French *fleur-de-lis*, flower of the lily.] A pattern in weaving representing the flower of the lilly or head of a lance, consisting essentially of a bell-shaped stem with a bar at the bottom, and a short recurved stem on each side. The plural is *fleurs-de-lis.*

Floret-silk. In silk manufacturing, a yarn spun from the first and purest of the "waste," and of higher quality than noil-yarn. [See SILK, NOIL.]

Floretta (flo-ret'-a). Floss-silk.

Floss-silk. An embroidery-thread, made of silk fiber from the finest part of the cocoon, carded and spun, but not twisted, so as to be soft and downy in its surface while retaining a high luster; very similar to filoselle, which often replaces it. Floss-silk is also the name given to the portions of raveled silk broken off in the filature of the cocoons, which is carded like cotton or wool, and spun into a soft coarse yarn or thread for making bands, shawls, sacks, and other common silk fabrics.

Fold. A double or lap of cloth, of any description. All dress silks are put up in folds 1¼ yards long (1 aune.) French fabrics, such as sa-

teens, lawns, organdies, etc., are usually put up in folds of 1 metre (1 yard and $\frac{1}{10}$.) The same description of fabrics made in the United States are folded in 1-yard lengths. Both French and American silks, however, are folded in aune lengths.

Fondu (fon-du'). Softened, blended; denoting a style in which colors are so applied as to pass insensibly into each other through delicate gradations; especially said of certain styles in calico printing.

Foolscap. A writing paper, usually folded, varying in size from 12x15 to 12½x16 inches; so called from its former watermark, the outline of a fool's head and cap, for which other devices are now substituted. The design originated with the English Rump Parliament, under Cromwell, who out of contempt for King Charles, ordered that the royal arms in the watermark of the paper should be removed, and a *fool's cap and bells* substituted. [See PAPER.]

Foot. A unit of length, originally the length of a man's foot. The English foot, which is in use in the United States, contains 12 inches. The feet in use in different European countries before the introduction of the metric system varied from 9 to 21 English inches. The ancient Roman foot is know to have been 11.65 English inches. Other ancient feet are of uncertain length. A foot of grindstone was formerly 8 inches. [See METRIC SYSTEM, CLOTH MEASURE, ELL, AUNE, FOLD, METRE, MEASURES.]

Foot-glove. A heavy woolen stocking worn in northern regions over the shoes while riding; a warm muffler for the feet.

Foot-sheet. A cloth spread over the chair and floor for a person to sit upon, while the toilet is being made.

Forwarder. An individual or a firm who ships or sends forward goods for others to their destination by the instrumentality of third persons. Neither a consignor shipping goods nor a carrier while engaged in transporting them is called a forwarder. The name is applied strictly to one who undertakes to see the goods of another put in the way of transportation, without himself incurring the liability of a carrier to deliver. A carrier who undertakes to transport the goods only part of the way, often becomes a forwarder in respect to the duty of delivering them to some other carrier who completes the transportation.

Foulard (fou-lard'). A term which at first denoted a thin gauze French riband. At present foulard silk is a soft, thin washable dress silk, woven without twill, and generally printed in colors on black or white grounds. It was originally made in India, but is now successfully produced in France. An imitation of silk foulard is also made of cotton, of a medium soft finish, printed with mingled patterns; used for women's dresses. This latter was formerly much used, but its manufacture is now almost discontinued, having been superseded by sateen; sometimes known under the name of *foulardine*.

Four-in-hand. A style of neckwear for men distinguished by being wider a tone end than at the other, which when tied presents the appearance and form of a made-up scarf.

Fox. To cover the upper of a shoe with ornamental leather; also to repair a shoe by renewing the front upper-leather.

French Cambric. A very fine variety of linen or cotton cambric used for handkerchiefs, neckwear, and similar things. [See CAMBRIC.]

French Merino. An extremely fine-twilled woolen cloth, made from the wool of Merino sheep, and used for ladies' dresses. [See MERINO.]

French Quilting. Same as *pique* (which see.)

French Twill. A variety of French Merino of inferior fineness but of great durability.

Frieze (freez). [So called from having been first made in ancient Friesland, the most northerly province of Holland.] A heavy, shaggy, woolen cloth, covered with a thick nap forming little tufts, manufactured to some extent for blankets and clothing, but more especially for men's winter over coats. Perhaps no textile produced by Irish manufacturing skill is more justly celebrated or more widely known than Irish Frieze. The chief features which distinguish freize from all other cloths are its absolute imperviousness to rain and its extraordinary durability. This pertains of course to the genuine Irish Freize, not the counterfeit which of late years has been quite plentiful in American markets. The manufacturers of Ireland exercise particular care to select the longest and strongest wool from the best washed fleeces. This wool is first dyed in the mass, and afterwards, when spun, is doubled so as to resemble yarn. It is then woven, after which it is put through the thickening or fulling process. This consists of a prolonged washing and sousing the cloth in a carefully-prepared solution slowly heated up to the boiling point, and then as slowly cooled again. This shrinks and thickens the fabric to such an extent that it becomes almost impossible, after cutting the goods, to separate one thread from another, so closely are they fulled, and so interdependent upon each other. The cloth is then finished with a nap, more or less heavy, as desired. [See NAPPING.]

Century after century, so long that the mind of man runneth not to the contrary, freize has posed as the national cloth of Ireland, the distinctive dress of patriot, peasant and peer; and, since the 17th century has steadily remained an outward badge of the people's aspirations for nationality. For when England destroyed Ireland's commerce by the infamous Navigation Act of 1663, and the injured country began to promote its own manufacture, it was to the woolen industry that it turned its chief attention, and on which it founded its highest hopes for a revival for its prosperity. It was at this time that the making of frieze became the occupation of the women of every cottage; while the men tended the herds of sheep and prepared the wool, the colleens kept their spinning wheels whirling

and their looms clacking with the materials for the great staple. And when in 1699 England made the exportation of woolen goods from Ireland a crime, and the people of Erin became too poor to use the finer qualities of cloths, they still had need of frieze in local trade and private use. In 1799, when the condition of the peasantry was most deplorable, they besought the king to interpose in their favor, and grant them leave to export and sell at least the coarse frieze blankets and flannels which the peasant wives and children produced in their cabins. But their appeal was in vain. The English Parliment that had ruined their trade and suppressed their most profitable manufactures, refused to allow them to dispose of the goods made by the hands of women and children. At last, when the volunteer movement triumphed, the unjust British laws were repealed, and the great trade of the colonies was thrown open to them. Frieze is still made in Ireland. No longer woven to any extent on hand-looms, it is produced with improved machinery, from beautiful patterns, by skillful workmen in prosperous mills. It is honest goods. There is no shoddy in it. Every thread is wool, and the wear is everlasting. Pure as the patriotism of the people who make it, simple as their nature, true as their love, it is typical of Irishmen, and deserves to have its name inseparably linked to theirs in its name of Irish Frieze.

Fringe. An ornamental bordering formed of short lengths of thread, whether loose or twisted, variously arranged and combined, projecting from the edge of the material ornamented. Fringe may consist of the frayed or raveled edge of the fabric ornamented, but is generally of other material, attached by stitching. Gold and silver fringe, such as now used for epaulettes, has been worn by ecclesiastics as far back as history has traced the dress of people, but was not adopted in civil costume until the 15th century. The styles of trimming-fringes for centuries have come and gone at Fashion's dictate. Sometimes in the form of knotted and twisted silk, and again as the curly chenille. Fringe is essentially a creature of Fashion, depending upon her smile for its ephemeral existence; while her frown is a token for its speedy departure.

Frock. [From Fr. *froc*, a monk's cowl or habit.] Originally a long coat with large sleeves, worn by monks. At present a garment covering the body and worn by either sex; also a loose outer garment worn by workmen, as agricultural laborers, etc., over their other clothes. [See SMOCK-FROCK.]

Frock-coat. A body-coat for men, usually double-breasted and with a full skirt; opposed to *sack-coat*, which has no skirt, and to *cutaway*, with a short and tapering skirt. [See PRINCE ALBERT, CUTAWAY COAT.]

Frocking. A fabric suitable for making men's work-frocks; specifically coarse jean or drill.

Frog. An ornamental fastening for the front of men's coats and ladies' cloaks and waists, usually made of metal or braiding, and consisting

of a spindle-shaped button attached by a cord, and corresponding with a loop on the opposite side of the garment. A pair of frogs fixed on the opposite side of the coat may allow of buttoning either way. On silk plush cloaks the frogs are generally of sealskin. [See BRANDENBURG.]

Frontal. An ornamental band for the hair, worn by women.

Fugitive colors. Those colors which fade, or are more or less destroyed by the action of light, air, and atmospheric heat and moisture; those also which fade under the action of dilute acids or alkalis, as of soap solutions in washing.

Fuller's-earth. A species of clay, used by fullers to take grease out of cloth before they apply the soap. When good it has a greenish-white color, falls into powder in water, giving the water a milky hue, and appears to melt on the tongue like butter. It is not at present used to the extent it once was, other substances having taken its place.

Fulling. The process of condensing a previously formed fabric, causing it to assume a stronger and firmer body; especially applied to woolen goods. The first operation which a cloth that is to be fulled undergoes, after it is woven, is *braying*, the object of which is to get rid of the oil used preparatory to spinning, and also to get rid of the size used in dressing the warp. The cloth as it leaves the loom is greasy and rough, and is subjected to a number of processes which make it compact in texture and smooth and level in surface. In this operation the *scouring stocks* are used, which, under the more modern name of *fulling mill*, are supposed to stand, in point of antiquity, next to the corn or flour mill. Everyone is familiar with the fact that blankets and flannels tend to contract with frequent washings, gaining in thickness and solidity what they lose in strength and elasticity; such shrinkage is greatly hastened when woolen fabrics are rubbed in very hot water. This shrinkage is the result of the curly, scaly structure of wool fibers. The operation of fulling is now performed by a steam fulling mill. The old method of fulling by the stocks is wasteful of power, and the blows the stocks give with the heavy wooden mallets tend to sometimes tear and bruise the cloth, drawbacks from which the fulling mill is free. The cloth to be fulled is, after braying, first well saturated with hot water and soap, and pressed and rolled, and scoured and rubbed between the slow-revolving rollers of the fulling-machine while so heated and soaped. The more prolonged the operation the more does the woolen material shrink up and thicken. Twelve hours in the mill will reduce a piece of cloth two-fifths of its breadth, and one-third of its length, though it is possible to carry the operation to the extent of reducing cloth to one-half of its original length and breadth. The amount of fulling they receive is the distinguishing feature of many varieties of cloth. In the treatment of broadcloth, doeskin, melton, and all nap-finished woolens, the fulling is carried so far that the fibers become densely matted, obliterating all the appearance of the weave, and giving the piece more the aspect of felt. Fabrics

to which no nap-finish is given are fulled only to the extent of solidifying the substance and strength of the texture. Tweeds are very slightly fulled in order to give them a "dressed" surface. The traveling motion of wool under the combined action of heat and moisture, resulting in the entanglement of the fibers and consequent fulling and shrinking of the cloth, is further exemplified in the case of Scotch caps and the hose shipped to the inhabitants of northern latitudes. The latter are first knit of a size sufficiently large to enclose the body of a man, and afterward fulled down to fit the foot. During the fulling of any and all kinds of goods, they must be frequently taken out and stretched, turned, the folds straightened and generally inspected. On conclusion of the operation the goods are scoured to free them from the soap, which is very simply done with pure water, tepid at first, but gradually cooled by additions till in the end the cloth is worked in pure cold water. [See FELTING, BROADCLOTH, TEASLING, SINGEING.]

Fulling Mill. A power-machine for fulling and felting woven fabrics, to improve their texture by making them thicker, closer and heavier. Such mills operate by means of rollers, stampers and beaters, of various sizes and forms, but usually of wood, which roll, toss and press the fabric in hot suds and fuller's earth till the required texture is obtained. The result of the process is a reduction in length, in width, and in case of hats of size. [See HATS].

Full Regular. A method of seaming knitted hose, underwear or gloves, by which the edges of the web are connected by hand, the loops on either side being so neatly taken up and joined as to leave no welt whatever, and but slight evidence of a seam. Full-regular made articles always represent the best as well as the most expensive grades of knitted goods. [See HOSIERY AND KNIT GOODS].

Fur. Hair, wool, and fur are slender filaments or thread-like fibers issuing out of the pores of the skins of animals, and all partaking of the same general nature, such as flexibility, elasticity and tenacity. Fur, however, is distinguished from wool by its greater fineness and softness, and hair from wool by its straightness and stiffness. Certain animals have a covering of *fur* upon their skins underneath a longer covering called *over hair*. The term fur is not used indiscriminately for any kind of skin, but applies only to to the short fine hair next to the skin. The fur differs from the overhair in that it is soft, silky and downy; while the overhair is straight and comparatively rigid. In the raw state furs are called *pelts*. Few kinds of animals furnish a pelt of the correct weight and pliability without artificial assistance, and all of them differ widely in texture, shade and fineness; it being these differences which determine their value. Furs naturally formed the first clothing of man. They were known to the Romans two thousand years ago, and from that time to the present day have maintained a high commercial value, and have frequently been used to mark social distinctions. The taste for really beautiful furs is never

likely to die out. Good fur is akin to fine gems, and will always command admiration, respect and a proper price, but like them, its use must always be restricted to the minority. Really good fur is but slightly higher now than it has ever been, and while fine fur can only be worn by persons who make pretensions to elegance, yet the ingenuity of manufacturers have triumphed over natural deficiencies to a certain extent, and skins that would not have been tolerated as trimmings formerly are now, owing to the improved processes to which they are subjected, transformed into very fair imitations of handsome furs. In some cases this is so cleverly managed that only adepts are able to discriminate between the real and the false when the goods are new; wear and tear, however, are infallible means of detection. To be sure there are those who inveigh against this "fraud," and talk with regret of the degeneracy of the times when rabbit-skin is made to assume in turn the tints of the sable, the otter, the fox and the seal, for the temptation of the unwary, but the general feeling is very different, and the enlightened public looks with favor and not disdain at the growing popularization of cheap fur. It cannot but be gratifying to see almost every decently-dressed woman with a bit of fur somewhere about her person, if it be only a band about her throat, or a tiny muff to comfort her chilly hands.

A brief account is given here of the most-used varieties of fur and skins, with some general remarks as to their average value and customary uses:

Badger.—Overhair coarse, three to four inches long, black with silver spots, fur wooly; used for robes and brushes. Value of prime $1 to $1.25.

Bears.—Black, $12 to $28; cubs and yearlings $5 to $12. Grizzly, $10 to $15. Brown, $10 to $14; used for robes.

Beavers.—Overhair three inches long, of grey color, with reddish-brown ends. Fur thick and fine, of a silvery-gray hue or delicate light-brown; used in every form and fashion. Best are from Labrador; value of beaver fur $4 to $8.25 per pound; castor beaver $4 to $6 per pound. There was a time in the early history of British America when beaver skins were bought from the natives by the Hudson's Bay Company, at the regular price of fourteen skins for a gun, seven for a pistol, two for a shirt or one pair of stockings, one for a comb or twelve needles, etc., less than a hundredth part of their real value; all other fur-bearing skins belonging to that country were rated by that of the beaver.

Chinchilla.—Overhair and fur of equal length, and like wool may be spun and woven; color gray and black mixed. Best are from Peru; used for muffs, boas and borders on garments, but *never* for overcoats; value from $1 to $3 per skin.

Ermine.—Fur soft and pure white with tip of tail jet black. Best are from Siberia; used for muffs, garments and linings; value variable, from fifteen cents to $1.50 per skin.

Fisher.—Fur fine; color black or gray. Best are from British America, value from $3 to $8 per skin.

Catskin Fur.—The fur of the wild cat, especially that of Hungary, is quite valuable. It is of a brownish grey, mottled and spotted with black. Being soft and durable it is employed chiefly for cloak linings and robes for carriages. The domestic cat of Holland is bred for its fur, being fed on fish and carefully tended until the coat has arrived at its full perfection, when the fur is frequently dyed in imitation of sable. American catskin fur is not so valuable, the wild variety being valued at fifty cents to $1.00 per skin and the domestic or house cat at five to ten cents.

Fox, Silver.—Overhair thick and fine, three inches long, varying in color from a pale silver to a darker hue; fur fine and curly. Its beauty places it ahead of all fancy furs. The choicest are from Labrador; used for muffs, boas, trimmings, and for garments by the rich; value $50 to $150 per skin. The skins of red foxes are valued at $1.50 to $2 per skin; cross fox $4 to $8; gray fox 50 cents to $1.

Marten, American.—Overhair fine and flowing, one to two inches long; fur close and thick; color of the best is of a dark coffee brown, of the poorest a pale yellow. The best are from Labrador, always a choice and valued pelt, value from 80 cents to $2.50

Buffalo Skins.—In 1880 buffalo robes could be bought for $6 to $8, but they are becoming extinct, and now bring $30 to $40 each. This price makes them too expensive for the trade. They have been supplanted by wolf skins which are expensive, and various goat skin robes for the cheaper buyers. China goat, especially, is becoming a popular skin for the manufacture of medium grades of carriage robes. Near Garden City, Kansas, there is a large ranch devoted solely to the propagation of the buffalo. These animals, however, are not raised for their skins, but merely for menageries and museums.

Lynx.—Fur fine; color gray or hoary, with clouded spottings; value of prime $3 to $3.50. Best are from British America.

Mink, American.—This valuable fur vies with the marten in elegance of luster. The choicest are of a blue-black shade that is always admired in furs. The best are from Maine and Labrador. It is most abundant in the Middle and Northwestern states. Value of latter 75 cents to $2.00; of former from $2.50 to $3.50.

Muskrat.—Overhair coarse and light brown; fur fine, thick and silky. A well known fur in the United States. Available for a great variety of purposes, notably in the manufacture of men's fur caps, and as a hatter's fur. The fur from the belly of the muskrat used for making men's fur hats, sells for $2 per pound. The price of the raw skins, however, fluctuates greatly; the annual catch varying from three to five millions. The usual price of prime varies from 15 to 50 cents. A variety of black muskrats from Delaware and Maryland fetches double these prices.

Musquash.—Same as muskrat.

Nutria.—Overhair coarse and rigid; fur short and fine. From South America, in size and value between the beaver and the muskrat. The pelts are too often unsound, and hence the value of the fur is chiefly for hats; value of prime fur $3 per pound.

Opossom.—Overhair coarse; fur short and medium fine; value 5 cents to 25 cents.

Otter.—Color brown; found in all northern countries; best comes from Labrador. Value of prime $5 to $10.

Otter, Sea.—Overhair exceedingly fine, extending but little beyond the fur, which is close, thick and silky. The general color is a deep liver brown, everywhere silvered or frosted with the hoary tips of the longer stiff hairs; these, however, are removed when the skin is dressed for commercial purposes. Found only in the Aleutian islands and Alaska, where five thousand half-civilized natives depend upon sea-otter catching for obtaining a living. The choicest skins are almost exclusively used by the nobilily of Russia; value of prime $100 to $500.

Rabbit, Hare, and *Coney.*—Used, for an infinite variety of purposes, and especially in the manufacture of felt hats and fur caps. In trade technically termed "Coney."

Sable, Russian.—A European variety of the marten, both of which belong to the weasel family. The skin is held in high estimation by the upper tendom of Russia; in color a rich bluish-black shade. The caprices of fashion have at times set wholly fictitious values upon the desirable shades of this fur, values not recognized by professional furriers. Best and darkest colored come from Siberia and Northern Russia, valued sometimes as high as $150 per skin.

Sealskin.—See SEALSKIN.

Skunk.—Overhair fine, three inches long; in color dark-brown, black and white; fur thick, glossy and flowing. Many have two white stripes more or less broad, extending from the head to the tail. It is now easy to deodorize the skin, and the fur has become a popular one in all countries. The best are from New York and Ohio, value from $1 to $1.50; poor grades twenty-five to fifty cents.

Wolf.—The largest are from British America, and northern portions of the United States, chiefly grey-brown in color, with long, coarse, flowing overhair; mainly used in making robes and rugs. Northwestern wolf skins are valued at $3 to $5; southwestern seventy-five cents to $2.50; prairie, seventy-five cents to $1.50.

Wolverene.—Overhair long and shaggy, similar to the coat of a bear, fur short and wooly; color blackish brown. It is the largest variety of the weasel family, being from two to three feet in length. When several skins are sown together the fur forms elegant hearth and carriage rugs, value $3 to $4.

Furs are dyed in a variety of ways to make them uniform in color, and adapt them to the fashion and taste of the time. Ordinarily this is a cheap

and easy process, only becoming an art when employed upon fine skins, from which the overhair has been first removed by "plucking," leaving the *fur* alone on the skin to receive the dyestuff. Among these are the skins of the muskrat, beaver, otter, and especially the seal; the last having received careful attention and study by dyers, as its entire value depends upon the success of the dyeing process. Great care is necessary to prepare the dye of suitable strength, and to infuse the coloring matter into the fur without allowing too much of it to reach the skin, whereby its wearing qualities might be ruined. There are fur manufactories in all the large cities of the United States, turning out vast quantities annually. St. Paul has for fifty years been an important fur market, and at present manufactures fur of all kinds, from a child's muff to the costliest seal garment. To this is added the making of mittens, gloves and articles of a similar kind. Another branch of the manufacture carried on at St. Paul is that of making fur overcoats. In 1891 the business of three factories at this point amounted to $1,200,000. In making garments fur is never cut with scissors. The marks of the pattern are made with chalk upon the skin-side, and then cut with a sharp knife, not letting it cut quite through at first, and then *pulling* the piece apart, thus finishing the cut very delicately so as not to spoil the fur. The use of scissors would cut the fur on the outside in spite of the utmost precaution. When it is all cut the edges to be sewed are brought together and moistened, and sewed overhand with a waxed cotton thread. Silk cuts the skin. All kinds of fur are cut and sewed in the same way. [See SEALSKIN, HATS.]

Fur Beaver. A term applied in recent years to a variety of heavy, napped woolen cloth used exclusively for men's fine overcoats. The cloth is double-woven, with the warp in the center and a weft on each surface, made of extremely soft, fine wool, such as lamb's-wool or merino. The face is finished with a straight flowing nap, not being rolled into tufts as in Chinchilla, but brushed straight and all lying in one direction. The principal advantage of Fur Beaver is that being woven of extremely fine wool, it produces a light fabric, thus preserving great warmth with very little weight. It has a soft, almost oily feel, similar to beaver fur, and is often finished with a short nap on the back.

Furbelow (fur'-be-low). [From *fur* and *below*.] A puffed and puckered adornment on a dress or petticoat; any elaborate ornament or embellishment of a ladies' costume.

Fustian (fus'-tyan). [From *Fustat*, a suburb of Cario, Egypt, whence the stuff first came.] In present use a stout, twilled cotton fabric, especially that which has a short nap, variously called *corduroy*, *moleskin*, *beaverteen*, *thickset*, etc., according to the way it is finished. Among the various trades which anciently distinguished Barcelona, Spain, one of the most famous and useful was that of cotton manufacture. These artisans prepared and spun cotton for the numerous stuffs used in those times,

principally for the manufacture of cotton sail cloth, and strong fustians for sailors' breeches—for Barcelona was for more than 500 years a station of the Spanish Armadas. These early fustians was then, as now, of cotton, or of cotton weft and linen warp. In the 13th and 14th centuries priests' robes and women's dresses were made of it, there being both cheap and costly varieties. It appears to have been worn where strength and durability were required. Through the invention and adoption of other fabrics its use has gradually been confined to laborers and servants. [See CORDUROY, MOLESKIN, BEAVERTEEN, THICKSET.]

Fuzz. Fine downy particles, as the loose fibres on the surface of cloth, or separated from it by friction.

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Gaiter. [From Fr. *guetre*, a cloth covering for the ankle and upper portion of the foot.] Originally a kind of shoe, consisting partly of cloth, covering the ankle. At present a shoe of similar form made either of leather or cloth, generally with an insertion of elastic on each side. The term is also applied to a covering of cloth for the ankle and lower portion of the leg, spreading out at the bottom over the top of the shoe; also called *overgaiter* and *spatterdash*.

Galligaskins (gal-i-gas'-kins). Leather guards worn on the legs by sportsmen and equestrians. Formerly, in the 16th century the term was applied to a fashion of trunk hose, also called *gregs*, *venetians* and *gaskins*.

> "Every good housewife made the clothes of her husband and family, and even the good frou of Van Twiller himself thought it no disparagement to cut out her husband's linsey-woolsey *galligaskins*."—*Irving*, Knickerbocker. p. 175.

Galloon (gal-oon'). [From It. *gallone*, finery,] Originally, worsted lace, especially a closely-woven lace like a narrow ribbon or tape for binding. In modern use a trimming similar to the above, of wool, silk, tinsel, cotton, or a combination of any of these; also, a kind of gold or silver lace with a continuous even edge used on uniforms, liveries and band caps.

Galoshes (ga-loshes'). [From Sp. *galocha*, wooden shoe.] A kind of clog or patten worn in the middle ages as a protection against wet, and common, because of the fact that in those days shoes for ordinary wear were made of thin materials, such as cloth, silk and the like. In present use a general term for overshoes and rubbers.

Gambroon. A twilled cloth of worsted and cotton or linen and cotton used for summer trousers; also a twilled linen used for linings.

Garment. An article of clothing, as a coat, a gown, or a wrap.

Garter. An elastic band or other fastening to keep the stocking in place on the leg; more particularly a band passing around the leg either

above or below the knee. It is not known when garters were first worn. Necessity in this case must have been the mother of invention, and garters are probably of the same date as the hose which they kept up. The ordinary woman's garter is a cheap and insignificant article, but for those who can afford them the fine qualities range all the way from silk elastic with oxidized silver clasps at $3 per pair, to those with gold buckles adorned with countless designs and monograms up to silk bands ornamented with clasps of diamonds, sapphires, rubies and even pearls, costing from $150 to $500 a pair. Actresses and favorite dancers in large cities especially affect these luxurious fastenings. According to a common English legend the *Order of the Garter* originated in 1350 in the following manner: At a court ball in London King Edward's mistress, commonly supposed to be the Countess of Salisbury, allowed her garter to drop upon the floor near the king, who, taking it up, observed some of the knights and courtiers to smile as if they thought he had not obtained this favor merely by accident, upon which the king called out, "*Honi soit qui mal y pense.*" (Shamed be he who evil thinks of it.) This trifling incident divided the king's friends into two factions, finally giving rise to the Order of the Garter, the highest order of knighthood in Great Britain, consisting of a perpetual organization of the reigning king or queen, the prince of Wales and fifty others of the bluest blood among the royalty.

Gauntlet. Throughout the 12th and 13th centuries, the metal covering for the hand, attached to the iron armor worn by warriors, was called the "gauntlet." This was at first mitten-shaped, but afterwards separated to contain the fingers, and continued gradually to change until the gauntlet was made of leather with iron pieces sewed on the palms, and detached from the arm covering. The word is derived from Anglo-Saxon *gauntus,* signifying in its general sense, a glove; while *gantelet* is the present French term for glove. Gauntlets are now distinguished by being a long, stout glove, for use in riding and driving, loosely covering the wrist and lower part of the arm.

Gassing. The process by which cloth that is to be finished with a smooth surface, as well as lace and yarns, is run through a gas flame at a speed carefully regulated so that the flame shall burn off the loose fuzz and filaments. [See SINGEING.]

Gassing-frame. An apparatus in which yarns are run off from one bobbin to another and carried through gas flames in the operation of "gassing." A stop-motion is used to draw the yarn out of the flame in case it knots and stops, and thus prevents it from burning off.

Gauze. [Said to have been named after the place of its origin, *Gaza,* in Palestine, a city known from ancient days as an important cloth weaving center]. A very thin, transparent fabric made of silk, silk and cotton, or silk and linen. It is either plain, or brocaded in patterns with silk. Although gauzes are occasionally made of thread, the name has always in

times past signified a silk fabric. Common gauze is formed by the warp being twisted somewhat like a rope during the operation of weaving, by which the structure of the cloth acquires a resemblence to lace. The texture is always open, flimsy and transparent, but from the turning of the warp it possesses an uncommon degree of strength and tenacity in proportion to the quantity of material which it contains. Gauze is dressed or "sized" while held in a stretched condition, the dressing being dexterously and uniformly applied by a series of spraying nozzles, actuated by steam or air jets. The process of drying is carried on in chambers heated to a proper temperature by steam pipes; the final operation consisting in passing the fabric along a network of tapes to the winding of folding apparatus. [See EMPRESS GAUZE, GOSSAMER.]

Genappe (je-nap'). [From *Genappe*, Belgium, where first produced.] A worsted yarn which, because of its smoothness, can be conveniently combined with silk, and is thus well adapted for braids, fringes, etc.

Germantown Yarn. [From having been first made at *Germantown*, Pa., which city at present constitutes the 22nd ward of Philadelphia,] A coarse heavy woolen yarn, extensively used for knitting fancy articles, especially heavy scarfs, hoods, mittens and the like. It has been superseded to some extent in recent years by German Knitting Worsted.

German Knitting Worsted. A strong durable yarn made of "worsted," that is, wool prepared by the combing process. [See WOOL, WORSTED.]

Gimp. [From Fr. *guipure*, to whip round with silk.] A flat trimming made by twisting silk or worsted threads round a silk foundation of wire; more or less open in design; used for borders of curtains and furniture trimmings, ladies' dresses, etc.

Gimped Embroidery. A kind of raised embroidery made with a padding of inferior material which is entirely concealed by the silk or beads whipped round it; similar to passamenterie (which see).

Gingham. [A term derived from the town of its early manufacture, *Guinghamp*, France, in the department of Cotes-du-Nord]. A close, stout, plain (untwilled) cotton cloth, woven into yarn-dyed checks and stripes of two or more colors. It differs from calico in the circumstance that its colors are *woven in* instead of being printed on the cloth, and from sateen for the same reason and also in not being twilled. In the case of umbrella ginghams the whole piece is woven of yarn of one color. Under the general term of gingham a great variety of materials are manufactured, the trade distinction of "gingham" being now to a large extent superseded by other terms. *Seersucker gingham* was originally a thin linen fabric made in the East Indies, having blue stripes alternating with white ones. *Zephyr gingham*, as the name indicates, is an extremely soft and pliable variety, woven of fine yarns, and finished devoid of "sizing," frequently found in small checks and plaids. *Madras gingham* is the name applied to a very superior kind, in which the pattern is made to imitate the

waved lines and simple embroidery work of Madras cloth. *Scotch* and *French ginghams* are merely superior qualities of domestic goods. Toile-du-Nord is a French phrase for *Cloth of the North.* Small, square-checked ginghams are designated as "two-by-two," "four-by-four," etc., which has reference to the size of the checks: the two-by-two having two white threads intersected by two threads of some dark color every alternate time; the four-by-four having *four* threads of each color, and the six-by-six *six* threads of a color crossing each other, and so on. Standard ginghams weigh about six and one-quarter yards to the pound, and count from sixty to seventy threads per inch.

On leaving the loom ginghams present a very crude appearance. It is in a great measure the finish that lends to a piece of gingham its chief attractiveness. Before finishing, however, the cloth is carefully inspected and any pieces that contain imperfectly woven spots are laid aside and finished separately, to be classed as "seconds." The cloth is then run through a starching machine adjusted so as to supply the amount of starch necessary to produce the required degree of stiffness. This part of the process requires great care as on the degree of stiffness the satisfactory nature of the finish will largely depend. The wetting of the cloth in the starching process has a tendency to shrink the cloth, and to counteract this and to produce an even width throughout each piece, the goods are placed on a tentering machine. This consists of two parallel endless chains traveling over a platform several yards in length. Clamps on each chain clasp the edges of the cloth, and by the aid of small pins to prevent its slipping, hold it out to the desired width. If the cloth has been dried after the starching process, it is necessary to steam it while on the tentering machine, so as to moisten the fabric and give it elasticity, but as the cloth travels slowly over the platform it encounters a heated surface and is gradually dried, while the chains holding it apart prevent any shrinkage. To produce a glossy surface the cloth is then passed between heated iron rollers, which act in the same manner as the flat-iron in the hands of a laundress. This process is called calendering. Of course, attention must be paid to the amount of calendering the goods receive. If too highly calendered the cloth is apt to appear too light and flimsy and if not sufficiently calendered it may appear harsh and rough. The amount of starching and calendering, however, largely depends on the purposes for which the goods may be intended, a specially hard and glossy finish being occasionally called for. When the calendering has been completed each piece of cloth is rolled upod a board by an automatic machine which, by the number of revolutions made, registers the number of yards in the piece. The work of banding and ticketing is then performed and the gingham is ready to be packed in cases for delivery.

Girdle. The ancient use of the girdle was to confine to the waist the long flowing garments then worn, and in some countries is still in use, worn by both men and women. It was once an article of universal wear, and ac-

cordingly varied in richness with the position of the wearer. Some were simple leather bands with one end passed through a hole and fastened round the other; some again were of great width and costly materials, lavishly overlaid with jewelry and precious stones, furnished with a costly ring for the passage of a tie, and the ends long and richly ornamented. The making of girdles, which included sword-belts, became in England a distinct craft. The Girdlers' Company was incorporated in 1499, and in 1568 the Pinners and Wire Drawers were incorporated with them. All kinds of things were carried at the girdle—long embroidered pockets, scissors, and keys by women; daggers, poinards, penner and ink-horn, knives or books by men, according to their calling. From the common custom of carrying the purse at the girdle comes the old term "cut purse," and the voluntary surrender of the girdle became by custom a legal transfer of the effects of a bankrupt to his creditors. "May my girdle break if I fail" was an old saying of imprecation against false promises, because the purse hung to it. It was also regarded as a symbol of continence and self-restaint.

"The girdle gave the virtue of chaste love
And wifehood true, to all that did it bear:
But whosoever contrary doth prove,
Might not the same about her middle wear,
But it would loosen, or else asunder tear."—SPENSER.

At present the girdle is frequently used in women's dress, and in military costume, commonly called a *hilt* or *sash*. The term is also applied to a belt of tape or ribbon used to keep up the stockings, as a substitute for garters. It is not improbable in the case that tights or pantellas become universally popular that girdles for the use mentioned will cause the garter to fall into desuetude.

Glace (gla-sa'). [From Fr. *glace*, iced, glazed]. In trade a term signifying fabrics or articles with a glossy, lustrous finish. Changeable colors or "shot" silks are termed *glace silks*. *Glace gloves* are those finished with a luster or polish, in contradistinction to the seude, or soft finished goods.

Glass Cloth. A fine linen fabric, usually woven with a slight open pattern of colored threads, like gingham, used originally as a towel for drying fine porcelain, glass, etc., and now employed as a background for embroidery.

Glassing. A method of finishing fine kid leather, to produce a permanent gloss, by rubbing it with a ball of polished plate-glass.

Glazing. See CALENDER.

Glengarry Cap. [So named from *Glengarry*, a valley in Scotland]. A Scotch cap of wool, either woven in one piece or cut out of cloth and sewed together. It has erect sides, a hollow or crease at the top, and diminishes in height toward the back, where the band is slit or parted and fitted with a pair of short ribbons, which are usually crossed and permitted to hang down. It is the typical cap of the Scotch Highlander.

Gloria. A fabric the warp of which is silk and the weft either of cotton, wool or mohair. In the process of weaving glorias, the silk is so thrown up that the surface has a soft silken luster, while the fineness of the weft mingled with it gives the fabric a firm and even appearance. Silk-and-cotton glorias are used largely in the manufacture of umbrellas and men's "silk" shirts, as well as for ladies' dresses.

Glove. The antiquity of gloves is very great. They have been known and worn from the remote age of the world, and doubtless antedate history, for the earliest literature alludes to them. Gloves were, in 1416, often set with precious stones, and sufficiently valuable to be left as legacies. They have ever been an accessory to the dress of royalty, and ornamented with pearls and precious stones are yet deemed fitting ensigns of imperial dignities. In times past they were so intimately connected with kingly power that monarchs were invested with authority by the delivery of a a glove. At the coronation of English sovereigns the ceremony of challenging by a glove is still observed. When Henry IV was crowned, a knight armed for the wager of battle, threw down his glove to any man who should dare to maintain that King Henry was not a lawful sovereign. Later the King's champion has been accustomed to make this challenge with a glove at each coronation, as was the case at the crowning of Queen Victoria. It was formerly a proverb that for a glove to be good, and well made, three kingdoms must contribute to it. Spain to dress the leather, France to cut it and England to sew it. But of late, in the manufacture of ladies' and gents kid gloves especially, France has appropriated the functions of the other two—they now having the advantage in point of dressing and sewing, as much as of cutting. The greatest manufacturing center in the world for kid gloves is Grenoble, in the south of France, where many thousand persons are engaged in the factories. This town has become thus famous owing to the especial qualities of the water for the dyeing; and also to its proximity to those countries which produce an abundance of goats. About 1,200,000 dozen pairs, (equal to 28,800,000 single gloves) are made annually at Grenoble, to accomplish which 25,000 persons are employed —4,000 men and 21,000 women and children. Of the skins furnished 95 per cent are said to be kid and 5 per cent. lamb, and 9,600,000 kids are required for the factory at Grenoble every year. The kids are so small that but three gloves can be cut, on an average, from one skin. It is stated that any first-class factory at Grenoble can supply 300 different tints in gloves; and that from the gory fingers of the slaughterer to the more or less dainty fist of the purchaser, the glove passes through something like 200 hands. The process a kid glove undergoes is not only interesting reading, but is necessary knowledge for a salesman. The first thing to do is, of course, to remove the hair from the raw skins as they are received by the factory. For this purpose lime is used, they being immersed from a fortnight three weeks in pits containing water and lime. The skins are constantly turned and shifted about by workmen armed with long iron tongs

and when taken out it is found that the lime has loosened the cuticle of the skin, thus rendering the removal of the hair a more easy matter. From the lime-pits the skins are taken to the unhairing room, from where they are stretched on a sort of wooden block, and are scraped with a blunt two-handled knife. This removes the hair. They are now taken in hand by the "flesher," who cuts off the tail, the headpiece, and such portions of adipose matter as may still adhere to the skin. This waste is useful for the manufacture of glue and gelatine, for which purpose it is employed. The skins now pass on to the "scudder," who removes any hair that may may have hitherto escaped the knives of the previous operators. They are next left to soak in clear water to remove all traces of the lime, and from thence they are placed in a mixture of warm water and wheat-bran, which not only removes any fleshy impurity from the skins, but also renders them soft and supple. Kid skins are not tanned like ordinary leather, such as is used for making boots and harness, by means of oak-bark, but are immersed in a revolving "drum," which contains a mixture composed of yolk of eggs, wheaten flour, alum and salt; and so enormous is the consumption of the former ingredients that at one factory in France no fewer than 4,000 eggs are needed every day. The skins are allowed to remain in this costly paste for rather more than an hour, the "drum" being kept revolving by means of machinery. They are next taken out, and removed to the cellars for the night, and from thence are conveyed on the following day to the drying room, where they are subjected to a temperature varying from 140 to 160 degrees. The attendants in this room are clad in a garb similar to that of the peasantry of India, so intense is the heat; but they manage, nevertheless to enjoy good health, and sometimes even to increase in weight. Each skin is hung separately on hooks, and thus they dry very quickly. This process leaves them somewhat hard, and they are next "seasoned" or "sammied" with cold water, and then stretched backwards and forwards over upright knives, shaped like a half-moon. After being wetted again, they are "shaved," a process requiring great dexterity. This is accomplished by means of specially-constructed knives which remove the under-flesh. The skins are now coated with a composition of flour, oil and the yolk of eggs, which renders them soft and pliable. The skin in this operation requires the most careful handling, for it has now become a soft, white membrane, very fine and silky. They are then conveyed to the dye-house, being by this time ready for the preliminary operations of dyeing. Before being dyed the skins are trodden under the soft bare feet of boys for several hours in water. This process throws out of them anything which would be opposed to the action of the dye. Having been rinsed, the skins are now moistered with more yolk of eggs, and are allowed to rest a day before they are dyed by the workmen, who taking a brush dipped in ammonia, spread it over the skins, and then apply several coatings of the dye. This he softly pats into the grain, adding a touch here and a touch there until the requisite amount is laid on. One secret of the dyer's art is

what constitutes just the right amount of dye to put on, as it must cover the skin and produce a clear color, yet not soak to the inside. The skins which have been tanned and dyed, are now subjected to a process known as "grounding," the object of which is to remove all roughness, and render them thinner and more supple. They are next sorted according to their *quality* and *size*, and are passed on to the cutters, who cut them into the several detached parts of gloves. This operation may seem to the unskilled very easy, but it is not. It requires great judgment, for the workman has to allow for the natural "stretch" of different parts of the skin. The finished skins having been selected and mapped out by the sorters, and pieced out by the cutters, are put over a frame looking like a deformed or skeleton glove. These frames are so made that they represent the whole glove laid out unsewn. The gloves, with the thumbs duly fitted and put together, are placed in a press, after which they are sent to be punched out by means of machinery. The cuttings left by the punching machine are picked up with scissors by girls who are employed making the *fourchettes*, or side-pieces of the fingers, which are also cut out by the machine-punch. It is of course necessary that the side-pieces should match exactly with the other parts, and for this the most skilled girls are employed to choose them. The seams are sewed together with perfect regularity by placing the edges to be united between the jaws of a vice, the holding edge of which terminates in fine brass saw-teeth, one-twelfth of an inch long, between each of which the needle is passed in successive stitches, by hand, and in this way a neat, uniform stitch is secured. It requires one hour to cut and examine a pair of gloves and one hour to sew them, thus making two hours the length of time necessary for the actual making of a pair of 4-button kid gloves. In France the work of stitching gloves is done chiefly by hand, one firm alone employing 4,500 women and girls for this branch of the work. Machine-stitching, however, is to a small extent utilized in the manufacture of heavy gloves, and can be recognized on account of its always being the regulation "button-hole" stitch. When the sewing is completed, kid gloves are placed in moist linen cloths and beaten, by which they are rendered softer and more flexible, after which they are pressed and ironed. They are then arranged in dozens, and being enveloped in paper bands, are packed in card-board boxes ready to be despatched from the factory. Of ordinary kid gloves there are ten different sizes for ladies—6¼ to 8; fourteen different sizes for gentlemen—6¾ to 10; for misses the sizes range from 5¼ to 6½; and for boys, the cadet sizes range from 5½ to 7¼. These latter have shorter fingers than the corresponding numbers in men's sizes. An old French glove-maker aptly asserts that "a perfect glove is as soft as a baby's cheek, finer than silk, and as elastic as rubber." Kid gloves are finished either "glace" or "suede." By glace is meant the bright polished finish which has long been in vogue. Suede, or "undressed" signifies gloves finished by removing the thin,

almost transparent outer layer of the skin, by simply peeling or shaving it off, leaving the glove undressed and lusterless in appearance.

The raising of kids for their skins is a leading industry among the French, Spanish and Italian mountaineers. Softness, delicacy of texture and freedom from blemish are the principal factors in the value of kid skins, and to secure these great pains are taken. As soon as the young goat begins to eat grass the value of his skin begins to decline, for with a grass diet his skin becomes harder in texture, and its chief merit vanishes. It is, therefore, from the hour of its birth kept closely penned, not only to prevent it from eating grass, but also to secure the skin from accidental injury from scratches and bruises. When the kids have reached a certain age at which the skins are in the best condition for the use of the glover, they are killed, and the hides sold to travelling hawkers, through whom they reach the great center of the glove industry of France.

The superior quality of these French skins, due to climatic causes, is what has given France her supremacy in the manufacture of the finest grades of real kid gloves in the world; a supremacy that will doubtless be long maintained, inasmuch as foreign factories are obliged to rest content with the second and third-rate skins. It will hardly be necessary to inform the reader that the term "kid," as applied to low grades of ladies gloves is a misnomer. If all the animals which contribute their skins to the manufacture of the cheap qualities of kid gloves could be re-incarnated, it would be the most remarkable menagerie ever exhibited, and few known animals would be missing. Even the water has been searched and an attempt made to use eel skins. Rat skins have been experimented with. Colt skins from Buenas Ayres, sheepskins from the Cape of Good Hope, ox hides from Calcutta, antelope skins from the Rocky Mountains, and Mocha sheepskins from Aden on the Red sea, are perhaps the staples; but moose, musk ox, llama, kangaroo, monkey, peccary, water hog and many others lose their identity when fashioned into the glove retailed at one dollar per pair. When what is called a "kid glove" feels unusally stout, it may be considered highly probable that it is only an imitation. It must consequently be understood that all good *kid* is reasonably thin, extremely elastic, and incomparably finer in texture (grain) than any other leather which can be lain alongside of it.

Fabric Gloves are made in cashmere, all-silk, taffeta (silk and linen), lisle and cotton (Berlin). The greater part of fabric gloves are made of a knitted fabric generally about 70 inches wide. The machinery employed in the manufacture is very ingenious, the different parts being put together by machines made for the purpose, similar to the methods adopted for the making of kid gloves. In cutting, a number of folds of the material are placed one upon another and a knife or punch at one cut takes out of the cloth a piece of the shape requirrd, which of course includes the fingers as well as the part which covers the hand. These punches are made of sizes to correspond to the usual glove numbers. These pieces are then put to-

gether and sewn on a machine designed especially for this work. Previous to sewing together, the "points," as the silk strips down the back are called are embroidered in by another kind of machine. The glove is then ready, for the dyer, if it has been made in the white, and after receiving the requisite coloring it is sent to the finishers to be dressed, banded, and boxed, after which it is ready for shipment. Gloves made and finished in this manner are what are known in trade as "town-made." There is, however, another mode of manufacturing fabric gloves on a machine similar to that used for producing circular hose, and these are known in trade as "frame-made." Frame gloves, which are seamless, are not very largely used, except in the best grades of spun silk and lisle. Fabric gloves are now woven with double finger-tips, which consists merely of an extra thread in the cloth that renders the glove three-fold at the tips. It is an English patent, and has been introduced into Germany and the United States. At one time when very cheap skins were used in making so-called kid gloves, the use of fabric gloves fell off somewhat, but as these cheap skins wore very badly and gave poor results, a reversion of sentiment occurred, and at present there is no demand for kid gloves below a certain grade. Experience having proven that fabric gloves can be made much cheaper and look and wear much better, they have crowded them out of the market. Chemnitz, Germany, is the center of the fabric glove manufacture. America takes the greatest amount. England once made the greatest number of such gloves, but has been distanced by Germany, on account of the lower price of labor, yet the English silk Milanese gloves still hold pre-eminence as the best made and are principally used for fine trade only. In Germany whole districts are given up to fabric glove making, and it ranks next in point of magnitude to that of hosiery. The industry is an attractive employment for women, as it is light, clean work, good pay, and can be taken to the home, thus enabling housekeepers to use their spare time to advantage, often earning as much as the man of the house. The manufacture of fabric gloves in this country with the exception of silk and taffeta mitts, is not very large. In mitts, the American makers control the market. [See MITTS.]

Heavy Gloves. The leather employed by glovers in the manufacture of heavy grades of gloves is mainly prepared from the skins of the sheep, deer, goat and calf. Great progress has been made in recent years in tanning sheep and lamb skins, they being now rendered so elegant and so durable as to be practically indistinguishable from goat leather in looks or wear. *Buckskin* gloves are prepared from the skins of deer, by the process of "chamoying." [See LEATHER.] It is the closest grained and consequently the strongest and best wearing glove that is made. Its elasticity, though trifling, is sufficient. Plymouth buck, which signifies buckskin which is tanned and *colored*, originated at Plymouth as did also the pattern of gloves called Plymouth, with seams up the back. *Saranac* tanned skins originated in Littleton, N. H. Gloves bearing this title

are made of various leathers, buck, goat, calf sheep, mocha, or in fact almost any skin tanned *yellow with the grain on*. *Nappa* gloves are made at Nappa, California, from the skins of the mountain goat. *Castor gloves* have had quite a history. The word indicates the skin of the beaver, but the best French castor gloves were formerly made of thin deer skin, and were soft, durable, and expensive. Latterly shaved sheepskin was used, but the goods were unsatisfactory. These were in turn displaced by American castors, made of antelope skins from our western plains. *Mocha castor* gloves are made from both mocha leather and lambskin. Mocha is the name of an animal found in a wild state in Spain and Egypt. It is a cross-breed between a sheep and a goat. In preparing skins for the manufacture of castor gloves, the grain is first removed, then tanned and dyed in assorted colors, after which they are finished on a swift running emery wheel to make them smooth and velvety. *Suede* or *undressed kid* is made from mocha or lamb skins, and tanned on the wrong or flesh side of the skin. *Dogskin gloves* exist more in name than reality, as they never, except in rare instances, are made of the real canine cuticle. Most driving gloves are advertised, labeled, and sold as dogskin, but they are made of skins that no intelligent dog would ever recognize as belonging to one of his kind. It is impossible to properly tan the skin of a dog and remove the animal grease without producing a dry, ill feeling leather, which is suitable only for the coarsest of cartmen's gloves. This difficulty in dressing has never yet been overcome. Most gloves sent out as dogskin are made from lambskin, though the poorer qualities are shaved sheepskin. *Schmaschen* is a name that importers use to designate the different imported gloves that are shipped to this country. They are for the most part made of slunk lambskin or Italian lambskin shaved down sufficiently thin to answer for ladies' gloves. They are of inferior quality, being dry and papery, and often break. In the city of Gloversville, New York, there are 140 separate glove factories which manufacture about two thirds of the entire product of men's heavy gloves in the United States. Their annual output amounts to over $20,000,000. Johnstown, New York is the next city of importance in the manufacture of gloves, the amount of business done being $10,000,000 annually.

Gobelin dress fabric. A kind of large brocade, woven of wool and silk mixed. One of the peculiar features of this material is the peculiar coloring of them, which is always done in faded, delicate shades. The woven-in patterns are technically so perfect as to appear like embroidered work, while the ground of the fabric resembles the well-known Turkish shawl pattern. Multi-colored silk threads in relief closely cover the surface, which is intersected by large velvet or moire stripes. [See GOBELIN TAPESTRY].

Gossamer (goz'-a-mer). [A contraction of "Godsummer," a name given by our superstitious ancestry to the fine filmy cobwebs which float in the

air in summer time, so-called because these flying webs were considered as being the shreds and remnants of the Virgin Mary's shroud which she dropped to earth on her ascension to heaven.] A variety of gauze, softer and stronger than the ordinary kind, much used for veils. Also a thin, water-proof outer wrap, worn especially by women. [See GAUZE.]

Gown. [From Welsh *gwn*, signifying *that which is stitched.*] In a general sense the long habit of a man dedicated to acts of peace, as divinity, medicine, law. Any long upper garment; a woman's long night-garment in particular.

Grain. The side of leather from which the hair has been removed, showing the fibrous texture, in contradistinction from the *flesh side.*

Grain Leather. Tanned and dressed horsehides, goatskins, etc., blacked on the grain side, used in the manufacture of coarse boots and shoes.

Grass-bleaching. The process of bleaching cotton and linen fabrics by exposing them to the action of sunlight and moisture by spreading on the grass. Grass-bleaching is occasionally used in the clearing process for chintzes, cretonnes, and also for fine sheer linen. [See CROFTING, LINEN.]

Grass-cloth. A heavy, buff-colored cotton muslin, used at present for children's underwear. China grass-cloth, a beautiful, fine fabric made from the fiber of an India nettle, is imported to this country in the form of handkerchiefs. The Chinese name for grass-cloth is *hia pu*, summer cloth. It was originally called *grass cloth* by foreigners at Canton, China, because it was assumed to be made of some sort of grass.

Grass-embroidery. A variety made by several tribes of American Indians, the chief material for which is dried grass, or fibrous leaves resembling grass.

Grass-linen. A fine grass-cloth.

Grassing. The exposing of linen cloth in fields to the influence of air, moisture and sunlight for the purpose of bleaching.

Grenadine (gren-a-dene'). [From French *grenadine*, wrought silk for making lace.] A dress fabric woven in small square meshes or open work of coarse-like threads, very transparent. It is manufactured of cotton, silk, or wool, and their intermixtures.

Grille (gre-lya'). [From French *grille*, a grating.] In lace, having a background consisting of bars or brides crossing open spaces; also said of the background itself.

Grogram (grog'-gram). A coarse fabric formerly in use, made originally of silk and mohair, afterward of silk and wool, and usually stiffened with gum. [See GROSGRAIN.]

Gros (gro). Thick; strong. A textile fabric stronger or heavier than others of the same material.

Gros des Indus. A silk fabric having a stripe, more or less broad, either of the same or a different color, woven diagonally across the web.

Gros des Naples. A stout, plain-woven silk dress fabric, woven of organzine silk, in the weaving of which great care and labor is bestowed, hence one of the most durable of silk materials.

Gros des Tours. A heavy corded black silk, used for mourning purposes.

Gros-grain (gro'-grain). [From *gros*, thick, and *grain*, grain, showing conclusively the origin of the word and the manner of fabrics they should be]. A firm, close-woven, fine-corded or grained dress silk, finished with but a slight lustre. The earliest grosgrain fabrics were woven with a silk warp and a mohair weft, and were very coarse. These were known at different times under the terms "grogram" and "silk mohair." [See SILK.]

Guernsey (gern'-sy). [Named from having been first worn by the sailors inhabiting the island of *Guernsey*, in the English Channel]. A close-fitting, knitted woolen shirt, worn by seamen, sometimes called a guernsey-frock; similar to a cardigan jacket or jersey, except that it is a heavier and longer garment.

Guipure (ge-pure'). A French word signifying *vellum lace*. "Vellum" means "parchment," and parchment is sheep-skin, tanned and bleached white fit for writing or printing on. "Cartisane" is another French word signifying a long thin strip of parchment or vellum rolled round and completely covered with twisted silk. To produce Guipure lace, the old French lace-makers first formed the outlines of the intended pattern of these cartisanes, they being held together at various points by stitches called "brides" or "bars," worked with the needle. These minute cords or cartisanes were either arranged so as to touch one another, and be sewed together often enough for solidity, or were attached in the form of a figure by the "brides." In later use the term *guipure* is applied to lace made in imitation of the ancient guipure, hence to any lace having no ground or mesh, but maintained by brides only; in this sense used very loosely. *Cluny guipure* siginifies modern lace or passamenterie, imitating that of the 16th century, having a formal and even geometrical design and usually of rather large pattern. The term is applied to such work whether hand-made or machine-made. [See LACE.]

Gunny. A strong and extremely coarse cloth manufactured chiefly in Bengal from jute, but to some extent in Madras and Bombay from sunn-hemp. It is also extensively manufactured in Dundee, Scotland. It is used for clothing by many poor people, but principally for bagging and the wrapping of large packages, as cotton bales, for which use large quantities are exported to the United States. In lower Bengal the manufacture of this bagging is the great domestic industry of those ver-popu-lous districts. It pervades all classes, and gives occupation to men,

women and children. Boatmen employ themselves weaving it in their spare moments, as also do farmers, carriers, and even domestic servants. It forms the never failing resource and occupation of that most humble, patient and despised of created beings, the Hindoo widow, saved by English law from sacrifice, but condemned by native opinion and custom for the remainder of her days to sack-cloth and ashes, to the lowest domestic drudgery in the very household where once, perhaps, her will was law. Of recent years, however, large quantities of jute have been annually purchased by English and American companies, and shipped to Dundee, Scotland, and to the United States, where it is woven into gunny bagging. In this country it is made in several different qualities, and used for sugar, coffee, and rice sacks, burlaps, furniture wrapping, backing for floor oil cloths, and, most important of all, for wrapping the bales of cotton in the south. As each bale requires seven yards of gunny cloth, and the annual production of cotton in this country being between seven and eight million bales, the consumption of gunny for this purpose is very great. [See JUTE.]

Gutta-percha. [From Malay *gutta*, gum, and *percha*, the island from whence it was first obtained. The island is now known as Sumatra]. The juice of an evergreen tree common in the jungles of the Malay peninsula and archipelago. It is a yellowish, inodorous and tasteless substance, nearly inelastic; at ordinary temperature hard, tough and somewhat horny, and flexible only in thin plates. At 130 degress F., it is sufficiently soft to be rolled into plates, and it becomes very soft at the temperature of boiling water. Gutta-percha is used principally for insulating electric wires, in the manufacture of hose, belting, combs and other flexible goods; also as a substitute for leather, for splints and various surgical instruments. It was first introduced into the civilized world in 1842, by Dr. Montgomery, a Scotch surgeon.

Gypsy Cloth. A heavy-napped cotton cloth, used in the manufacture of negligee shirts, tennis and boating costumes, etc. [See FLANNELETTE, DOMET, OUTING.]

H

Habberdasher. [A term which meant originally "peddlers' wares," or the contents of a peddler's bag; derived from German *Habt ihr das*, "Have you this?"—a phrase which peddlers formerly used when offering their wares for sale.] A dealer in small wares; specifically a dealer in small articles of dress, as neckties, collars, ribbons, trimmings, thread, pins, needles, etc.; also a dealer in hats. In the north of England habberdasher means a schoolmaster. The word is sometimes used in this country to describe a dealer in hats, caps and furnishing goods, for men.

Habiliment. A garment; clothing; dress; vestment. Usually in the plural: as, fashionable *habiliments*.

Habit. External dress; particularly, the costume or dress regularly worn, or appropriate for a particular occassion, use, or vocation. Also, a costume worn by women when riding on horseback. This, until about 1870, had a very long full skirt of cloth, which it was customary to pin or otherwise fasten below the feet of the wearer when mounted. The habit used at present is much shorter, and close-fitting, consisting of a skirt, waist and cap. The edge or hem of the skirt is somtimes weighted to keep it in position.

Hair Cloth. A fabric woven of the hair of horses' tails, used for sofa coverings, seatings, etc., and for stiffening of ladies' dresses. The hair used in this manufacture (which composes only the weft) is procured from South America and Russia. All the black and gray hair is dyed a deep lustrous black for the making of black hair cloth for covering furniture, while the light is reserved for dyeing the brighter hues, such as green, claret, crimson, etc. According to the length of the hair, so can this cloth be made in widths varying from 14 to 40 inches. The quality, as well as the brilliancy and permanency of the colors depend in a great degree on the nature of the warp, which may be either cotton, linen or worsted. In the manufacture of either plain or damasked cloth, the weaver uses a sort of hooked shuttle which he passes between the threads of the warp toward the left hand; the assistant, or server, places a single hair over the end of the hook, and the weaver draws it through the warp. The placing of the hairs one by one renders this a tedious operation, and one that does not admit of the application of machinery, which is so advantageous where the weft consists of a *continuous* thread. An imitation of hair cloth is made by the use of hard-twisted and highly gummed and polished cotton threads. [See SACK CLOTH.]

Hair Manufacture. The various uses to which hair of different sorts is applied are familiar to every one. To prepare the curled hair for stuffing cushions, pillows and mattresses, short horse hair is carded between "teeth" or combs, beaten in a heap with a cane; curled and twisted round a cylinder of wood in cold water, then boiled and heated in an oven. It is then opened by partial uncurling in an opposite direction, and towzled or picked into curling pieces, by which operations they acquire a remarkable springy quality. Short white horse hair from the mane and tail, is used for brushes. Hair of medium length is spun into clothes-lines and woven into filtering bags. Long white horsehairs are used for violin bows and fishing lines. At some of the industrial exhibitions there have been displayed, from Russia, bowls, dishes and plates made of hare and rabbit hair, felted into a tough layer and varnished; they possess something of the appearance of papiermache. For various purposes in arts, the hair of the camel, badger, sable, hog, cow, dog and other animals is used. But by far the

most valuable kind is human hair. The making of wigs, perukes, beards, whiskers, switches, moustaches, eyebrows, chignons, bangs, etc., constitutes a trade in itself, in which many ingenious processes are involved. The best false hair comes from France, where it is sold by the gramme at prices which vary according to quality and color. The most expensive false hair is the silver white variety, which is in great demand and very difficult to find. This is due to the fact that men grow bald, in a majority of cases before their hair reaches the silver-white stage, and women, whether bald or not, are not disposed to sell their white hair at any price. They need it themselves. Still, women growing bald must have white hair to match the scant allowance advancing age has left them. The chemists have taken the matter in hand and are able to produce, by decoloration of hair of any color, a tolerable grade of white hair, which however, has a bluish tint—not at all approaching in beauty the silvery softness of hair which has been bleached by nature. False hair of the ordinary shades is obtained in two ways. The better and more expensive kind is cut directly from the heads of peasant women, who sell their silken tresses sometimes for a mere song and sometimes for a fair price, according as they have learned wisdom. Every year the whole territory of France is traveled over by men whose business it is to persuade village maidens, their mothers, and their aunts to part with their hair for financial considerations. These men are known as "cutters," and there are at least five hundred of them in the country always going from house to house, from farm to farm, and through all the villages in all the departments, seeking subjects for their scissors. A good cutter averages from two to five heads of hair a day, and he pays from 40 cents to $2 for each. It is estimated that a single head of luxuriant growth weighs about a pound. The false hair thus obtained—at the cost of the tears and regrets of many foolish maidens—is the finest in the market, and sells for an exaggerated price, which puts it beyond the reach of the ordinary purchaser. Besides, it is evident that the supply of genuine "cuttings" must fall far short of the demand for false hair. So the major portion of this wavy merchandise is obtained from the *rag-pickers*. These busy searchers of ash heaps and garbage barrels collect every day in the cities of Paris and London alone at least a hundred pounds of hair which some hundreds of thousands of women have combed out of their heads during the preceding twenty-four hours. This hair, all mixed together and soiled, one would think beyond redemption, is sold to hair cleaners at from $1 to $1.50 a pound. The cleaning of this refuse hair is an operation which requires careful attention. After the hair has been freed from the dust and dirt and mud it is rubbed in fine sawdust until it shines once more with its pristine gloss, and then the process of sorting is begun. In the first place, skillful hands fix the individual hairs in frames with the roots all pointing the same way, and then they are arranged according to color. Finally, when a sufficient number of one color have been obtained (nor is this number so immense as is commonly supposed) they

are made into the beautiful braids which are shown so seductively in the the window of fashionable coiffeurs. It is said that the "cutters" of France have plied their trade so industriously that at present it is hardly possible in the whole republic to find a woman who will sell her hair. The business has been done to death, and now the enterprising dealers in false hair are sending their representatives through Switzerland, Belgium and Norway convassing for unsophisticated lassies who will be robbed of their hair for a few pieces of silver.

Hair-pin. A wire pin used to support braids and plaits of hair, or maintain the head-dress, of whatever description, in its proper position. The simplest kind is made of wire bent in the form of a letter U, but hair-pins are made also of ivory, bone, tortoise-shell, wood and metal, and of various shapes, often with ornamented heads or tops. It is a feminine assertion that a women can do more with a hair-pin than a man man can do with any one instrument in existence. She takes it to button her shoes, to crimp her hair, to fasten her hat on. To button her gloves, to pin her veil, to manicure her nails; and, sometimes, to pick her teeth. To clean her comb, and to cut the pasted label on her powder-box. She can use it as a paper-knife, or a book-mark; to open a letter, or draw a device upon a seal. If she twists the ends, it becomes a tape-needle, or a safety-pin, or a key-ring. With it she supplies many of the missing intricacies of buckles, suspenders and supporters, and repairs any damaged domestic article requiring a few inches of wire and a little feminine ingenuity. Ever ready to her hand, whether she uses it to pick her trunk-lock, or to trim the lamp-wick, to mend her bracelet or her bustle, she handles it with a dexterous grace and a confident skill, born of inherited knowledge and educated by long practiced use.

Hair Net. A silk net, confined to an oval shape by rubber cord, used by women to keep up the back hair. Nets were once known as "cauls," and have been used in various forms from the earliest times. "Crespine," in the 16th century denoted a hair net made of crape, and at present in France ordinary silk nets are called "crespinettes."

Hammer Cloth. [A corruption of *hamper* cloth.] In early English days when coaches were first introduced, frugal Englishmen who lived in the country used to load their carriages with provisions for the family when they came to London. The wooden box which held the provisions was called a *hamper*, and thus, covered with a cloth, was a convenient seat for coachman. Hammer cloth is, therefore, a corruption of *hamper* cloth. At present it is the cloth which covers the driver's seat in some kinds of carriages, usually falling in pleats on all four sides.

Hammock. [From Sp. *hamaca*, a kind of hanging bed or mat. Columbus, in the narrative of his first voyage, says: "A great many Indians in canoes came to the ship to-day for the purpose of bartering their cotton, and *hamacas* or nets in which they sleep.] Hammocks used at sea, especially in men-of-war, are made of canvas, and have a number of cords at each end

called *clues*, which are brought together and secured to an iron ring, which is hung on a hook attached to the deck beams. Those used in tropical parts of America and in the North in the summer time are made of hemp or Panama grass. Hammocks may be made water-proof by immersing in boiling linseed oil, and leaving them in it a day or two. When taken out the superfluous oil should be rubbed off with a cloth, and allowed to dry. They will then not become rotted by the action of the weather.

Handkerchief. The most ancient handkerchief was merely a bit of silk tissue, first used centuries ago by priests at the altar. For many years, indeed, priests were the only persons in the European world allowed the privilege of using handkerchiefs at all, and they used them only at the altar for the sake of propriety. It was then called a "facial," and was left with the other vestments of worship when the service was done. Presently the grand ladies of the Court began to provide themselves with similar squares of silk, and "maids and gentlewoman gave to their favorites, as tokens of their love, little handkerchiefs of about three or four inches square, and the gentlemen wore them in their hats as favors of their mistresses." The next step was to embroider the edge of these squares. The Empress Josephine was lovely, but her teeth were not perfect, and in order to conceal them she used a small lace handkerchief, which she raised constantly to her lips. The ladies at the French Court at once adopted the fashion and handkerchiefs came into general use. Soon their convenience recommended them so highly that all the ladies and gentlemen connected with the various European courts adopted their use. The fashion thus introduced by royalty was soon taken up by the under ranks, till to-day the handkerchief is an indispensable article of apparel. In the line of handkerchiefs, all plain white hemstitched linen goods are denominated "staples," and the demand for them varies but slightly from one year to another. "Finish" is everything to a linen handkerchief, and upon it, more than anything else depends the price which the goods will bring. The raw material may be of the very best quality, but if it does not possess the requisite finish, the chances of it finding favor are very small indeed. The best grades come from Belfast, Ireland. Large quantities of swiss handkerchiefs, embroidered and otherwise worked on machines are annually imported from St. Gall, Switzerland. These swiss goods, most of which are cotton, can not be compared to the Irish linen goods, which are embellished by hand, in point of quality. The fineness of quality of a cotton handkerchief can not go beyond a fixed limit, as above a certain grade the "union" article (made of a mixture of cotton and linen), or the cheaper grade of linen handkerchiefs bars its progress. No matter how fine a cotton handkerchief may be, it can not be compared to a linen one. The cotton article loses its finish on being washed, and becomes harsh and unpleasant to the touch; it loses its color, becoming yellowish and soiled looking. Yet owing to its cheapness it will always be in demand by a certain class of trade, both in the printed and

the woven effects. Printed handkerchiefs are for the most part produced in this country. Handkerchief-printing involves a great deal of labor and outlay, some mills having at one time as many as 60,000 engraved designs, some for a single color, and some for two or more. The finest of these are made on wooden blocks to be printed flat, and those blocks are always preserved so that they can be reproduced at any time. The bulk of the cheaper designs are engraved on copper rollers. From each of these rollers a "first edition," so to speak, is printed, generally about 1,000 dozen. If the pattern shows immediate popularity the roller is preserved; if not, the design is turned off in the lathe, leaving a smooth surface for the next engraving. Silk handkerchiefs are chiefly imported from China and Japan, either finished or "in the piece," that is, not separated or hemmed. Handkerchiefs of whatever material composed, are usually square, or nearly so. A "size" is one inch, the number being denoted by the inches across the web, ranging from 12 to 27. [See BANDANNA, BLOCK PRINTING, CALICO, EMBROIDERY. For linen and cotton tests see LINEN.]

Hank. A skein or coil of yarn or thread. More particularly a definite length of yarn, of cotton, linen, silk or wool. A hank of cotton is 840 yards. A hank of linen is 3,000 yards. Silk is not coiled and numbered on the principle of cotton and linen. The fineness of silk yarn is determined by constant length with variable weight, whereas, other yarns are indicated by constant weight with variable length. The original standard length of silk was 12,467 yards, six inches, the numbers being the weight in *deniers* of twenty-six grains. The number is ascertained by the weight of 12,467 yards and six inches, in grains—1-24 of a *denier* of a hank containing 520 yards, twenty inches. Spun silk is numbered on a different principle. It is determined by the cotton standard, the number of skeins of 840 yards each to the pound, making a hank. Woolen and worsted yarns are also numbered in the same manner.

Haslock (haz'-lok). The lock of wool that grows on the halse or throat of a sheep; hence the finest quality of wool. Also called *hassock*.

Hassock. [From *hassock*, a bushy bunch of grass.] A thick hard cushion used as a foot stool.

Hat-block. The block or mold on which a hat is shaped. It consists several pieces of wood or metal fastened together, preserving the general outline of the crown of a hat.

Hat-body. The unshaped or partly shaped piece of felt from which a hat is to be formed.

Hats and Caps. There is but little relating to hat-making recorded in history, although their partial *use* may be traced back to the time of ancient Greece, probably as early as the age of Homer, when they were worn, although only by the better class of citizens when on a distant journey. The same custom prevailed among the Athenians, as is evident from some of

the equestrian figures in the Elgin Marbles. The Romans used a bonnet or cap at their sacrifices and festivals, but on a journey the hat with a brim was adopted. In the middle ages the bonnet or cap with a front was in use among the laity, while the ecclesiastics wore hoods, or cowls. Pope Innocent, in the 13th century, allowed the cardinals the use ot scarlet hats, and about the year 1440 the use of hats by persons on a journey appears to have been introduced into France, and soon after became common in that country, whence probably it spread to other European nations. Hatters at the present day ascribe the honor of the invention of felting, and of its prospective introduction to that of hat-making, to the old renouned monk St. Clement, who, when marching at the head of his pilgrim army obtained some sheep's wool to put between the soles of his feet and the sandals that he wore, which of course became matted into a solid piece. The monk, philosophizing upon this circumstance, promulgated the idea of its future usefulness, and thus it is said arose the systematic art of felting and hat-making. [See FELTING.] The first authentic accounts of regular hatters appeared in the Middle Ages—in Nuremberg in 1360, in France in 1380, in Bavaria in 1401 and in London in 1510. The hatting trade of the United States is noticed first in the representations made by the London Board of Trade to the House of Commons in the year 1732, in which they refer to the complaints of the London hatters, regarding the extent to which their particular manufacture was being carried on at that time in New York and the New England States. A look at the fashions and styles of hats of ancient times is interesting as well as amusing. So capricious is the the fancy of man that nothing is immutable, all is change, and hats have been of all conceivable shapes and colors, and dressed with the most fanciful decorations, plumes, jewels, silk loops, rosettes, badges, gold and silver bands, etc. The crowns and brims have been of all possible styles from the earliest period. It would appear that nothing is left for the present and all coming time, but the revival of what has already been, even to the fantastical peaked crown that rose half a yard above the wearer's head. In the 15th century hats in Great Britain were called vanities, and cost twenty, thirty, and forty English shillings apicce, which were large sums of money at that early period. The most extreme broad brims were worn about the year 1700, shortly after which the three-cornered cocked hat came in. It is a singular historical fact that for a thousand years every distinct hat style has endured an even century—with one exception. The elegant soft hat of the Spaniard has remained the same from the earliest period to the present day, while among all other nations a transformation in the style of hats has taken place every one hundred years. Comfort in the wear seems to have given place at all times to fancy and the demands of Fashion. On the 23d of each November occurs the hatters' annual festival, that being St. Clements day, the patron saint of the trade, and is celebrated in an appropriate manner in Europe and America by all manufacturers.

Hat making was long considered a business to which machinery never could be applied, but the inventors have dispelled this illusion, and machinery is now employed in all the most important departments of the manufacture. The reason this idea obtained such general credence was, first, on account of the close attention necessary while the hat is under the operation of sizing; second, the known impossibility of napping or ruffing a hat by any means of machinery; also the acknowledged failures in several attempts to substitute carding for that of bowing, and various futile attempts with the irons in the finishing and shaping departments. The innovations of machinery, however, have now obtained a sure footing in all large factories. In the United States the largest centre of hat manufacturing is at Danbury, Conn., where there are made of all sorts about 6,000,000 a year. This city makes two-thirds of all the fur hats worn in the United States, and has nearly as many hatters as all the other cities in the country combined. Some hats, most of them for women and children, are made of wool, which is cheaper, but does not wear so well as fur. But by far the larger number of men's stiff and soft hats *are made of fur.* The best fur for this use is that of the nutria, a South American water animal, something like the beaver, but not so large. The steadily growing demand for nutria fur for other purposes has raised the price of it so much that it is now used only in the finest grade of hats. Next to the nutria the most expensive fur that hatters use is that of the Russian and German hare and musk-rat; then comes the fur of the coney. Saxony and merino wool are used for fine wool hats. For the past few years the current prices of hatters' furs have undergone rapid changes. The following table gives the comparative values of the different descriptions for a series of years. Numerous as are these various names, most of the animals mentioned produce five or six different qualities of the fur from particular parts of the same skin, which vary greatly in price and value.

	1886	1887.	1891.	Av'ge for 15 years.
Triple Ring } Nutria	$2 25	$3 37½	$4 50	$3 60
Double Ring } Nutria	3 35	3 60	3 20	3 65½
Double Ring }	2 65	3 40	2 75	3 16
IH hare	2 10	3 00	2 45	2 76½
OIH hare	1 80	2 55	2 15	2 29
BHB	2 20	3 00	2 65	2 80
HB	1 87	2 40	2 10	2 19
Blue Sides	1 15	1 75	1 37½	1 66
Hare Bellies	57	95	85	1 09
Hair Tails	35	60	45	60
BCB X Scotch	1 75	2 30	1 95	2 14
BCB X	1 55	2 20	1 85	2 04½
CB	1 32½	2 05	1 65	1 84
BCB Raw	1 60	2 20	1 85	2 04
BCB, Unplucked	1 35	1 70	1 30	1 54
CB do	80	1 40	1 00	1 25½
Coney Sides, Scotch	85	1 35	1 15	1 33
Coney Tails, English	47	65	45	65
BCB, White	1 10	1 60	1 40	1 55
BCB, Fawn	1 25	1 80	1 50	1 59
BCB, Black	1 20	1 60	1 50	1 47
Garrenne Coney	1 75	2 15	1 80	1 98

	1886.	1887.	1891.	Av'ge for 15 years.
Extra Coney	1 20	1 90	1 45	1 77
No. 1 Coney	92	1 55	1 15	1 46
Mottled	85	1 40	1 15	1 33
Unpulled	60	1 15	90	1 09
Coney Sides	80	1 10	87½	1 00
Moyen Coney	55	1 00	----	97
Coney Tails, French	30	55	42	49
Coney Creek	25	40	27	36
Black Coney	95	1 40	1 10	1 24
White Coney	85	1 50	1 20	1 52
Fawn Coney	1 05	1 50	1 15	1 51
ARB	1 10	1 45	1 10	1 38
Belly Muskrat	2 00	1 90	2 75	2 14
Natural Muskrat	1 15	1 60	2 25	1 68
Colored Muskrat	45	60	1 00	90
Colored Seal	70	85	1 05	1 05
SPT White Coney	55	75	85	88
Kettle Roundings	45	65	90	60
Dark Roundings	25	35	17	31
Coney Waste	20	25	25	27
Brown Coney Extra	50	75	85	68
PC Coney	20	25	30	34
Coney Cheek, English	35	65	45	62

The skin is cut from the fur by a machine with revolving knives, which cut it off in shreds. The fur is left full length, and as it rolls away from the knives it preserves the general outline of the skin. The fleeces of fur are folded and packed, a number together, in small sacks or bundles. Formerly the greater part of the fur used here was imported already cut, but we are now competing with foreign countries in fur-cutting, and about half the fur used in this country is at present cut in New York, Brooklyn and Connecticut. In making hats different kinds of fur are mixed well together. Various hat manufacturers have various mixtures which they keep to themselves; each strives to attain the best results in finish and durability with great economy. In the process of making a felted fur hat, the bundles of fur are first opened, and the fur in the combination and proportions deemed best for the kinds of hats to be made is laid in a big mixing box. Thence the fur is put into a simple machine in which it is still further mixed. Then it goes to the "picker room" where it is "blown." In this operation the fur is freed from bits of skin, hair and other foreign substance. A minute fragment of skin on the surface of a hat would damage it. The fur goes in at one end between iron rollers to a picker, which makes 2,400 revolutions to a minute. The picker is a small horizontal cylinder with short wire teeth. There is a series of rollers and pickers interspersed with blowing chambers. The pickers straighten out the fibers of the fur, which drop on a sieve. The hair, bits of skin and so on, including sometimes coarser bits of fur, drop through. From the picker the fur goes into a blowing chamber. Here it floats about softly, in appearance not unlike a drab foam, and is still more thoroughly mixed. It goes on through a series of rollers and pickers and blow chambers, and comes out at the farther end of the machine a sheet of fur uniform in color and appearance, something like drab cotton

wadding, except that there is no glaze on the surface. It holds together, but is easily pulled apart with the hands.

The fur now goes to the forming room where the hat bodies are made. It is weighed out according to grade used, and the size of the hat to be made. From three to five ounces is the usual amount of fur used in a hat. The weighing is done with accuracy, the weights varying by fractions as small as the sixteenth of an ounce.

The process in use for centuries by our forefathers of forming a hat body, was by "bowing" by hand. [See BOWING.] This has been entirely superseded by the "forming" machine. At one end of the forming machine is an apron upon which the fur is spread to be fed into the machine; at the other end is the trunk, which is the part in which the hat body is formed. The trunk looks like a tall, substantially-built water pail, with a fixed, rounded cover. It is about 7 feet in height, about 2 feet in diameter at the bottom, flaring to 3½ feet at the top. In the front of the trunk there are two small doors which open all the way up and down, affording the freest access to the interior. At the bottom of the trunk and in its center is a little turn-table which turns round about 75 times a minute. Underneath is an apparatus which produces in the trunk a constant and uniform draft *downward.* A hollow cone, made of perforated sheet-copper with the top rounded, is set on the turn-table. The perforations are as thick as the holes of a pepper box. When the doors of the trunk are closed the draft draws the air through the perforations of the cone.

The apron is a flat table about 2½ feet square, attached to the trunk. The workman takes a portion of fur and spreads it upon the apron and feeds it evenly into the machine. It goes through picker and brush. The picker makes 5,000 revolutions a minute. It picks the fur and throws it in separate hairs to a blower, running at a high speed, which blows it in at the top of the trunk, where it floats like a shower of haze or fur. Then the draught is turned on from the bottom and draws the floating fur down to the cone. It does not go through the perforations, but it completely covers the outside of the cone and clings to it, held by the draught. By means of simple dampers the draught may be so regulated as to make the fur light upon the cone where it is most wanted. For most hats greater thickness of fur is required in the brim. The fur can be drawn to the cone and held to it in a deposit that is thin on top and increasing in thickness down the sides to the base all round. While the draft is on, it is difficult to pull any of this fur away; if the draft is stopped, it is easy to pick it off with the fingers. It takes but a minute or so for all the fur to settle on the cone. The workman then opens the door of the trunk and throws over the cone a wet cloth which completely envelops it. Over the cloth he places a cone-shaped tin cover like an extinguisher. The two cones (the perforated one placed originally on the turn-table and the tin one placed over the wet cloth), with the fur and cloth between, are taken from the turn-table and put in a tub of water. They are allowed to remain in the water a few minutes, when

they are lifted to a table, where the tin cover and cloth are taken off. The hat body has already begun to shrink. It starts to roll off of itself. It is quickly removed from the original cone, straightened out and skillfully folded, wet and limp. Next the hat body is taken to the hardening room, where it is examined. It is at this stage about 2½ feet tall, and without the sign of a brim. When it has been examined it is rolled up. The rolling makes the fur stick together, and the body goes on shrinking. Then it goes to the sizing room, where the hats are felted. Five hat bodies are laid together and made up in a roll. The roll is dipped in a tub of *hot* water, and then rolled up in linen canvas, dipped into water again and laid on the lower rollers of the sizing machine just over the top. The sizing machine has 3 revolving wooden rollers, two side by side, and one a few inches above. The hat bodies are rolled between them and pressed gently, at first by the lower rollers only. The hot water, the motion, and the gentle pressures make the bodies shrink and felt. They are unrolled and again folded and dipped, and rolled up. After going through three machines in this manner, they get to one whose top roller is so adjusted as to help in the pressing and rolling. The hat bodies are shrunk to proper sizes and proportions, all the manipulations requiring care and skill.

The hat body, folded flat, now measures about 10½ inches from the center ot the crown to the edge of the brim; standing like a cone; the diameter of the base is about 10½ inches. In the next operation the hat body is laid on a table, and with one sweep around the rim with a sharp knife the edge is made uniform and smooth. The hat is then dryed and shaved. In felting the hat body the hairs that may remain in the fur works to the surface. The hat body is put on a turning machine, and the outside is shaved smooth by knives that work something like the cutters of a lawn-mower.

The hat thus far followed is to be a *stiff* hat, and it goes next to the stiffening room where the brim is to be dipped into shellac. This is done by hand very quickly and with great accurracy. Then it is passed up between rollers which squeeze it and leave in the brim just the needed quantity of shellac. The crown stiffening is applied on the inner side with a brush, by hand. Then the hat goes into the steam-box. The steam drives in the shellac, and the hat is put in a weak acid to "set" the stiffening. Next the hat goes to the blocking room. It is placed on a "star," which is a frame of curved ribs radiating outward and downward, the general outline being something like that of the crown of a hat. Over the star is its counterpart, the tip machine, which is movable up or down, and works the upper part of the hat body into shape, being heated. The next star is larger and on this the crown is brought nearer into shape. Then the hat goes to machines which stretch and shape the brim. The hat looks now something like a soft crush hat that has been stiffened. It is put into a vat of dye to be colored, and from there it goes to the blocking machine. After a hot bath it is put on a form. A shaper which has a lever attached is

brought down over the hat. It flattens the brim and shapes the crown for the last time, except on the top. After removing the shaper the hat is cooled with a stream of cold water and is put on a whizzer, which revolves it rapidly and expels most of the water from it. Then it goes to the drying room, and the next day to the squaring-up room, where the hats are assorted by sizes and squared up with shellac inside. They are then ready for the finishing room. The hat, whether soft or stiff, is put on a block and sponged, ironed, brushed, sand-papered and singed. Here the crown is brought into final shape at the top. The brim is finished as to its surface, but is still left perfectly flat. The finer hats are finished by hand, and the coarser one by machine. The ironing of a machine-finished hat is done by an iron attached to a movable arm, and heated by gas fed into it by flexible rubber tubes. As the hat turns on a block the iron adjusts itself with great accuracy, finishing its work at the centre of the crown and then dropping away. The hat then goes to the rounding machine, which cuts off the edge of the still flat brim and leaves it just the desired dimensions. The edge of the brim is stiffened with a preparation of shellac cut with alcohol, and the hat goes to the curling room. It is placed, brim downward, on a form which revolves slowly on an upright axis. Two little steel arms, one on each side, turn the edge of the brim over, and two irons, one on each side iron it down as the hat goes around. Then the hat is put in a round curling machine which curls the edge of the brim and gives it a little dip at the ends. The edge is planed smooth by a machine in the shaping-room. It is then laid on an iron table heated by steam. This heat makes the hat pliable. The brims of the finer hats are brought into a final shape by hand; others are placed, crown downward, on shaped "forms" that support the brim. Suspended over each of these forms, covering the brim, is a bag of sand. When the bag is dropped it shapes the brim to the form. An endless wire of exactly the right size and shaped to follow the curves of the brim, is inserted under the turned-over edge. Then the hats are sent to the trimming room. The work here is all done by women. The edges are bound, the crown lined, and a split sheep-skin sweat-band attached. They now are inspected carefully and brushed by a machine, after which they are ready to be packed in cases containing from three to six dozen.

In the manufacture of soft hats the process is the same as stiff hats up to the final shrinking of the bodies, which are shrunk with a view to the style and dimensions of the hat to be produced. After the shrinking, the processes vary in some minor details, but they are in their main features substantially alike. All *felted fur hats*, of whatever texture, nature, or name, must have undergone the above described operations. The process of manufacturing *wool hats* is but slightly different. The "body" of wool hats is prepared by first carding the wool. On being delivered from the carding-machine, the wool "slivers" are wound around a conical block of wood, which revolves slowly with a reciprocating motion, so that there is a continual crossing and recrossing of the wool as it is wound round the

block. This diagonal winding is an essential feature of a wool hat, as thereby the strength is made equal in every direction. When this mat has been wound around the block to the required thickness, it is placed on a perforated iron plate through which steam is blown. When well moistened and heated, the mats are placed between boards and subjected to a hard rubbing, to enable them to bear the subsequent strong felting operations. The felting is accomplished by machinery, and in some cases a form of felting mill is used, but in all cases, heat, moisture, pressure, rubbing and turning are the agencies for felting a wool hat. Next follows blocking and shaping, as in the case of fur hats. Merino, Saxony and lamb's wool are the varieties used in the manufacture of wool hats. No cotton, or other vegetable fibre is used in hat-making, as these are entirely devoid of felting qualities. [See FELTING.]

Silk Hats consist of a light stiff "body" covered with a plush of silk; the manufacture of the latter in a brilliant, glossy condition being the most important part of the industry. Originally the "bodies" were made of felt and cork, but at present calico is the material almost exclusively used. The calico is first stiffened with a varnish of shellac, and then cut into three pieces sufficient for crown, side and brim. The side-piece is wound round a wooden hat block and its edges joined by hot ironing; the crown-piece being put on in a similar manner and attached at the top. The brim, consisting of three thicknesses of the sized calico cemented together, is now slipped over and brought into its position, and thereafter a second side-piece and another crown are cemented on. The whole body now receives a coat of size, and subsequently is varnished over; then it is ready for the operation of covering. In covering this body the under brim, generally of merino, is first attached, then the upper brim, and lastly the plush crown and side-piece sewed together and drawn over. All these by hot ironing and stretching are drawn smooth and tight, and as the varnish on the body softens with the heat applied, body and cover adhere all over to each other without wrinkle or pucker. Dressing and polishing by means of damping, brushing and ironing come next. The brim is then only to be curled and bound, the linings inserted, and the hat is ready for use. The quality of silk hats depends altogether upon the quality of silk plush with which they are covered. It is a curious fact that this silk plush is all imported to this country from Lyons, France. A good workman can prepare and iron twelve "bodies" daily. He can put the silk coverings on and finish about ten, while the brims of fully two dozen ought to be curled daily by a good hand. "Stovepipes" are never made up in larger quantities than are required for the temporary needs of the market, as styles change twice a year; and when a silk hat has gone out of style, it is absolutely valueless. If, however only the styles of brims change, they can easily be reshaped by heating and curling.

The silk hat originated in the United States, and was introduced into Europe by Benjamin Franklin. When, in 1790, Franklin was sent as em-

bassador to Paris, he wore the simple attire of the Quakers. A prominent feature of this was the hat, which has narrowed and heightened into the fashionable "plug" of to-day. It was then low-crowned and broader brimmed, and presented so quaint an aspect that the Parisian dudes were disposed to make it the butt of their wit. Not so, however, with the leaders of the French revolution, who happened to take a fancy to the queer shaped tile, and forthwith adopted it as their own distinctive headgear In three days' time the Franklin hat, as it was designated then, was the "rage" in Paris, and from that time — just a hundred years ago — the hat has constantly grown in favor, although it is probable that a contrivance more destructive to the hair and more useless for practical purposes was never designed by the fertile brain of the hatter.

After the introduction of gutta-percha into the arts (1842), and the manufacture of it into thin sheeting, a new kind of hat was introduced, made of gutta-percha and cloth, which promised for awhile to supersede the soft, low-crowned felt article. But the jealousy of some of the manufacturers of felt goods destroyed the new business almost entirely when in its infancy, it is said purposely, by making them so very inferior and at the same time so perfect a counterfeit, that the really good and perfectly made gutta-percha hat became universally distrusted, and hence the result. The best of these were made of a thin gutta-percha crown in a variety of shapes, and covered with cloth, producing an extremely durable aud lightweight hat.

Caps.—New York City manufactures nearly nine-tenths of the caps made in the United States. In that oddest nest-like part of city, the French quarter, 3,000 men and girls make annually $5,000,000 worth of caps, exclusive of the $1,000,000 worth of fur caps made in that region. At least 1,000,000 dozen caps are turned out in this quarter every year. As to styles there are nearly 500 varieties. Of yatching caps alone there are something like two dozen kinds. Every year sees some new cap over which the public rages for a season, and then abandons. Such caps sell by the hundred thousand dozen. A hint comes from Paris, and in a few weeks the new caps swarm in every city and village and street throughout the land. A few leading styles of caps, however, persist with little or no change from year to year. Cap-makers are a fairly well paid class of workmen. The trade is minutely sub-divided. One man cuts the material, another blocks the crown, another sews the sides, and still another presses the seams, while the small finishing touches, such as cord and tassel, are given by girls. Work is done by the piece, and cap-makers earn from 50 cents to $2 per dozen caps. The most skillful men in busy seasons earn as high as $30 a week, and occasionally men have been known to earn $50 a week. The season for making winter caps begins in April and ends in October. Then comes a lull, and in November begins the season for making summer caps. Materials are as varied as styles. Silks, velvets and cassimeres are the principal ones. Among the most expensive caps are

those made for naval officers. The bullion embroidery adds considerably to the cost of such caps. Much of this is imported from France, but some of it is made in the French quarter by girls who work together in small shops or at home, earning from $6 to $14 per week. The fur cap trade is also centered in the French quarter, the work being at its height during the summer months. Sealskin caps are less popular than they once were in the United States, but there are still about 2,000 dozen of them annually made in New York. They are made from portions of skin too small to be used in the best sacques. The manufacture is highly sub-divided, as in the case of the cloth-cap industry. It requires an intimate knowledge of furs, and many of those engaged in the business are foreigners. Much of the trade is carried on in comparatively small shops, such as is usual in the French portion of New York City. Often the costliest and most beautiful goods are produced in shabby little dens where one would expect to find no more important industry than that of a cobbler. [See FUR.]

The cap trade is largely in the hands of jobbers who buy direct from the small manufacturers and distribute the goods. Every considerable city west of Pittsburg has large jobbing houses that deal in caps, and the wildest Rocky Mountain hunter often wears a cap sent him through jobber and retailer from the French cap makers of New York. Comparatively few caps are worn in the extreme East. Nearly all of them are consumed west of the Alleghanies, and a few are sent as far as the Sandwich Islands.

Straw hats.—Straw-plaiting is one of the oldest arts practiced by mankind, many specimens having been found in the tombs of the ancient Egyptians. In Europe the industry remained in a comparatively rude state down to the end of the 16th century, when it attained commercial importance in France and Northern Italy. The famous Leghorn straw of Italy began to acquire celebrity late in the 18th century. It is still unsurpassed for beauty and durability. Leghorn is a variety of wheat grown solely for the straw, which is distinguished for its extreme slenderness and pearly white color. It is now about fifty years since hats made of straw first began to obtain a firm and lasting hold upon the affections of American citizens. Prior to that time, straw hats were worn but they were imported ready for use, few, if any being manufactured in this country. So completely have the conditions changed that during the season of 1891, 1,500,000 dozen were made in the United States. But this does not represent the entire consumption, for fully 500,000 dozen more were imported made, requiring only to be shaped and trimmed after being landed. Most of the hat-straw now used in this country comes from China and Japan. England, Italy and Switzerland contribute but a small fraction of their former yield. It is shipped here carefully braided, in great bunches, and the braids are sewed and afterwards pressed into shape by expert American hands. The cultivation of a variety of wheat straw, from which the braid is worked, has been a special industry in the northern provinces of China for more than a century. It was not, however, until after the commercial city

of Tientsin was in 1858 opened to foreign trade that the Chinese farmer began to pay much attention to the cultivation and curing of the straw, so as to secure greater uniformity of color as well as fineness of quality. The great desideratum is, to obtain as perfect a white straw as possible by means of bleaching in the sun. The process is to pull up the stalks by hand when the grain is in the milk, and only about half developed. Great care must be taken to prevent exposure to rain. After bleaching, the straw is cut at the first joint from the top. Although cut when green, the straw readily bleaches under the sun, producing a tough flexible fibre—much more so than *ripe* wheat, which is brittle and yellow. The industry extends through the great provinces of Chihli, Shansi, Honan and Shantung, and gives remunerative employment to great numbers of the poorer classes, principally to women and children. It is said that a dexterous woman can make from 35 to 40 yards of braid a day, earning from 14 to 20 cents.

The first shipment of this braid to the United States was made about the year 1873, when thirty-five bales were shipped. The shipment now averages about 25,000 bales per annum. There are 240 bundles in a bale, each bundle containing fifty-five yards. Connecticut and Maryland are the principal centers of the straw hat industry. The operation of forming the hat is very simple. The plaited braid, preparatory to being sewed, is wound upon reels, from which it is easily fed to the sewing machine specially constructed for this purpose. After sewing, the embryo hat is pressed into shape while damp over a plaster paris "form" or block. Heavy and powerful hydraulic presses are used in shaping the ordinary kinds of straw hats, and the necessary metal molds that form the "dies" for these machines represent tons of zinc.

Mackinaw Hats.—Probably no other straw hat ever introduced to the American public can show such a continued and extended popularity as the Mackinaw, this variety having held the lead as an article of summer headwear for upwards of fifteen successive years. The claim of the Mackinaw to antiquity and long use is, perhaps, as strong as that of other plaits with which the trade has become familiar, for no doubt the natives of Canada made use of these hats as a head covering long before they became an article of trade. The Machinaw for many years after its first introduction was sold under the designation of the "Canada" hat, the name given to a similar but comparatively degraded article produced in Eastern Canada. The title "Mackinaw" was first applied by Mr. R. A. Taylor, a merchant of Baltimore. He introduced the hat to his customers as far back as 1850, and sold it for thirty consecutive seasons without any apparent diminution of popularity. "Mackinaw," as a trade name, does not, as might be supposed, indicate the region from whence the straw comes, but undoubtedly received its christening from the retailer who first used the goods, in order to create a distinction from the inferior but similar article termed "Canada." While both the Mackinaw and the Canada are made of wheat straw, the difference between the two, as the product of one coun-

try and of nearly the same latitude, is a great surprise. The wheat of the eastern part of Canada produces a straw dark in color, harsh in texture, and of little use for making a hat, while that grown in the western part of the same country is clear and white in color, possessing a brilliant enamel which imparts the beauty that rendered the Mackinaw so famous an article of fashion. The straw is a local rather than a national production, coming from a region comprised within a small radius around the city of Detroit, part of which is Canadian territory and part within the borders of the United States; for while considerable straw from which the plait is made is raised and plaited in Michigan, by far the largest proportion, as also the best quality, is the product of Canadian territory. Nature seems to have provided a small community with unusual advantages, for within a limited territory has been produced all the vast quantity of straw plait required to supply the demand that for many years has existed for Mackinaw hats, and all efforts to produce elsewhere wheat straw with a bright enamel and of a clear color have invariably failed. The producers of this straw are wholly the poor, ignorant half-breeds, who spring from the Canadian-French and the Indian. Finding that hats, as well as the skins of the animals which they trapped could be sold, the family talent was brought into use to produce something that might contribute to their meagre subsistence. So during the winter season, while the men hunted the muskrat, the women and children plaited straw for hats, which, on the opening of the spring, were carried with the skins to the towns where they were exchanged for food, clothing, and ammunition. To the advantages of soil and climate is attributep that purity of color, brilliancy of enamel, toughness of fiber, and elasticity of texture which are recommendations of the Mackinaw. Added to these natural qualities is the advantage of a peculiar treatment given to the straw by the natives, who employ a whitening or bleaching process without the use of chemicals.

Palm Leaf Hats.—The manufacture of palm leaf hats was begun in 1826; and as early as 1831 2,000,000 were made and sold. The leaves are procured from various sources, some from Spain and Malaga, and some from Mexico and Southern United States. With the growth of the hat trade various improvements have been made in the processes of manufacture, machinery having been introduced to perform the plaiting operation. These are frequently termed *chip hats.*

Manilla Hats.—Hats of this description are made of the split stems of the manilla tree, found in the Phillipine Islands. These hats rank next to Panama in point of durability.

Panama Hats.—A variety made from the leaves of the screw pine, in South America. They are termed *Panama* on account of the city of that name being the principal point from which the braid is shipped. The green leaves of the screw pine tree are gathered by the natives before they unfold, and after the ribs and coarse veins have been removed, are cut into shreds. These are exposed to the sun a few days, and then immersed in

boiling water until they become white, when they are hung up in the shade and bleached for several days. This gives the straw a color about the shade of slacked lime. A native can plait enough straw for a hat in two or three days' time, but the finest hats require several weeks to complete them, and require especial care in the selection of the straw. They are extremely light, and the most durable straw hat made. The best qualities retail at $25.

In numbering hats one "size" represents one-eighth of an inch, and implies that difference in the average diameter of the head. The size of the head (and consequently the size of hat a person will require) can be obtained by measuring its circumference and dividing it by 3.14. The size of any hat can be obtained by measuring its length and width, adding them together and dividing by 2. In either case the mean, or average, diameter is obtained. In fine silk hats the half size, or one-sixteenth is often used, since many heads often size up just between two regular sizes. To obtain the size of hat a person should wear, measure accurately around the head—on the line where a hat or cap is usually worn—then look for the corresponding number of inches on the scale below, and the size of the hat will be found opposite:

Inches Around the Head.	Size of Hat.	Inches Around the Head.	Size of Hat.
18⅞	6	22¼	7⅛
19¼	6⅛	22⅝	7¼
19⅝	6¼	23	7⅜
20	6⅜	23⅜	7½
20⅜	6½	23¾	7⅝
20¾	6⅝	24⅛	7¾
21⅛	6¾	24½	7⅞
21½	6⅞	24⅞	8
21⅞	7		

Hatching. In embroidering and weaving, the art of disposing threads so as to give the effect of shading according to the shape and character of the object represented. Also, a thread made for this purpose, or such threads collectively.

Haute-lisse (haute-lese). [F. *haute*, high; *lisse*, warp.] In tapestry weaving, wrought with the warp in a perpendicular position; distinguished from *basse-lisse*, which indicates wrought with the warp in a longitudinal position.

Havelock (hav'-lock). [Named after the English general, Henry *Havelock*.] A cover for soldier's cap, made of light washable material, with a flap hanging behind to protect the neck; sometimes worn by soldiers and tourists when exposed to the sun in hot climates.

Haversack. [From Ger. *hafer*, oats, and *sack*, sack.] A bag used for holding the food that a soldier carries on his person. It is carried by a

strap slung over the shoulder. Also a bag made of coarse cloth used by school-boys for carrying their slate and books.

Heckle. The operation of drawing flax or hemp through rough teeth to separate the fiber from the bark and peth. [See FLAX.]

Helix. A term used in needle-making, with reference to the manner in which the eye is finished. The best qualities of needles always have their eyes "helixed." The operation is performed by stringing the needles immediately after the eye has been punched out, upon a fine hard wire, which when set in motion causes the needles to rapidly revolve. The rapid revolution on the wire polishes the edges and inside of the eye, thus preventing the cutting of the thread in sewing. [See NEEDLES.]

Hemp. A valuable plant possessing properties similar to flax and jute, supposed to be a native of India, but long since naturalized and cultivated in many countries of Europe, particularly Russia, where it forms an article of primary commercial importance. It is also cultivated in different parts of the United States, but not in such quantities as to supersede importation. The plant is an annual, with a rough, angular stem, from four to twelve feet high. It is stronger and coarser in the fiber than flax, but its culture and management are much the same. After hemp has been cut down with cradles, it is spread upon the ground in October or November, according to climate, and is then rotted by being exposed to the action of the dew and frost. This requires about two months, when the lint readily separates from the stalk. It is tough and strong, and peculiarly adapted for weaving into coarse fabrics such as sail-cloth, and twisting into ropes, cables and binding twine. As the ordianry material of ropes used for hanging, it is often the subject of humorous allusion; as *hempen collar*, the noose of the hangman's rope place around the neck; *hempen widow*, the widow of a man who has been hanged. Attempts to cultivate hemp in America were made early in the history of Plymouth and Virginia colonies. In Pennsylvania the colonial government offered bounties for its culture as early as 1730. These attempts were unsuccessful though of late years it has become a valuable agricultural product in the United States, particularly in Kentucky. It is cultivated to some extent in all the Northern states. Where cultivated for seed-bearing, hemp greatly exhausts the land. Cultivated for the fiber, it is but moderately exhaustive, and grows with such strength as to keep down weeds, so that it may be grown for many seasons on the same land. Considerable hemp plant has escaped from cultivation in the United States and naturalized itself on waste places in the vicinity of dwellings. In addition to the valuable fibre which the plant yields, it also furnishes two other valuable commercial products. One of these is the seed, which is used as food for cage-birds, and yeilds a large percentage of oil when pressed. This oil, of which Russia furnishes the principal supply, is used in the manufacture of soaps and varnishes, and also for burning. [See CORDAGE.]

Hemstitch. The ornamental edging in linen and cotton fabrics, particularly handkerchiefs, produced by drawing out a few threads running parallel with the hem, and catching together in smaller groups those running the other way.

Henrietta. [Named in honor of the gay and brilliant Henrietta Maria, queen of England in 1624.] A dress fabric, which, notwithstanding the revival of its popularity during the last few years, dates its origin well back into the 17th century; though the prominent position fashion has at present given it among fine dress goods would lead many to imagine it a new-comer. Formerly, Henrietta cloth was a superior black dress fabric of silk warp and the finest of worsted weft, but at present it is to a large extent made of all wool. It is woven with a twilled face and a plain back, and is like cashmere dress fabric in all other respects except the finish—being more lustrous. This lustre is due to the elaborate process of "finishing" which Henrietta undergoes after leaving the loom, consisting first of scouring with hot soap suds, and stretching it on a frame to dry; then the whole web is carefully examined for burrs and knots, which are carefully removed by hand. Next the cloth is sheared or cropped, to remove the tips of projecting fibres which were unavoidably raised in weaving and scouring. To produce the lustre, it is now wound tightly around a huge drum and boiled for three hours in water, heated at a temperature of 180 degeees F. It is then unwound and the ends reversed, and again boiled for three hours. Finally it is pressed in a hydraulic press, in which the cloth is heated by inserting iron plates between the folds or by forcing steam through it while in the press; the last process adding to the smoothness and developing the lustre characteristic of well finished Henrietta cloth. The fabric is known to the trade as "silk-warp" and "all wool" Henriettas. The cotton-and-wool twills with a "sheen" finish cannot be called Henriettas or cashmeres in the full meaning of these terms. They are properly coburgs. [See COBURG.]

Herringbone. A style of twill-weaving, so called from its resemblance to the backbone of a herring. The weave consists of a series of very short diagonal lines running the entire length or width of the cloth, contrasting with another series turned in an *opposite* direction, each arranged alternately across the entire web, forming a continuous zigzag pattern.

Hickory Check. A particular style of coarse shirting, in which the checks are woven small and square, and of but two colors, usually blue and white or brown and white. The term was originally applied to this special style from its alleged hickory-like toughness, or superior wearing quality.

Hindoo Silk. See MYSORE, CHINA SILK.

Hogskin. Leather made of the hides of hogs, having a grained and minutely punctured surface, caused by the large pores; used for saddles (generally under the name of *pigskin*), gloves, mitts, and as an ornamental material for bookbinding. [See LEATHER.]

Holland. A term signifying unbleached linen cloth, made in many European countries, but especially in Scotland. The term also indicates a material used exclusively for window blinds, of which there are two kinds, *glazed* and *opaque.* The glazed variety is at the present time but little used, owing to the low price to which opaque has fallen. Opaque holland is woven of both linen and cotton, and is made smooth and impervious to the sun's rays (opaqued) by a sizing of oil and starch. In width hollands range from 24 to 115 inches. *Brown holland* is a plain, unsized linen cloth which has had little or no bleaching and retaining, therefore, more or less closely the natural color of the flax fiber; it is used largely in the manufacture of linen dusters and for the lining of silk dresses. Prior to the introduction of cotton, holland was a fine linen fabric, one grade of which was used especially for shirts and collars. In the old days of grass-bleaching the linens woven in France and England were regularly sent to Holland to be bleached, on account of the bleaching greens occupying so much valuable lands in the former countries. For this reason, this plain-woven, fine-threaded variety received the name of *holland.* Through competiton with cotton, in the United States it in time gradually became a coarser and more heavily sized material, ahd finally it ceased to be used for its former purpose altogether. Then it entered the department of upholstery, and by and by met the fate which many originally linen fabrics have met, the manufacturers substituting cotton, but retaining the former name.

Home Weaving. The operations of spinning and weaving carried on in dwellings, as distinguished from factory processes; hand-made goods, as opposed to power-loom products. It is often assumed that manufactures can only be successfully conducted in factories, and that modern machinery has quite superseded the old-fashioned, but ever deft machinery of the human hand and fingers. This is happily an error. Some of the most exquisite manufactures of the world are carried on by the hands of peasants in remote valleys and mountain solitudes. Some of the most delicate textures of Parisian fashion are woven in the Pyrenean valleys. The celebrated and unrivalled Cashmere shawls, noted for their great elaboration and glowing harmony of design are wrought by the patient natives of India in rudely constructed looms. The finest and most sumptuous Smyrna rugs and Persian carpets are slowly put together on a loom built between two trees. The most enduring blanket to be had in any country is woven in the remoter parts of Arizona by Navajo squaws; and it has been found that power looms, urged by steam or turbine, are too rough for the finer qualities of linen and cambric embroidery, and for this work the fingers of Irish peasant girls are the best of all machines. The mummy wrappings show that with their crude machinery the ancient Egyptians produced linen fabric far exceeding in fineness any cloth which we can produce with the most modern mechanical inventions. One piece of this cloth found wrapped about a mummy had 540 threads to the inch; the

finest ever woven in England or the United States being 350 per inch. There was a time in the history of our own country when the hardy pioneer clothed his family with better woolens and better linens, at less cost than the power-loom products can be bought for at the present day, at home or abroad. At the time referred to the power loom was not yet invented, and the hand-loom factories were scarce and at long distances from the settlements. With the hand loom in its simplest form, the wife and daughters of the household would take the yarns prepared at home, and weave such cloth or articles as their condition and circumstances required. For downright durability the cassimere and jeans, the table linen, coverlets, and "butternut" of this home weaving period have never been equalled. However, as the new country gradually increased in population, farming along with other classes of business began to assume a more specific and limited form. With the building of towns, the settler found the sawing of his trees into lumber, and the clearing away of his forests for the greater production of stock and grain, a profitable employment. His time had become limited in which to prepare the yarns for his weavers. It was tedious and toilsome work to prepare the linen, with always more or less delay and uncertainty connected with harvesting, retting, heckling and spinning of the flax. In those early days in the heavily timbered portions of the country much time was also consumed in the shearing, washing, carding and spinning which was necessary in preparing the woolen yarn. The entering wedge to the breaking up and final abandonment of home weaving was the establishing of carding mills in country neighborhoods. These mills would take the farmers' wool and, with improved machinery, card in for him while he waited. By and by the mills both carded and spun the wool, the operation of weaving still being performed at home. But with new inventions for the production of cotton materials, which came to almost entirely supersede linen, and the greater improvements made in weaving processes—finally culminating in the power loom—by which cloth was made in a greater variety of patterns, and in so much less time than with their hand looms, the country mills got to manufacturing all sorts of cloth, yarns, blankets and flannels, and exchanging them with the farmer for his raw wool. These were termed "factory" goods to distinguish them from the old-fashioned but ever durable "homespun." [See FACTORY.]

Honeycomb. An ornamental weave produced in cotton and linen canvas by drawing the warp and weft threads so that the small lozenge-shaped spaces between them shall appear sunken, and the edges in relief. So called from a resemblance to the concave cells of a comb of honey.

Hood. [From Anglo-saxon *hod*, head; whence comes also our word *hat*.] Properly a covering for the head, of soft or flexible material, but sometimes worn as an ornament for the back of cloaks and wraps. It is among the most ancient of head coverings. [See HATS AND CAPS.]

Hook and Eye. A metallic fastening for garments, consisting of a hook, commonly made of flattened wire bent to the required shape, and an eye of the same material into which the hook fits. Under the name of *crochet and loop*, this form of fastening was in use in England as early as the fourteenth century. In this country all the hooks and eyes are made in New England, where until a few years ago they were fastened together and sewed on the cards by children at a few pennies per gross. They are put up one gross in a box and range in size from No. 1 small, to No. 10 large.

Hoopskirt. An article of feminine apparel evolved from the farthingale of the sixteenth century. The ancient farthingales were made of hoops of whalebone run into a cloth foundation. When first began to be worn they were of modest dimensions, but increased in size in 1610 until they were immense and ridiculous. They reached such a degree of inconvenience that the King of France forbid the women of his realm to wear farthingales more than an ell and a half in circumference, but this edict only had the effect of causing the dimensions to increase more and more. Finally in 1675 the fashion died out. Hoopskirts next came into feminine favor in the form of bell-shaped skirts, which were enormously expanded by wire hoops fastened at certain intervals upon the skirt. The time of its greatest extravagance was from 1750 to 1800, and continued with intermissions until about 1820. Then there was a cessation and hoopskirts slumbered until 1852, when they were again revived in the form of crinoline petticoats. For "crinolines" were soon substituted hoops composed at first of rattan, but afterwards of flat flexible steel wire, which at times were nearly as large as those of a century earlier. These went out of use again in 1870, but since 1880 have appeared spasmodically in the form of tilters or hoops at different periods. [See CRINOLINE.]

Hose. According to the most reliable authority the use of hose or leggins, comprising in one piece all the leg-covering below the waist, originated in Europe during the Middle Ages. The hose was afterwards separated into breeches and stockings, which last, in the early part of the sixteenth century, was made of cloth, even for the use of kings and queens. The hose of the Middle Ages generally covered the person from the waist to the toe. By and by when large puffs around the hips came into fashion, the name of stockings, or *nether stock*, was assigned to the lower part of the tight leg covering, the loose puffs being termed "breeches." In this manner the old and much used word "hose" came to be retained only as an equivalent for stockings. In present use (whether singular or plural) hose denotes a covering for the lower part of the leg. It is, however, a commercial word, and applies properly only to the article as exhibited for sale in dry good stores. Thus a customer may *purchase* "hose," but after having put them on they become stockings or socks. That which women wear are stockings; men wear socks—though both when purchased, are *hose*.

In the manufacture of hose they are either "common cut," "seamless," "full-fashioned" or "full regular," for the definition of which terms see HOSIERY AND KNIT GOODS. *Balbriggan hose* is a brown or unbleached variety of which the threads are unusually hard, having very little nap or wooly surface. *Lisle-thread* hose are knit of an extremely fine hard-twisted thread, made of superior cotton, treated in a peculiar manner. Cotton fibre possesses naturally a waxy surface, which, if not destroyed in manufacture, gives a brilliant appearance to the fabric. "Carding" impairs the effect, but "combing" conserves it. Carding leaves the fibres in a jumble and cris-cross, while combing lays them straight, side by side. The latter process secures a stronger yarn and a more glossy one, though expensive. The spinning of lisle thread is done under moisture, thus forming a compact and solid yarn, with a surface capable of exhibiting the colors applied to it with a brilliancy unapproached by a softer yarn. Lisle thread also makes a more elastic hose, the threads sliding more easily in the mesh. If properly made and of good material, lisle hose are very durable; but like all other fabrics, the genuine article is often counterfeited and imitated. Good goods always possess s silky brilliancy, and a gritty linenish feel. There are no lisle goods made in in this country except a few "common cut," at about $1.25 per dozen, the fine goods being imported from Europe. *British hose* are so called from being imported from England. They are a firm, stout-made, half-hose, stained a yellow color which does not fade or bleach out. Until lately the best cotton hose knitted in the United States averaged in price from $2.00 to $2.50 per dozen. Our manufactures can knit finer hose, but heretofore it has been impossible to sell them in competition with the imported goods. The finest silk hose in the world is now made by three different companies in this country. Ladies' goods range in price from $18 to $36 a dozen. All hosiery is to be judged by the fineness of the thread and the closeness of the texture, which may be partly appreciated by weighing, as it were, the articles in the hand. In ribbed hose a deception is sometimes practiced, against which it is necessary to guard. The spaces between the ribs, which ought to be formed by an inversion of the stitch, contains no stitch at all, but an open range of threads, pervious to the weather and utterly destitute of durability. As ribs of stockings exposed to sale are necessarily almost in contact, the fault cannot be detected without introducing the hand and opening the tissue, when it will be instantly apparent. The standard length of ladies' hose is twenty-seven inches, though frequently in cheap foreign stuff it will be found they have been reduced to twenty-five and even twenty-four inches. In numbering hose one "size" is one-half inch in the length of the foot. Between this fact and the shoe sizes some confusion arises in people's minds, since in shoe sizes a full size means a difference of one-third of an inch in length. This is not expressed as one-third but in even numbers, six, seven, eight, nine and ten. These figures do not represent the actual length of the foot, as do hose sizes. Ladies'

hose range in size from eight to eleven. Men's sizes run from nine to twelve, representing the actual length of the foot. [See APPENDIX "A."]

Hosier (ho'-zher). Formerly the term *hosier* was applied to tailors who sold men's garments ready-made. In its more modern use hosier has been restricted in its meaning to one who deals in hose, or in knitted goods, such as undergarments, jerseys, cardigans, stockinet, fancy knit goods, etc.

Hosiery and Knit Goods. Under this head is embraced a wide range of manufactured textiles, which are classed together more on account of their manner of fabrication than from simularity of use. The term "hosiery," as is quite obvious, has its origin in hose or stockings; but although stockings continue to be one of the staples of hosiery, that department is only one of a great number constituting the entire industry, there being not fewer than 5,000 distinct articles made in the trade. All kinds of hosiery proper are made by the process of knitting, the peculiarity of which consists in the use of a single thread for the entire texture, and in the formation therewith of a singularly elastic, yet strong and firm looped web. It is not known precisely when or where the art of knitting stockings originated; much, however, has been learned concerning ancient arts and industries from the study of Egyptian excavations, which have also established the antiquity of many industries, of the early history of which very little has hitherto been known. Among the most interesting relics of early Egyptian life are the well preserved mummies of the dead. It is, perhaps, not generally known that in addition to that of embalming, weaving, etc., these mummies established the antiquity of knitting. In these graves have been found several pairs of knitted stockings, resembling socks, worn by the ancient Egyptians. These curious stockings are knitted in a very clever manner and the material, fine wool of sheep that might once of been white, is now brown with age. The needles with which the work was done must have been a little thicker than would be chosen nowadays for the same purpose, and the knitting is loose and elastic. Knit worsted stockings are also said to have been made in the Pyrenees for centuries, and stocking-frames were not allowed to be erected there, lest they should interfere with the ancient industry. Prior to the introduction of hand knitting in Europe, men as well as women wore stockings made of cloth. In 1560, a pair of black silk stockings knit in England was presented to Queen Elizabeth by her silk woman, Mrs. Montague, from which time the queen refused to wear cloth hose. Hand-knitting became a fashionable employment with ladies of rank, as well as a common occupation of the rural and humbler classes. The Shetland Isles, which were famous for their fine wool, became celebrated for the beauty and excellence of their knit fabrics, and it is said that a lady of these islands, at a later period, knit a pair of stockings of such fineness that they could be drawn through her finger ring.

The present extended manufacture and use throughout the world of

knit fabrics illustrate forcibly the far-reaching influences of a single useful invention. The common broad stocking frame, or loom, for knitting plain hosiery, that is, a straight knitted strip of any desired length, which throughout Europe soon superseded knitting by hand, was invented by the Rev. William Lee, of Woodborough, England, about the year 1589. This remarkably ingenious, but complex and cumbersome machine, was the result of several years' intense toil and study. It was first set up at Nottingham, where the inventor, in 1597, had nine machines in successful operation. It was afterward carried upon the backs of eight men to London and operated before the court, but failed to secure encouragement or patronage from the aged queen, or of her narrow-minded successor, James I, who either did not preceive its future usefulness and importance to his subjects, or feared the innovation would be dangerous to the poor hand-knitters. Henry IV, of France, or his enlightened prime minister, Sully, was more sagacious, and by his invitation Lee transferred his machines to that country and established his manufactory at Rouen, with success. After the assassination of his royal patron in 1610, Lee was forced by religious persecution prompted by jealousy, to abandon his new field and go in concealment to Paris, where he afterwards died of disappointment. Thus ended the vicissitudinous career of the man of whom much romance has been woven—or more appropriately—knitted. Lee, who was a man of remarkable culture as well as talent, was a fellow of St. John's College, Cambridge, Eng. Tradition attributes the origin of his invention to a pique he had taken against a townswoman with whom he was in love and who neglected or spurned his passion. The statement is that she got her livelihood by knitting stockings, and that to destroy her employment he constructed this frame and instructed her brother and other relatives how to work it. Another and more probable account is, however, quite different but the element of romance is retained. The best authorities on the subject represent that Lee was expelled from college for marrying the woman of his choice, in violation of some absured law of that institution, and that the pair being reduced to abject poverty through the harsh decree, the faithful wife contributed to the support of the little family by knitting stockings for the market, then a very general employment with the lower and middle classes. It was while sitting beside this gentle knitter, engaged in watching the movement of her needles, as they passed in and out, that the bright intelligence of the learned outcast conceived the idea of the principle of the knitting-frame.

Soon after Lee's death in Paris, one of his apprentices, named Ashton, escaping to England, remounted the stocking frame and once more established the hosiery manufacture at Nottingham and Derby, where it has ever since flourished. The knitting machine at this time produced simply a straight knitted strip, which was cut in proper lengths and sewed together to form the stocking or other articles made of it. Many improvements have since been made, an important one being the circular loom, by which a contin-

uous circular web may be knit of any length. This is cut off at proper distances and "formed" or "pressed" into the shape of a stocking. The shaping of the web to fit the foot is a matter of no little ingenuity. The *flat* web is knit in long strips of sufficient width to make several stockings, which are cut out over patterns on stretching-boards, and neatly united at the heel and around the edges by hand-knitting or machine sewing. In the case of "*full regular*" goods the edges of the web are connected by hand, the loops on either side being so neatly taken up and joined as to leave no welt whatever and but slight evidence of a seam. In forming the foot to the *circular* or seamless web, a slit is made just above where the heel is to be, half-way across the web, which allows the part designed for the foot being curved up at the instep and to assume the natural shape. The loops along the edges are then taken up on hand-needles and the space for the heel is filled out by hand-knitting. In the same manner the toe is completed, and thus is finished a seamless stocking. On other circular machines the entire stocking is knitted and then dampened and pressed in proper form. Those, however, that have been *pressed* into shape lose their contour after the first washing. Hence it has been a problem for inventors for many years to invent an appliance to the knitting-frame that would produce a *full-fashioned* stocking; that is, a stocking swelling at the calf, narrowing at the ankle and a perfect foot. An automatic machine for this purpose has been patented in the last few years, and performs the work perfectly. When the stocking is completed, the machine stops automatically, breaks the thread and is again ready for the next. One boy can attend half a dozen of these. It produces several different styles of heel and toe, and overcomes the difficulty of narrowing the ankle and instep and widening the leg. These recent improvements in the mechanism have given a vast impulse to the stocking manufacture by greatly reducing the cost and proportionately extending the demand, introducing the articles where they were before unknown, or hand-knit by members of the household.

Twenty-five years ago a workman with one of the old hand-power frames could make in a week only about one dozen cotton hose, weighing two pounds. The same labor now applied to a set of the best knitting frames easily produces in the same time, from three hundred pounds of cotton, 200 dozen hose. A clever hand knitter if assidious, will knit 100 loops a minute, while the machine knitter will knit of the finest textures in various colors 250,000 loops a minute—an advance of 25,000 fold upon the hand knitter. Chemnitz, Germany, is the center of the largest hosiery and knit goods industry in the world, and is intimately associated with the hosiery trade of the United States. Eighty per cent of all the knit goods manufactured at Chemnitz is bought by the United States. Chemnitz sends more cotton hosiery to this country than England sends to the four quarters of the globe. The business is done in a peculiar way. The goods, before reaching the buyer, pass through many hands. Throughout a large district, many square miles in extent, are scattered the dwellings of the singel

weavers, the "household industry" people. These receive the yarn from a factor, knit the stockings or gloves, jackets or underwear and return them to the factor, who *sells* them to the manufacturer. The manufacturer "fashions" them and then turns them over to the dyer. After dyeing they are glaced, stamped, and packed in boxes and turned over to the agent, who in his turn sends them to a commission house in the United States, or, else sells them direct to the American jobbers visiting the German market. For seven miles along the roads leading from Chemnitz one house joins another; and in every house there is from one to four knitting machines. These people make the bulk of the knit goods worn in this "land of the free and home of the brave."

The principal seats of the hosiery industry in the United States are Waterbury, Conn., Cohoes, N. Y., Brooklyn and Seneca Falls, N. Y., Newark, N. J., and Philadelphia, Pa. [See HOSE.]

Housewife's Cloth. A linen cloth of medium quality, between fine and coarse, for family uses. It is in very limited demand at present, having made way for cotton upon the latter's introduction at the close of the eighteenth century.

Huckaback (huck'-a-back). [A corruption of *huckster-back*, which in early times signified any sort of "pedler's ware." Often shortened to *huck*.] A coarse and very durable cloth of linen, or linen and cotton, woven with alternate elevations and depressions, so as to present a rough face. It is used especially for towels and is made in separate towels or in lengths which may be cut at will. Huckaback is also made of all cotton woven with a honeycomb pattern.

I

Illusion. A thin and very transparent kind of tulle; silk bobbinet. [See TULLE.]

Imports. Goods brought to this from a foreign country. Importations into the United States can be made only at ports of entry constituted by law. All goods so imported must be entered at a custom-house by presenting a bill of lading, and an invoice duly certified by the United States Consul at the port from whence they are shipped; also a sworn description of the goods by the importer. If the goods are free of duty, a permit to land is immediately issued, subject to official inspection and verification of the goods. If the goods are dutiable the tariff is estimated at the custom-house and paid in coin or government notes. A permit is then issued to send one or more packages to the government appraiser for examination, (to determine whether they have been invoiced properly) the balance of the goods being delivered to the importer under bond to produce them should the examination of the samples show discrepancies. If

the appraiser finds them to have been undervalued, the goods are subject to merely the additional tariff on the excess. Any fraudulent under-valuation involves the confiscation of the goods concerned. To interior ports goods may be transported in bond, directly from the importing vessel. There are custom houses in all the large cities of the United States. The following table shows the value of imports entered during the three years ending Oct. 1st 1891; also the value of articles *free* of duty, and the value of those on which there is a tariff:

	FREE OF DUTY.	VALUES DUTIABLE.	TOTAL.	TOTAL DUTIES COLLECTED.
Year ending— Total Sept. 30, 1889	$258,562,64186	$490,661,118 70	$749,223,360 55	$217,389,400 95
Per cent. free and dutiable	34.51	65.40		
Total Sept. 30, 1890	$279,251,684 36	$521,621,989 54	$800,874,672 90	$237,284,340 95
Per cent. free and dutiable	34.87	65.14		
Total Sept. 30, 1891	$419,465,439 97	$413,203,165 18	$832,668,605 15	$193,040,020 49
Per cent. free and dutiable	50.38	49.62		

Inca. [From *Inca* the name of the prince who governed Peru, S. A., previous to the Spanish conquest.] A term given about 1850 to several varieties of alpaca dress goods. Alpaca wool at the present time is nearly all obtained from South America, much of it from the "land of the Incas" (Peru).

India Linon. [French *linen.*] A variety of clear, white lawn, put up bookfold, and woven of very fine cotton yarns. The chief difference between India linon and Victoria lawns lies in the former being a somewhat lighter weight fabric, and having a larger number of counts per inch.

India Rubber. An elastic, gummy substance, consisting of the coagulated milky juice of various trees and shrubs found in Central and South America and Africa. This juice is contained chiefly in the middle layer of the bark, in a network of tubes, and in its natural state is of a pale yellow color of the thickness of cream. The natives tap the trees of mornings and during the day half a pint of the fluid is received in a clay cup placed at the trunk. This at once begins to harden, which is hastened by exposure to the smoke and heat of a fire. The Amazon valley, generally known as North Brazil, comprises an area almost as extensive as that part of the United States east of the Rocky mountains. It is probably the richest valley in natural and agricultural resources on the globe, extending on a line with the equator almost 2,000 miles due westward to the base of the Andes in Peru and Bolivia. Practically nothing is produced in this valley, because the gathering of rubber is more profitable than anything else. Everything necessary to sustain civilized life is imported, princi-

pally from Europe. Two-thirds of the rubber exported goes to the United States. The natives sell it for about twelve cents a pound to the merchants of Para, but its value on reaching this county is about 50 cents a pound; though the top grades often fetch as high as 95 cents a pound. The rubber forests of Brazil will ultimately be exhausted, owing to the reckless mode followed by the tappers. The ordinary product of a tapper's work is from 10 to 16 pounds daily. There are merchantable in New York between 30 and 40 sorts and grades of India rubber, the variations determining the selection by manufacturers in the purchase of stocks. Of course rubber in all its variations is essentially the same, differing somewhat in the same degree as a pumpkin in Dakota differs from that in New England—one large and the other small, one with little flavor and the other rich in food qualities. The difference between sorts of rubber, however, is due in large measure to the methods employed in gathering the sap. It happens that the natives of the Amazon valley have always taken pains in the curing of rubber. While climatic conditions in that country may have had some influence upon the quality of "Para," the condition in which this rubber is exported has become a prime factor in making it a favorite with the manufacturers. On the other hand, some of the African sorts are so full of bark and stones as to make them almost unfit for use. At one time the African rubber was almost unmarketable in New York, the price s nking as low as 10 cents per pound, and not wanted at that. One factory, after long experimenting, discovered a chemical solution in which the rubber was washed, the process being that the bark and other impurities abso.bed the chemicals making them so heavy that they separated from the gum and fell to the bottom and away. This company made a fortune in a moderate space of time, but the price of African rubber gradually went up, from the fact of their creating a demand for it until the profits became comparatively small, when they disposed of the privilege of washing to some leading rubber factories, who use the process at the present day.

As the raw India rubber is unloaded on the piers at New York it is in the form of balls, or shapeless lumps, and in this condition it is received by the rubber factories. At the factory these lumps are first placed in a vat of boiling water and softened, next sent to the masticating machine, where it is ground up very fine and mixed with sulphur. After being several times passed through this machine, which is built on the principal of a "sausage grinder," the rubber is worked through heavy smooth rollers under an enormous pressure, which packs it together in the form of a sheet or mat, about the size and thickness of cow-hide. This sheet is then thoroughly dried, which requires from 4 to 6 weeks. Next it is passed through a series of very hot rollers, until it is sufficiently pliable to admit of being spread upon cotton cloth. This operation is performed between two iron cylinders, the pliable rubber being run in over one and the cloth over the other, the heavy weight forcing it thoroughly into the meshes of

the cloth. In this manner, rubber, or rubber cloth, of any desired thickness can be produced by simply regulating the distance between the iron cylinder from a thin gassamer tissue to a heavy boot sole. About 70 per cent of pure rubber is contained in the manufactured article. There are 120 india-rubber factories in the United States, employing 15,000 operators, who produce 280,000 tons of goods, valued at $260,000,000 per annum. This includes twenty rubber boot and shoe factories, each with a capacity of about 25,000 pairs of rubbers per day, whose products are shipped to almost every country in the world.

The remarkable substance known as india-rubber is composed of carbon and hydrogen alone, but its exact chemical nature is not by any means known with certainty. It was long used for various minor purposes before its valuable commercial qualities were appreciated. The French in 1751, first gave the matter particular attention, and in 1767 England issued a patent for making waterproof clothing; in 1825 a merchant of Boston introduced the original Para overshoe in its rough state, as made by the natives of the province of Para, Brazil, S. A. It was in this year that the wonderful capacities of the strange product began to be known, and the commercial world realized the fact that a new force had entered the industrial field, which was destined to play an important part in the arts and manufactures of the nineteenth century. To Charles Goodyear is due the credit of having devoted much time and money in experiments and improvements in the manufacture of rubber goods, and although he reaped no pecuniary reward from his patents, and though the French and English stole outright his invention of the vulcanizing process, their courts manifesting the greatest partiality and dishonesty in deciding against him, yet all countries and all consumers are indebted to Chas. Goodyear for bringing the manufacture of rubber to its present state of perfection. [See RUBBERS, MACKINTOSH.]

India Shawls. Another name for *Cashmere shawls.* India has been famous from time immemorial for the production of that most elegant article of dress—the shawl. Some of them are, indeed, of a value which appears almost fabulous. Two to three thousand dollars are not thought an extravagant price, even in India, for a genuine cashmere, and there may be seen on the shoulders of many a fashionable lady in New York India scarfs purchased at a cost of over $5,000. And this value would be greatly enhanced were the workmen paid at all according to the American scale of wages; but the men employed in fabricating these splendid articles rarely earn more than a couple of *annes* a day (6 cents). These shawls possess a peculiar harmony of coloring which is combined with a brilliancy that neither Europe nor America can approach. The real cashmere or India shawl is produced in the valley of Cashmere and also in Panjab. It is made from the fine downy wool found about the roots of the hair of the wild goat of Thibet and the Himalayas. Some very rich and exquisite imi-

tations of these costly fabrics are now made in France. [See CASHMERE SHAWLS.]

India Silks. Among the many varieties of silks manufactured in India, five may be more especially designated as entering more or less extensively the markets of the United States. India silks are classed as the "cultivated" and the "wild." Among the former are imported the *Corah*, *Mysore*, *Nagpore* and *Rumchunder;* and from the latter category, or "wild" silks, the *Tusore*, otherwise called *Tusah* and *Tusar*. The *Kincobs* are satin textiles decorated with designs in gold flowers and are employed for ladies' skirts; the *Mushroos* have a surface of silk, but a cotton back, and are decorated with loom embroidered flowers. The silk brocades are very beautiful, being manufactured at Trichinapoly. The most costly examples of these brocaded India silks are massively embroidered with gold and with silk stripes; the costliest of all, being produced at Hyderbad, are very striking in appearance, having wavy stripes of rich yellow pink and a white combined with gold. Silk stuff manufactured for trousering for home wear is said to be produced of the slightest texture, nine yards of some of which would scarcely weigh as many ounces.

Indigo. A well-known and exceedingly valuable blue dyeing substance. It has been in use in Europe since the First century, being mentioned by Pliny as *indicum*. When it made its appearance in England it was termed *indico*. As a commercial material, indigo is entirely obtained from the vegetable plant called *indigofera*, which grows from a height of 4 to 5 feet, producing an abundance of leaves. It is in the leaves that the indigo-yielding principle chiefly resides, and these are most gorged with it at the period when the flower-buds are about to open. It is then that the plant is cut down, in India the same stalk yeilding in one year the second and even the third crop of stems and leaves. The method of preparing indigo in Bengal where the best quality is at present made, is to take the fresh green stems and leaves and beat and bruise them, after which they are fermented in vats of water, depositing a blue substance which is collected and dried in the form of the square cakes seen in commerce. Indigo sells in India at the rate of 97 cents to $1.80 per pound, depending on the quality and the state of the market. The different qualities of indigo which come to this country are classified according to their sources, as follows: Bengal, Gautemala, Java, Mexico and Brazil. The indigo imported into the United States in 1887 amounted to 2,961,453 pounds; in 1888, 3,466,665 pounds; in 1889, 3,161,084 pounds; in 1890, 3,550,871 pounds.

Indigo once and for a considerabte period formed one of the staple *exports* of this country, while now it is one of the heaviest articles of *import*. It has been manufactured in America from the earliest days of its discovery; it was commonly used in Mexico when that land first became known to European nations, and was afterwards extensively cultivated by the Spaniards in Central America. In the early days of the West India

colonies it was an article of great export. The island of Jamaica was very successful in its cultivation. Indeed, such attention did the West India planters pay to the dye that their indigo was sought after in Europe in preference to that of old India. The dye rose to such eminence as an article of trade, that the British Parliament in keeping with its usual hoggishness, in the year 1745, with the view of securing a large revenue, laid the heavy tax of 75 cents per pound on all the indigo manufactured in their West Indian colonies. From this date the cultivation declined. It was a case of goose and golden egg, being literally killed out of the country by over-taxation, and, although the tariff was repealed finally and a bounty of 12 cents per pound was offered by the home legislature the industry never regained its former position. In the Colonial days of America, from 1747 to 1792, the Southern States produced vast quantities of first-quality indigo. It was to Carolina and Georgia what tobacco was to Virginia—their principal agricultural product. In 1790 the Southern Colonies supplied Europe with the same amount of indigo that Bengal did—about 600,000 pounds. About the year 1800 the export of this dye stuff almost ceased, owing to the impetus Whitney's cotton gin had given the cotton industry. In 1802 indigo began to be imported into America from Bengal, the cultivation of cotton having driven out the once flourishing indigo industry in the short space of ten years.

Indigo is the most important of all coloring matters both as regards the large quantity and monetary value of what is produced and sold, as well as the permanency of the dye colors which it yields. Indigo is distinguished from nearly all other coloring matters by its complete insolubility in water. The only real solvent for it is acetic acid mixed with a little sulphuric acid, from which water precipitates it unchanged, but this solvent is inapplicable for dyeing. *Complete solubility* is an essential condition for dyeing, and a means was found to obtain satisfactory solutions of indigo by circuitous methods which involve the temporary destruction of its blue color and a change of its chemical composition. By various deoxidizing agents, indigo-blue is changed into a white substance (called indigo-white) which dissolves readily in all alkaline liquids, forming a colorless or slightly yellow solution. On exposure to the air the solution yields the *insoluble* blue indigo, and permanently dyes any fabric or fiber that has been saturated with it. This is the only case in which such a method of dyeing is followed, and on that account it possesses much interest. The number of successive dips that a piece of cloth undergoes varies according to the shade of blue which the dyer desires. The more "dips" the more permanent the color becomes and the darker the shade.

Indigo Blue Calico. A fine blue color, which is produced upon cotton by placing in an immense vat 2,000 gallons of water, 20 pounds of ground indigo, 30 pounds of iron filings, 30 pounds of powdered zinc, and 30 pounds of lime. A length of calico is then dipped into the vat for 15 minutes, taken out and exposed to the air for 5 minutes. The piece of calico which

is white when it comes out of the vat gradually becomes green and then blue, owing to the oxygen of the air oxidizing the white-indigo and transforming it into *blue*, which is insoluble in water and "fixed" on the calico. The number of dips the cloth receives is owing to the particular shade of blue the printer requires.

Patterns on indigo blue prints are produced by discharging the blue with a bleaching liquor. The pattern to be discharged is cut out on two metal plates; several thicknesses of cloth are placed between these plates and an immense pressure applied, the liquor being run in on the uppermost plate, which is grooved to receive it. The pressure on the cloth makes clean work by preventing the spreading of the liquor, and the liquor destroys the blue color in all those parts where the patterns in the plates allow it to circulate, thus producing the white figure. If any other color than white is desired, it only remains to print it on over the white pattern that has been discharged from the blue ground. The chemical liquor used to discharge the blue color (in order to produce the white pattern) is sometimes very injurious to the cloth, the discharged portions rotting and wearing out much sooner than the solid blue ground. [See INDIGO, BANDANNA, TURKEY RED, CALICO.]

Ingrain. [From *in* (the) *grain.*] A term used to describe textile fabrics dyed before being woven; dyed in the yarn or thread before being manufactured. The cotton calico called Turkey red and red marking cotton are also called ingrain. [See CARPET.]

Inventory (in'-ven-tory). An itemized descriptive list of articles, such as goods and chattles; specifically a formal list of moveables, as of the goods or wares of a merchant. *Benefit of Inventory* is a legal phrase signifying the limit of liability of an executor in respect of debts of the deceased, by making and filing an inventory showing the value of the assests coming into his hands. [See SCHEDULE.]

Invoice. [From French *envois*, plural of *envoy*, a sending, conveyance.] A written account, or letter of advice of the particulars of merchandise shipped or sent to a purchaser, consignee or factor, with the prices and charges annexed. The word does not carry a necessary implication of ownership. In United States tariff law, an invoice sent from abroad is required to be made in triplicate and signed and dated by the seller of the merchandise described therein, and subsequently verified by the American Consul or Commercial agent of the United States in the country of shipment. The three invoices are classified as *original*, or the importer's the *duplicate*, which is retained by the consul who verified it, and the *triplicate*, which is forwarded to the collector of the port in this country. [See IMPORTS.]

Italian Cloth. A kind of jean, woven with a satin face, made of cotton and wool, cotton and mohair, and all cotton, used exclusively for lining and measuring one yard in width. In price these goods range from twenty-two

and one-half to fifty-five cents. Italian cloth is extensively produced in this country, there being one mill in Maine devoted exclusively to the manufacture, but the American do not compare in point of finish to the imported goods. Cotton Italian cloth made in England has a high, soft, glossy finish with a feel of wool that would bother even an expert. In low-priced goods the domestic manufacturers control the market to the extent of the supply, but fine qualities are all obtained from Manchester, England.

Ivory Nut. The seed of a low growing palm native to South America. The seeds grow in clusters, from four to nine together. Each seed is about as large as a hen's egg. When dried, the grain is very hard, resembling the finest ivory in texture and color; it is hence called *vegetable ivory*, and is often wrought into ornamental work and buttons. [See BUTTONS.]

J

Jacket. A short coat or body garment; any garment for the body coming not lower than the hips. In the United States a waist coat or vest. A lady's sacque is also sometimes called a jacket. Jackets for boys throughout the first half of the nineteenth century came only to tke waist, whether buttoned up or left open in front, and a similar garment, called a "waist," is still worn by men in certain trades or occupations. Short outer garments designed for protection from the weather and worn by men of rough occupations are called jackets; as a monkey jacket, zouave jacket, cardigan jacket, smoking jacket.

Jack-Towel. A coarse towel for general use, hanging from a roller.

Jaconet (jack'-o-net). A thin, soft variety of muslin used for making dresses, neckcloths, fancy articles, etc., heavier than cambric. The finer qualities are woven even throughout, and are free from starch or other dressing, the gloss being produced by calendering (which see). A cotton cloth dyed in solid colors and glazed on one side is also termed jaconet.

Jacquard, Joseph M. The inventor of the apparatus which bears his name. This is not a loom, but an appendage to looms, which, in the weaving of figured fabrics, automatically selects the warp threads and raises them when necessary. It was the damask loom that made possible the Jacquard. In fact, the main difference in them is that in the one human skill and patience accomplish what the other does automatically. The damask weaver puts in thread after thread by hand—over, under, through warp as the pattern requires. The Jacquard loom has weighted strings passing over a pulley to fall upon perforated cards. Each motion changes their position and lets some weights go through the holes and draws up the warp threads so as to be skipped by the woof, while others strike the card and leave their strands in place to be regularly woven. The invention has been applied to many branches of weaving, and has worked wonderful improvement in all. Jacquard was the son of a poor silk weaver of Lyons,

and was born in 1752. He was first employed as a bookbinder, afterwards as a type-founder and cutter; but, on the death of his mother, he assisted his father in weaving, and, finally, when he inherited a small patrimony on his father's death, he used it in setting up a silk factory. This proved unsuccessful, mainly because his time was spent in attempting various improvements in the processes with which he was acquainted. For want of a better occupation he was at last forced to become a lime-burner and afterwards a charcoal-burner, while his wife supported herself at Lyons by plaiting straw. The machine which afterwards rendered him famous is said to have been conceived in 1790, but its execution was delayed by the breaking out of the Revolution, which drove him into the ranks, first of the insurgents, and then those of the Army of the Rhine. After seeing some active service, in which his young son was shot down by his side, Jacquard again returned to Lyons where he succeeded in finding work. He saw in an English newspaper that a Society of Arts had offered a prize to any one who should invent a plan for weaving nets by machinery. He set his wits to work, and, for his own amusement, soon produced a loom adapted to the purpose, but he made no attempt to obtain the reward, and after showing his invention to a friend, put it aside, and for sometime it was forgotten by him. To his surprise he was one day sent for by the prefect of the department, who inquired about the machine and requested him to make another, the original having been lost or destroyed. This he did, and a few weeks later he was summoned to Paris and introduced to Bonaparte. "Are you the man," asked Carnot, minister, "who pretends to do what God Almighty cannot do—tie a knot in a stretched string?" Jacquard answered that he could do, not what God could not do, but what God had taught him to do. He still labored at his silk weaving machines, and in 1801 a medal was awarded him for an invention which he exhibited in Paris, whereby one workman per loom was dispensed with in the weaving of figured silks. He was summoned to Paris again, and explained his device to Napoleon, who rewarded him with a pension of a thousand crowns, gave him employment in the Conservatory des Arts, and thus enabled him to exercise his ingenuity in other ways. At the conservatory was stationed a loom of Vaucanson's, which suggested various important improvements in his own, and which he perfected in its final and present state in 1803.

The Emperor encouraged the owners of silk factories to adopt the new loom, and many were set up at Lyons during the early part of 1804. To Jacquard's consternation the new invention was fiercely opposed by the silk weavers, many of whom it threatened to deprive of a livelihood. The *Conseil des Prud'hommes*, which in our age might be described as a company of "walking delegates," and whose business it was to watch over the interests of the Lyonese trade, siezed his machines and made kindling wood and scrap-iron out of them in the Public Place; "the iron (to use Jacquard's own expression) was sold for iron—the wood for wood, and he, its inventor, was delivered over to universal ignominy." The invention was

too valuable not to have found its way into other countries, which, by its means were enabled to rival, and even surpass the products of the French looms. Then it was that the Lyonese weavers saw the folly of their opposition, and condescended to adopt the invention of the man they had so cruelly persecuted. Many years before his death, which occurred in 1834, the inventor had the satisfaction of seeing his loom in almost universal use, and, as a consequence, his native city rapidly advancing. The Jacquard apparatus is now extensively used throughout the whole of the silk, worsted and cotton manufacturing districts of France, England and America. In 1876 a French manufacturing firm produced one of the most extraordinary specimens of silk weaving that probably has ever been executed. It is a portrait of Jacquard woven on a white ground with colored silks, representing that extraordinary man in his workshop, surrounded by his implements, and planning the construction of that beautiful machinery which now in its increased perfection returns a fitting testimony to the genius of the inventor. The work was woven with such truth and delicacy as to resemble a fine line engraving. There were a thousand threads in each square inch, French, in both warp and weft.

The Jacquard loom is used solely for weaving figured goods. In this loom a chain of perforated cards is made to pass over a drum, and the strings by which the threads of the warp are raised, pass over an edge with a wire or leaden weight of small diameter suspended from each. These weights at each stroke of the loom are presented to each successive card and some of them are intercepted by the card while others pass through the holes therein, the latter thus determining which threads of the warp shall be raised. In this way the figure of the card determines the nature of the figure on the fabric. [See LOOM, WEAVING.]

Janus cloth. [From *Janus*, a god in Roman mythology, who is represented as having two faces]. A textile fabric, the color of one face of which is different from that of the other; used for reversible garments.

Janus cord. A kind of rep, made of woolen and cotton, the cord or rib showing on both sides alike.

Japanese printing. The Japanese people continue to follow at present, as they have followed in the past for unknown centuries, the primitive method of printing the pattern upon their fabrics by hand. The work of printing is all done in rude sheds, the roofs of which are thatched with straw. The sheds are open on three sides to admit of plenty of light, and are filled with rows of long tables upheld by low trestles. On these are spread smoothly the silk or cotton fabrics to be printed with gaily colored patterns. Several men and boys, dressed in the short breeches and blue cotton jacket of the Jap workman, on the back of which is printed a big red sign or seal denoting the "master" for whom they work, bend low over the tables in performing the work. The machinery used consists solely of a few stencil plates, brushes and saucers of fluid paints, and the human

hand — the most obedient and succesful of all machines, when guided by the mind of the artist-workman. A stencil plate is temporarily fixed by brad awls to the cloth, and with a flat bladed knife a paste of rice and flour is spread rapidly and evenly over the surface of the plate. The paste passes onto the cloth through the pattern cut out of the stencil plate, and thus covers the part or parts intended to be left white in the design. The plate is then removed and the paste is allowed to dry. Thus the workman passes down the long table, which is the length of an entire piece of cloth, and using the same stencil plate, he quickly covers over the intended white spaces throughout the whole extent of the cloth. A series of stencil plates are then used in succession in order to draw in the outlines, and put in the colors and shades of the design. Thus, one plate will give the outlines of one-half of the birds and flowers, the balance being completed by the next plate. With a third plate the brown tints of the bird's wings are put in, with the fourth their beaks and claws, with the fifth any other color of their plumage, with a sixth the pink shades of the plum blossoms, with a seventh the green leaves, and so on, the number of the stencil plates being only limited by the complication of the design and by the varieties of the colors and tints in it. The colors are laid on moist, with flat round brushes. The depth, tone and shading of the colors depend on the taste and skill of the workman and it is delightful to watch him at work and to find how instinctively and rapidly he feels that a tone is here too strong, there too weak, and to see him shade and temper it by dipping his brush into the dish of clean water always at hand, or deepen it with a few strokes of the paint brush. Rapidly the design in all its complications grows beneath the apt fingers of the printer, and soon the long strip of cotton or silk is covered with fans and birds and flowers; but the base of the cloth still remains white. To dye it blue (for instance), the parts which have been already printed are covered with a thick layer of rice paste. When dry the whole surface of the cloth is brushed over with a paste of indigo and rice, or is dipped into the indigo vat. The cloth is then steamed to "fix" the colors by the mordants with which the dyes are mixed; and finally the rice paste is washed off, when a design of birds or plum blossoms on a white fan upon a blue ground, will appear as clear and distinct as if just drawn with the brush. The simplest designs of mere dots and lines are executed by the same process, as well as the most eloborate. It can be easily understood that such a method as that described above will allow of the greatest elaboration of design and its most artistic realization. The more complex effects are, however, sometimes obtained by painting; and from the hands of the stencil printer, the stuff often passes to the painter, who with a small brush puts in tints or markings on wings or feathers or flowers.

Japanning. The art of coating surfaces of metal, wood, etc., with japan or varnish to produce a high black luster. Japanning liquid is made by cooking gum shellac with linseed oil in a varnish kettle. The articles to be coated, such as hair pins, pants buckles, buttons, etc., are immersed in

the liquid and then dried and hardened by means of a high temperature in stoves or hot chambers.

Jean. [A term generally regarded as having been derived from the town of *Jaen*, Spain.] A twilled and calendered cotton cloth, usually 27 inches in width, used principally for dress lining, and in the manufacture of corsets. *Satin jean* is a thicker variety, the surface of which is finished with a high gloss, employed in the manner of ladies' shoes, overgaiters and similar purposes. *Jeanette* is a coarse quality of jean. *Jeans*, for men's garments, has the same origin as the above, though commonly used in the plural. Much of the "homespun" manufactured in this country, particularly throughout the South in the early days, was jeans. At present it varies exceedingly as to quality, ranging from all cotton up through many gradations to all wool. It is always round twilled, and is usually woven with a cotton warp and a coarse worsted weft. The best grade of cotton-warp jeans is termed "doeskin jeans."

Jersey. [So called from *Jersey*, one of the channel islands of Great Britain. The State of New Jersey was, in 1664, named after the same island.] A close-fitting upper garment or jacket, made of elastic woolen or silk material, and worn with some variation of form by both men and women for the past 200 years. Jersey and guernsey were names originally given to woven, close-fitting vests of coarse wool or worsted, worn by sailors and fishermen in place of jackets, or under their pea-jackets or waterproof blouses. They were afterward adopted for athletic and other sports, and finally got to be worn by women. These the women would knit or crochet by hand entire (without seams), but after the invention and introduction of Lee's knitting frame were fashioned out of stockinet, and at present are made of silk, cotton and worsted yarns. The jersey jacket in the form now seen was first manufactured for the general market by a firm doing business on the Isle of Wight, England, and made popular by Mrs. Langtry, the "Jersey Lilly." *Jersey cloth* is heavy woolen stockinet. *Jersey flannel* is a fabric much resembling stockinet, but being crocheted instead of knitted, and usually finished with a soft nap upon one side. *Jersey underwear* is manufactured on the crochet principle, which distinguishes it from "flat" or knitted goods. [See EIDERDOWN.]

Jobber. One who purchases goods in bulk and resells them to smaller dealers. A wholesale dealer, as distinguished from a manufacturer.

Jumper. A kind of loose jacket with sleeves, made of denim or duck and worn by laborers employed at rough work. Jumpers are generally worn in connection with overalls, and buttoned the whole length in front.

Jute. A fiber-producing plant of the genus *Corchoras*, which alone furnishes the jute-fiber of commerce. It is an annual, growing from 12 to 14 feet high, the preliminary process employed of macerating from the outer bark being very similar to those adopted in the preparation of flax

and hemp (which see). It is mainly cultivated in Bengal, India, whence comes the great mass of jute to Europe and America. Jute likes a moist warm climate, and could be successfully raised in our Southern States, but for the lack of sufficiently cheap labor for separating the fiber. The inner fiber is separated from the outer hull of the stalk by the process of retting, practised in the cases of flax and hemp. The stalks of jute are placed in vats of warm water till the outer hull rots and partially falls to pieces, which action requires from 10 days to a month. The native Hindoo then wades into the water up to his middle and takes as many stalks as he can grasp, and removing a small portion of the outer bark from the ends next to the roots, he strips off the dead hull from end to end, with a little management, without breaking the fiber. Then it is washed off and cleaned by swinging it round his head and dashing it repeatedly against the surface of the water. Next it is dried, the fiber separated and is then ready for shipment to Dundee, Scotland, or the United States, to be spun and woven. The fiber is of fair tenacity, glossy, and capable of so fine division that large quantities of it is used to mix with silk, being especially used for the filling in the manufacture of cheap grades of dress silks. It takes a bright and permanent coloring. The main commercial use, however, of jute has been in the manufacture of coarse cloths, such as gunny bags, sacking, burlaps, sheeting, matting, duck, and also for the back of carpeting in combination with the more expensive fibers of cotton, wool, flax and cocoanut. Jute does not endure moisture or exposure to the weather, and hence is not well suited for the manufacture of ropes and cordage. Notwithstanding the fact that jute did not come under the notice of manufacturers until within very recent times (not being known in Europe prior to 1840), it has advanced in importance with such rapid strides that it now occupies among vegetable fibers a position in the manufacturing scale second only to that of cotton and flax. In India since the Crimean war the jute industry has advanced by leaps and bounds, official returns showing in that province that there is now 26 jute mills, working 8101 looms and employing 62,000 hands. In 1891 there was exported 29,800,000 yards to foreign countries. India annually produces about 4,000,000 tons of jute, at the average selling price of $15 per ton. The major portion of the raw fiber is shipped to Dundee, Scotland, which city has for fifty years been the largest seat of jute-manufacture in the world. Dundee ships annually to the United States including bags and jute cloth about 175,000,000 yards. This vast amount is all consumed by the eastern and middle states, the western states drawing their supply direct from India by way of San Francisco. No material is manufactured at less cost per yard than jute. After cost of production, shipment from Calcutta, insurance charges and ocean freight have been added, it is placed upon the American market at an average price of 3 cents per pound, and even at this low rate the profits are large. [See BURLAPS, GUNNY, SILK.]

K

Kamptulicon (kamp-tu'-li-con). A variety of floor cloth, invented in 1843, but not generally introduced until about 1855. The materials and processes employed in its manufacture vary considerably, but it is essentially a preparation of india-rubber masticated up with ground cork, the preparation and mixture being effected by repeated passing of the material between heavy grooved metal rollers. When thoroughly mixed it is rolled out into sheets; sometimes over a backing of canvas by passing it between pairs of wide and steam-heated rollers. In addition to the substances above mentioned, gutta-percha, saw-dust, ground leather, boiled oil, resins, pitch, asphalt, and chalk have all been used in kamptulicon making. The rolled sheets are ornamented by printing simple patterns on their surface. Kamptulicon forms a warm, pleasant, soft and noiseless floor-cloth, but the higher qualities, in which india-rubber and ground cork are the main ingredients, are rather expensive, and the manufacture has been curtailed since the introduction of linoleum.

Kangaroo leather. See LEATHER.

Kapok (ka-pok'). The silky wool which invests the seeds of a species of silk-cotton tree botanically related to the cotton-plant, found in the East and West Indies. Like the wool of some allied trees, as the cottonwood, it is used for stuffing pillows, cushions etc. It has of recent years become a considerable article of export from Ceylon.

Kerchief. [From Fr. *couvrir*, to cover, and *chef*, head.] Properly a cloth to cover the head, and originally signifying a simple square or oblong piece of linen or silk worn folded about the head, more or less loosely attached so as to cover or drape the head and shoulders. Some traces of its early form and use still survive in the costumes of different parts of Europe, especially among the country people. Since the 16th century, however, the word has been adopted for a loose cloth folded about some part of the person; as neckerchief, head-kerchief, breast-kerchief and night-kerchiefs. The word has been still further corrupted to signify a cloth for use in the hand—a handkerchief. [See HANDKERCHIEF, NECKERCHIEF, NAPKIN.]

Kersey. [So-called from having first been manufactured at the village of Kersey, Suffolk county, England, in 1051.] The kersey of former times was comparatively a coarse cloth, and an article of the same description is still manufactured in some parts of England and sold under the name of *plaiding*. Before the invention of knitting, kersey was commonly used for making stockings. At present, the term indicates either of two very different materials used for men's clothing: 1. A compact woolen fabric, fulled to a degree completely concealing the warp and weft threads, with the surface finished with a short and extremely fine nap, highly lustrous, dyed in

solid colors; similar in weight to a melton cloth. In the manufacture of kersey, the operation of producing the nap is the most important in the whole prosess of finishing. After the nap has been raised, the cloth is sheared in order that the individual filaments may be made of a uniform length, after which it is again run through the napping machine, which last operation adds materially to the smoothness of the goods. These alternate operations of shearing and napping are resorted to several times in the production of fine-faced kerseys. 2. Kersey is also the name of a coarse, diagonally ribbed or twilled stuff woven with cotton warp and woolen weft, and used for men's cheap clothing. The name is a corruption of *coarse-say*. Say-cloth, in the 17th century, was a kind of coarse wool serge of a shaggy appearance.

Kerseymere. A finer description of kersey, taking its name from the factory at which it is was originally manufactured. The factory stood on a *mere* or brook, running through the village of *Kersey*, England. It is principally a manufacture of the West of England, and, except in being woven twilled and of narrow width, it, in no respect, differs from superfine cassimere.

Kid Gloves. In kid and other snug fitting leather gloves a "size" is one-quarter of an inch. The measurement is taken around the full width of the palm, but conjoined with this must be some judgment as to other proportions. In heavier street gloves the sizes sometimes go by half inches, while in most fabric gloves the differences are not carefully adjusted, since the elastic character of the materials renders this alike difficult and unnecessary. These latter are designated as six, seven, eight or nine. indicating presumably an inch to a size, but the differences are not so great, being only about a half inch to a size. The durability of a kid glove depends on how they are put on the first time. In order that it may fit, a glove should be selected leisurely and with judgment, and put on slowly, taking care to fit every part. It is better not to use a stretcher. The expansion should be made with the hands, so as to secure a perfect fit at every point. A glove that fits well generally wears well. If it bursts at the seam, the rip should be sewn with cotton thread; as silk cuts the leather. A device to ascertain quickly and conveniently the size of gloves to fit any given hand has recently been invented. The device consists of a metal disc six inches in diameter, highly polished, resting upon a felt mat, and capped with a plush cushion, to which is secured a metallic loop enclosing a flexible tape of the finest steel, having upon its surface raised numbers corresponding to those stamped inside of kid gloves (indicating the size.) The free end of the tape passes through a slot in the extended arm of the loop, and is furnished with a handle or pull. The hand to be measured is placed within the loop, resting upon the cushion, the tape is drawn forward, encircling the hand, quickly and accurately determining the size of the glove required. [See GLOVES.]

Kilt. [ME *kylten*, to tuck up; Sw. *kilta*, the lap.] In the garb of old Gaul the kilt was called a *fillibeg*. In the original Highland dress, that part of the belted plaid which hung below the waist. It is said that the first kilt was made by an English tailor who was sent to Scotland to make the clothing for a company of soldiers stationed near the town of Inverness. While calling upon the manager of some coal mines near the town, one day, the tailor's interview was rudely interrupted by a Highlander running in to take shelter from a heavy shower. The tailor, concerned to see the man stand in his drenched condition, suggested that he should lay aside his long, loose-fitting plaid cloak, but was told that it was the custom there to wear but the one long garment, tied at the waist; hence he could not remove it without being entirely naked. The tailor suggested a change, but was met with the objection that the Highlanders prided themselves on their manner of folding and arranging the lower part of their loose garment. The tailor then offered to imitate the folds and pleats and sew them permanently with the needle, so that the skirt would be of more service by being separated; and thus the kilt is said to have originated. In modern times it is still a sort of petticoat reaching from the waist nearly to the knees, usually composed of some plaid material and deeply pleated. In the United States the garment is imitated in various forms for children's wear.

Kilting Machine. An appliance used for the purpose of kilting or pleating, which it can perform more perfectly and with greater speed than can be done by hand. *Accordion pleating*, representing whole skirts of dresses, as well as trimmings, ruches, etc., is done almost entirely on this machine at a moderate cost compared with that of handwork of the same description.

Kip. Leather made from the hide of a young or small beast. The term is also applied to leather made from the skins of full-grown cattle when they are of a small breed, or in general, undersized.

Kneipp Linen. [From Herr *Kneipp*, inventor and advocate of its use.] An elastic knitted linen fabric, made in various weights, for summer and winter underwear. It is claimed that linen possesses superior hygienic advantages over all other fibers, and that *knitted* linen in many respects is to be preferred to *plain-woven* linen. At all events, through the efforts of Herr Kneipp, the cause of linen underwear, whether woven or knitted, coarse or fine, has in the last few years been growing more and more popular, and its value from a hygienic point of view, in comparison with other textiles is securing ample confirmation.

Knickerbocker. A cotton dress fabric, woven with a rough, knitted surface. The bunches or knots are formed at regular intervals in the weft and when woven up appear on the surface of the cloth; *Knickerbocker* is a term applied to the early Dutch settlers of New York, made famous by Washington Irving. The name in recent years has come to be applied to

anything as regarded as characteristic of Dutch New York at the time of its early settlement. Thus the loose knee-breeches represented as worn by the Dutch settlers are known as knickerbockers.

Knitting. The art of forming loose fabrics or textures with the use of needles or wires and a single continuous thread. Crocheting is an analagous art, differing from knitting in the fact that the separate loops are thrown off and finished successively, whereas in knitting the whole series of loops which go to form one length or round of the web are retained on one or more needles, while a new series is being formed from them on a separate needle. Another art also similar to knitting, is that of netting. Netting is performed by knotting into meshes that cannot be unraveled, while knitting is, by a certain arrangement of loops so connected with each other as to be highly elastic without separation, yet capable of being unraveled and having the same thread applied to any other use. Knitting is really carried on without making knots; the destruction of one loop threatens the destruction of the whole piece, unless the meshes are reunited. It is claimed for this art that it must necessarily be much more ancient than can be verified by direct statements—that it is, in fact, one of the earliest of domestic arts. The simplicity of the operation, and the ease with which it may be learned and performed, make it probable that knitting was known and practiced in very ancient times. Beckman, in *The History of Inventions*, says: "It may be so easily acquired, even by children, as to be considered almost an amusement. It does not interrupt discourse, distract the attention, or check the powers of imagination. It forms a ready resource, when a vacuity occurs in conversation; or when a circumstance occurs which ought to be heard or seen, but not treated with too much seriousness, the prudent knitter then hears or sees what she does not wish to *seem* to hear or see. Knitting does no injury either to the body or the mind. It occasions no prejudicial or injurious position; requires no straining of the eyesight; and can be performed with as much convenience standing or walking as when sitting. It may be interrupted without loss, and again resumed without trouble; and the whole apparatus for knitting, which is cheap, needs so little room and is so light that it can be kept and gracefully carried about in a work-basket; the beauty of which displays the expertness, or at any rate the taste of the fair artist. Knitting belongs to the few occupations of old persons who have not lost the use of their hands." For an account of the invention and history of machine-knitting, see HOISERY AND KNIT GOODS.

Knitting Cotton. A loosely twisted cotton yarn used for darning purposes, the knitting of hose, tidies and other fancy articles. It is numbered from 8, coarse, to 20, fine, and is put up sixteen balls in a box, each box containing two pounds.

Knitting-needle. A straight, slender rod, usually of steel, with rounded ends; three are generally used at once for hand knitting. They are sold at

wholesale by the gross, the sizes varying from 10, coarse, to 18, fine. [See NEEDLES.]

Knitting Silk. A slack-twisted silk yarn, used for the knitting of hosiery and in the making of fancy articles. It is made of both "spun" silk and "reeled" silk. The latter is a strong and elastic thread or yarn, with a high degree of metallic luster. Spun silk being made from "waste," or imperfect cocoons that cannot be reeled, is carded and spun like cotton, hence the thread has a dead, lusterless appearance. Knitting silk comes wound in half-ounce balls, all colors, in two sizes—300, coarse, and 500, fine. Each ball of No. 300 contains 150 yards of silk; No. 500 contains 250 yards; No. 300 is equivalent to size EE in embroidery silk.

Knotting. A kind of fancy work made with twisted and knotted threads, and closely imitating some old forms of lace. The term *knotting* in cloth manufacturing is also applied to the operation of removing knots from cloths with tweezers.

L

Labels. Woven labels are small strips of silk with a merchants' name and address woven into it, sewed to the inside of collars of cloaks, sacques, jerseys, clothing, etc., for the purpose of advertising the business of the seller. At present all large retailers affix their own labels to all sleeved outer garments, it being a cheap but effective method of advertising, as the label lasts until the garment is worn out.

Laine Elastic. A light weight woolen dress fabric, dyed a dull black, used generally for mourning purposes. They are woven in several designs, one description having the appearance of crape cloth; another has a corded check and running square, is semi-transparent and of the character of grenadine; a third is woven with a very much smaller check and of closer make, the check being scarcely perceptible unless closely inspected. The same fabrics in France are called *Armure Victoria.*

Lace. [From It. *laccio*, noose, snare, string. *Lace* originally meant a braid or tie—a signification still surviving in shoe *lace*, corset *lace*, etc. When such braids began to take fancy shapes they were known as passements—of which our present passementerie is a modern instance.] The art of making lace was evolved, not invented. Doubtless the points and scallops of leaf and blossom first suggested to primeval man an ornamental edging for garments. Fringes and borders upon the skirts of clothing appear in the earliest rude pictures and carvings of the ancient Egyptians. A little later came the simple cut-work that Time's whirlgig has turned into lace. The earliest authentic account of it is about the sixth century, when high-born Italian nuns wrought it for the sanctuary. Even before that, English nuns were famed for the very open "English work," wonderfully lace-y in

effect. Monks, as well as nuns, gave their whole mind to it. St. Dunston himself, in intervals of pulling the devils' nose with red-hot pincers, made designs for the convent workers. The work itself, done upon fine hand-wove linen, with the best flax thread, was sent all over Europe and brought in no small revenue. It was the forerunner of cut-work, from which it is but the shortest of steps to lace. Cut-work had the pattern sewed over thickly and the ground cut away. After a little, skilled needlewomen found that they could make something even more delicately beautiful by interweaving fine linen laces with finer threads upon a parchment-pattern. At first the interweaving was done wholly with the needle, hence the term *point-lace.* Europe has always been the center of the lace industry, the invention of real lace being claimed by both Italy and Belgium. Without doubt, Italy produced the first *point,* and Flanders the first *pillow* lace; but it is impossible to tell which was the earlier production, as the mediaeval records throw but little light upon the subject. Italian reticella, which is the oldest needle-made lace, was evolved from cut-work, and afterward gradually merged into point-lace. This needle-point lace was made wholly by hand, with the needle. A pattern was drawn, usually upon parchment; to this parchment was stitched a stout piece of linen; the heavy threads forming the outlines were then laid along the main lines of the pattern on the parchment and sewed lightly down. Then the whole design is carried out, both solid filling and openwork, with delicate stitching, chiefly in the "button-hole" stitch. In Italy these old hand-made point laces were made up of bits and bits fashioned by many different women in their own little cottages, —here a leaf, there a flower, slowly wrought through the long, weary days, only to be united afterward in the precious web by other workers who never saw its beginning. There is a pretty lesson in the thought that to the exquisite perfection of each of these little pieces is due the rare beauty of the whole. A single flower upon which taste and fancy were lavished, and which deft labor only brought to perfection represents the lives of many diligent women workers. These Italian workers were noted for their laces when Titian was the great portrait painter, and among the legacies left by them are found varieties which may not be fashioned under the grey skies of Northern lands, or in the, smoky cottages of Northern peasants. In executing these unrivalled patterns, the flexible fingers of Venetian senorettas drew the threads within the limits of the pattern from the warp and woof of snow-white linen and wrought them beneath the cloudless skies in the open air, from designs copied from old cathedral windows, or the armorial bearings of knightly families. When the art of point-lace making travelled North the bobbin and cushion were invented to save the eyes, and fingers too, which could not keep the gossamer fabric clean in cottages where smoke and dust conspired to make it yellow. To day the secret of their making is lost, and old point de Venise or point de Genoa is worth very many times its weight in gold. Though lace-making flourishes still in the homes of the peas-

antry, the product is a poor, cheap stuff, not worthy to be named in the same century with the antique work.

The patterns or designs in lace have varied greatly during the four centuries in which the making of the fabric has been generally known and esteemed as an art. But at all times each radical change has been influenced in a measure by the prevailing taste or fashion of the period in which it was made—so much so that an expert in lace can fix, with absolute certainty, within a few years the date of its manufacture, and can state also the country which produced them. The designs, therefore, have been classified into five separate styles, no two resembling each other in any remarkable degree, although the style of one period following upon another began to vary gradually until the new design was fixed in a uniform manner. The five different styles are: 1st. The Mediæval which prevailed up to 1550, at which time lace-work was confined to churches and convents. This style is quite remarkable and is made up of curious figures, often grouped together—hideous monsters, sacred emblems, birds, beasts, scroll work, trees, wreaths, and symbols of various kinds. 2d. The Geometrical style, which was greatly in vogue for a period of about seventy years, or from 1550 to 1620. This style was as unlike the Mediæval as possible, being composed of triangles, diamonds, squares, fragments of circles, lozenges, and all manner of sharp angles and geometrical designs. This style came in favor when lace was first emancipated from the church, or devoted to general purposes. The object of the lace workers seemed to be to rid it of all sacred symbols, even at the expense of taste in design; and even the patterns which did not represent sacred subjects seemed so connected with them that a general change was adopted. There was, therefore, a stiffness and exactness about it—a certain invariable regularity which, in some of the designs, was almost painful. 3d. The Renaissance style. Early in the 17th century a new life seemed to be given to every branch of art then known, and new birth to others. Painting, sculpture, inlaying with metals and precious stones, artistic dress, furniture and houshold decoration became the passion of the hour. As if by magic, clever artists and workmen endowed with wonderful skill sprang up in various countries in Europe, representing every department of art. This period has been called the Renaissance, and, in many respects, the works then performed have not since been surpassed. Lace at this time became a most artistic production; new, graceful patterns were substituted for the old, angular ones, and the style, workmanship and design of the lace of this period has never been equalled by later efforts. The Renaissance style in lace is as far as possible removed from the Geometrical. It is rather flowery, being composed of sprays, flowing garlands, and festoons of leaves and flowers, mingled with scroll-work. These were distributed over the lace rather closely at the beginning, but latterly at greater distances, and put together in exquisite combinations. This style dates from 1620, and holds its sway by the force of its beauty alone until 1720—a full century. 4th. The Rococo style,

Time and the people must have changes, even though they may be from better to worse, and for worse it certainly was when the styles of the Renaissance degenerated into the Rococo. The designs become more angular and disconnected; stiff, upright bouquets, with scarcely a drooping flower, are set closely together, uncompromising in their dignity and angularity, leaving but little room for a ground of any sort. The Rococo style extends from 1720 to 1770, and, at first, some of the careless grace of arrangement which characterizes the Renaissance clings to it; but this in time is altogether lost. 5th. The Dotted style. From 1770 this diversion comes into vogue, a decided improvement upon the Rococo, yet lacking the fresh and spirited grace of the Renaissance, and being rather insignificant in design than otherwise. The boquets still appear, but they have shrunk into small proportions; are placed far apart, the ground being powdered with open or close dots, small flowers, rosettes, bees, etc. This style, the last distinct one to be invented, continued in vogue until 1810. Soon after machine lace began to supplant these made by hand, and from *this*, and because the demand was less than formerly, lace-workers could not earn a living by their skill, and so the manufacture seemed almost to die out. Yet not quite this, for though "the lace trade slumbers, it does not die;" and though the art of making many of the *rarest* kinds is lost, yet there will always he found lovers of the art in the world to copy and improve upon the old designs in hand-made lace, and a certain market for it, too, among the wealthy and those who have a passion for procuring what is difficult to obtain. Rarity alone makes many things precious to avaricious eyes, but artistic rarities are dear to us all. The present patterns of laces partake, in some degree, of all the foregoing five general styles, yet, as a rule, each country has peculiar patterns of its own as well as special designs for special purposes. Many buyers and wearers of lace do not know why the old lace is so much more valuable and so much more beautiful than the present machine products. The principal reason is, that the valuable old lace is all woven in lost patterns so complex that they cannot now be duplicated by any machinery. It is frequently as fine as a spider's film and cannot be reproduced by the most skilled hand-makers of the present time. In Italy it can be approached but not equalled. In the olden time, whole villages supported themselves by lace making, and patterns were handed down in families from one generation to another. They were valuable heirlooms, for the most celebrated weavers always had as many orders as they could execute in a life-time, and they were bound by an oath taken on the four Gospels to work for only certain dealers. This oath was held by the poorest of them to be binding, and there were instances where they suffered actual want rather than break their word. The daintiest patterns have long since been lost, and to-day specimens of these laces are worth their weight in gold. The lace treasures of royal and wealthy European families are practically beyond price. Queen Victoria's laces are valued at over half a million dollars. Those of ex-Empress Eugenia aggregate

almost a million. The Spanish regal laces are not less precious, and the sacred relics of the Italian cathedrals are of incalculable value. The most celebrated laces of the world take rank as follows:

1. Brussels.
2. Mechlin.
3. Valenciennes.
4. Lisle.
5. Alencon.
6. Alencon point.

It may readily be supposed that an art, depending so much on individual skill and taste, would vary exceedingly. Nevertheless, all the varieties during the four centuries in which hand-made lace flourished, resolve themselves into two distinct classes, viz: Point lace or needle-point lace, sometimes called Guipure, and Pillow or Bobbin-lace. The Point lace is made wholly with the needle by hand. A pattern is first drawn upon parchment in ink; to this parchment is stitched a piece of linen, and the heavy threads forming the outline of the pattern are then laid along the corresponding lines of the parchment, and sewed lightly down. The whole design is then carried out with delicate stitching. Needle point lace is really embroidery, but it is done upon loose threads which the worker has laid upon a drawn pattern, and which have no connection with each other and no stability until the needlework holds them together. Of point lace 11 different varieties are known to the commercial world. *Alencon* is the most important of these, it being the fine lace of the 18th century, and being made entirely in small pieces, and afterward sewed together with invisible seams. It derives its name from the town of Alencon, France; *Rose, Venetian* and *Spanish point* consist of thick, bold patterns formed by rolls of cotton worked over to raise them, the bars which connect them being ornamented with either picot or small stars; *Old point* is composed of patterns of very small, close stitches on a groundwork of open ones; *Argentan* lace is usually indistinguishable from Alencon, but often bolder and larger in pattern; *Portugese* and *point d'Alencon* resemble Rose point, except that the pattern is somewhat flatter; *Dieppe* lace, made at Dieppe, France, resembles Valenciennes. It has regular ground for squares, upon which was usually applied a very simple pattern in close-stitch; *Mirecourt* lace, in the 17th century, was a variety of Guipure; at the present day the name describes an applique lace, made of sprigs of bobbin-lace sewed upon a bobbinet ground; *Brussels lace*, (which term in trade is often given to very fine laces, no matter where made or of what pattern) has a very fine mesh or ground-net, and a pattern of less relief than Alencon. Brussels is also a Pillow lace. The *Venetian* point in relief is one of the richest and most complicated of all points. All the outlines in relief are formed by means of cotton placed as thick as may be required to raise them. Sometimes the pattern is in double and triple relief; an infinity of beautiful stitches are introduced into the flowers, which are surrounded by a pearl of geometric regularity.

The second large class is Pillow or Bobbin-lace, which is made by a process intermediate between weaving and plaiting, from a number of threads

which are kept in their places by the weight of the bobbins attached to them, and are woven and plaited together by hand. The lace is made on a small pillow or cushion, hence the name. The most important Pillow laces are the following:

Applique,	Chantilly,	Valenciennes,	Honiton,
Mechlin,	Grammont,	Duchesse,	Regency Point,
Matlasse,	Blonde,	Point de Venice,	Irish Point,
Cluny,	Guipure,	Point de Flandre,	Baby Lace,
Torchon,	Llama,	Genoa Point,	Trolly,
Lisle or Arras Thread,	Cashmere,	Point de Medici,	Breton,
Russian,	Yak,	Old Brussels Plait,	Point d'Esprit.

Many of these laces are always popular, being at all times worn to some extent; others are for a few seasons almost unknown, when suddenly they spring to light again perhaps under a new name, but modified in some slight particular. In Pillow-lace making, the number of bobbins is generally equal to 50 to the square inch. If the lace be 1 inch wide, it will have 625 meshes to the square inch, or 22,500 to the yard. The work, therefore goes on very slowly, though generally performed with the greatest dexterity. *Applique* lace is made by sewing flowers or sprigs, which may be needle-made or bobbin-made, upon a bobbin ground; *Mechlin* lace has the pattern outlined by a flat cord or band, very narrow but distinct. It is usually made in one piece—pattern and ground together. The ground is sometimes a mesh or net, and when of this character of pattern is more varied, sometimes being formed of "brides," or connecting links. Mechlin has been called the prettiest of laces. It is fine and transparent, and is best adapted to summer use, being most effective when worn over colors. Its distinguishing feature is the thread which outlines the flower, giving to the fabric somewhat the character of embroidery. *Matlasse* lace is formed of a medium weight Brussels net; the design though usually in *rose*, or raised pattern, varies considerable, in many cases being of ferns and scroll work; *Cluny* is a kind of net-lace, in which the stitch is darned upon a square-net back ground. The patterns are antique and quaint, as of old-fashioned flowers and birds; glazed thread is sometimes introduced in the pattern as an outline, or center line; *Torchon* is a coarse, scalloped lace made of stout and rather soft and loosely-twisted thread. In parts of Europe largely made by hand, but that sold in this country is made by machinery. *Arras* is a white lace made at Arras, France, very strong and inexpensive, because of the simplicity of the pattern; *Chantilly* is a kind of blonde-lace, of which the popular sort has a ground of heavy mesh or net, and the flowers of the pattern in openwork instead of being solid or matted. It is made of non-lustrous silk throughout, so that black lace of this kind is often mistaken for thread-lace; *Grammont* lace represents two different varieties: one, a white pillow lace, originally made at Grammont, Belgium, and the other a black silk lace, similar to Blonde-lace; *Blonde* was origin-

ally a heavy lace made of unbleached silk, from the yellowish color of which the name arose, but now of white, black and colored silk, manufactured at Chantilly, France; *Guipure*, in the well known silk lace has an open and gimplike mesh, and is made of heavy sewing silk; the figure is usually in set patterns, such as stars and triangles, being bordered by a feather-edge, or a shading of finer mesh; *Yak* lace is a coarse, heavy and extremely open variety, originally made of the long black hair of the yak, an animal resembling our domestic ox, found in the Himalayan mountains; *Valenciennes* is called the "queen of laces." The name is derived from the city of Valenciennes, France. It is distinguished by having the same size and kind of thread throughout, for both ground and pattern; the thread being at the same time extremely fine and strong. True Valenciennes is made altogether on the pillow, generally by young girls in dark cellars, (so the thread will remain moist snd supple), no worker retaining her sight after the age of 30. The best of this variety is as beautiful as it is rare, and so rare as only to be bought by the fortunate few. The manufacture dates from the 16th century, being Flemish by birth and French by adoption. In France the real old Valenciennes is so durable and so highly prized that a mother bequeathes it to her daughter as she does her jewels. In the 17th century the lace-makers of Valenciennes could only produce an inch and a half a day, and when working on the most complex patterns only 24 inches a year; it required 10 months, working 15 hours a day, to produce a pair of men's ruffles. The best specimens are so fine and compact that the flower resembles cambric in in its texture; *Duchesse* lace was originally made in Belgium, being characterized by a great deal of raised work, flying patterns and the like, which are also used in the somewhat similar Honiton laces; *Point de Venise, de Flanders, de Medici, Genoa*, and other point laces are all to be found imitated in bobbin work; *Honiton* lace derives its name from the town of Honiton, England, and is remarkable for the beauty of its figures and sprays. Honiton applique is made by working sprays, flowers and other parts of a pattern, bit by bit, on a lace pillow, and securing them by needle to a net ground made separately. In modern manufacture, handmade sprays are often sewed upon a machine-made ground; Honiton Guipure is a lace of large flower patterns, with a very open ground, and is generally sold under the name of Honiton lace. The utter disappearance of genuine Honiton lace was imminent about the year 1880, with the result that many an old and valued heirloom of this fairy-like fabric was brought from the seclusion of old trunks and boxes, where it had lain for years almost forgotten, but bearing in its yellow hue and delicate pattern the imprint of antiquity. The reason of its threatened disappearance was the fact that the long and minute labor of the human fingers could not compete with the cheap, rapid operations of the marvelous machinery in the Nottingham factories; the number of women who were versed in the old secret of Honiton lace-making began to diminish year by year, and Honiton town itself was almost as little associated practically with lace-making as Wor-

stead is with the woolen manufacture, or Axminster with that of carpets. But the combined efforts of the English government and private enterprise have resulted in an active resuscitation of the industry; *Antwerp* lace nearly resembles early Alencon. A so-called pot is introduced into the design—that is, a semblance of a vase or basket, constantly repeated; *Aurillac* lace is made at Aurillac, in France. It is close-woven, solid lace having much pattern in the mesh; *Auvergne* is made at Auvergne, France. It is commonly a pure bobbin-lace, but of many different makes and patterns; *Bayeux* lace is made at Bayeux, Normandy. It is a close imitation of Rose-point. The Bayeux pattern is also made in black silk lace, much in demand because made in unusually large pieces, as for shawls, fichus, etc.; *Brussels* lace, is also made in bobbin-work, as well as by needle, and in trade the term is applied to any extremely fine lace, no matter where made or of what pattern. The thread used for this lace is of flax, and of extraordinary fineness. The finest quality is spun in dark underground rooms, to avoid the dry air which causes the minute thread to break. To secure light a single beam is admitted and directed upon the work. It is the fineness of the thread, as well as delicacy of workmanship which has given to the best Brussels lace such celebrity and rendered it is so costly. This thread, of which it is made, often sells from $1000 to $2500 a pound, being of such fineness and delicacy that machinery is unable to be utilized in the spinning. The finest spun machine-thread does not exceed 800 leas (240,000 yards to the pound), while the hand-spun thread of Westphalia and Belgium for costly laces approximate 1000 and even 1200 leas (360,000 yards to the pound). In the old Brussels lace the design was worked in with the ground. At the present time it is especially an applique lace pattern, being first made on the pillow by bobbins and afterwards sewed on a ground by needle. It is estimated that at the present time there are at least a million lace-workers in the various European countries. France, England, Belgium, Switzerland, Spain and Italy all team with these artisans, and send their handiwork all over the known world. In Germany and Bohemia there are grants in aid of technical schools for teaching lace-making, and in France artistic and intelligent men guide and direct the industry; and also in the British dominions, where its revival was first taken in hand a few years ago. Belgium is the lace makers' chosen home. One fortieth of the whole population is engaged in it. The government supports 900 lace schools, to which children are sent as young as five years. By the time they are ten they are self-supporting,

Naturally, spinning is very unhealthy, and experts receive high wages. The best yarn from a single pound of Brabant flax fetches over $2500. For filling flowers and leaves, fine soft cotton is used. The grounds, too, are often made of cotton. The elaborate patterns are made in sections and joined together by invisible seaming by the most skillfull workers of all. As the lace is never washed before it is sold, the most exquisite neat-

ness is requisite in everything connected with it. Still, as months are consumed in making very handsome pieces, the work turns dingy in spite of the lace-worker's best efforts. To remedy this it is sometimes dusted with white lead in powder, which turns dark at contact with gas or sulphur in a way to exasperate the wearer. Many attempts have been made to make Brussels lace away from Brussels—always, though, without success. Though the mechanical processes are strictly followed elsewhere, something in the air or water or soil of other countries prevents it from possessing the delicate softness peculiar to the Brussels fabric.

In Italy also, especially in Venice, which city is the earliest home of lace and from whence it was introduced into other countries, there are now many lace schools in full and active operation. The operatives are women, of all ages and sizes, from the soft-eyed girl of twelve to the gray-haired crone of sixty. Each worker sits on a low stool and holds a plump, square cushion on her lap. On this cushion is pinned a strip of paper marked with the pattern to be followed, and into this pattern the nimble-fingered worker sticks glass-headed pins, and twists her threads about them. From twenty to fifty shuttles hang from all sides of the cushion, which are being constantly thrown back and across with great rapidity in the formation of the pattern. The pins are withdrawn and replaced as the threads advance along the design. The process is so simple that it seems child's play, but the lace produced represents thousands of dollars. The simple patterns grow rapidly between the dexterous fingers of the women, but the fine and rare varieties evolve with a slow and proud dignity. The cost of some of the hand made thread used in the finer laces is enormous. It is spun from an especial kind of flax, and has been known to bring the extraordinary price of $2500 a pound. This lace is sold at fixed prices, being valued upon a stationary basis, varying from forty cents to $6.00 a yard. The women are paid from fourteen to twenty cents a day, their work being valued at a fixed scale of profit. If the fourteen cent woman consumes ten days in making a a yard of lace, this yard of fabric is sold for $2.00, which, of course includes expenses of tools, thread, house-rent, etc. These schools turn out a large product, the greater part of which finds its way to the United States.

Machine Lace.—Every kind of Pillow lace as well as Point lace, is now imitated by the loom, but the imitations of Point are not so perfect as those of the Pillow family. France, England and Switzerland manufacture them in large quantities, in silk, cotton and wool. Indeed machine nets and laces have not only superseded the cheaper productions of the Pillow, but have also added to the value of the rarer kinds of both Pillow and Point. Machine lace, more especially the curtain lace known as Nottingham, is now also being produced to some extent in this country, as well as silk lace.

Bobbinet was first made by machinery in 1768. The machine was an adaptation of the stocking loom to netting and was cumbrous and not very effective. In 1809, John Heathcote, the son of an English farmer invented

the first machine to make true bobbinet with perfect six-sided holes. [See BOBBINET.] It brought a great hue and cry about his ears from the hand-lace workers, who fancied they saw themselves thus reduced to beggary. In their anger they broke into the factory where the machines were first set up and made scrap iron and kindling wood of them. The only result was to drive the new manufacture to other and safer quarters. For long the secret of the machines' construction was most jealously guarded by English manufacturers. Not satisfied with letters patent they kept up a coast patrol to make sure that nobody took model or drawings to France. At last, though, they were outwitted. A discharged workman who had the plan of it in his mind, managed to get safe over the sea and built a machine in France. Thus far, all that could be produced by machinery was bobbinet, which served the hand-lace workers for grounds upon which to build their lace. The machine enormously cheapened the cost of producing bobbinet. For example, a piece of plain net made by hand, that in 1805 sold for $25 the yard, could after the invention of the machine be sold for just 25 cents. In 1837 the application of the Jacquard loom to bobbinet made machine-lace a reality. Since then it has gone from strength to strength, constantly improving in quality and decreasing in price. The art of making machine lace is a science of no small importance, and one which has been investigated by everyone who has made any important advances in the manufacture of lace, whether in the construction of machinery or its application and use in the production of almost endless varieties of groundwork and design. It has been the study of lace patentees from Heathcote, in 1809, down to the present time. It consists in a careful examination and study of the different classes of Pillow lace; ascertaining the number of threads used and their several courses or direction in the formation of every kind of mesh; the number and order of twists, plaits, weavings and crosses which are formed with each pair of threads; the fine-works, open-works, thick threads, points and purls, which go to make up the texture of each class—Mechlin, Brussels, Alencon, Valencienes, Lisle or Honiton. This information is necessary to be gained in order to be fully aware what is to be done by the machine, so that imitations, more or less perfect, may be produced. The lace-machine is so complicated it would be hopeless to convey any really intelligible idea of it without a voluminous description of all its parts. One or two points of chief importance may, however, remove any difficulty in understanding its general principles. In the loom, there are a series of warp threads placed straight up and down instead of horizontally, and about wide enough apart to admit of a silver quarter passing edgeways between them. Behind these threads is a corresponding row of flat bobbins, resting on a *bolt-bar*. These are so placed that with the first movement of the machine each bobbin, which carries its thread with it, passes between two of the warp threads, and is lodged in another and similar *bolt-bar* in front of the warp. But this front bolt-bar, besides a backward and forward motion, has another movement—called *shogging*—from

right to left. When it receives a bobbin by its forward motion, it draws back, bringing the bobbin and thread through two of the upright warp threads. It then *shogs* or moves to one side, and goes forward again, taking the thread through the next two warp-threads and lodging the bobbin on the bolt-bar again, one distance beyond its last space. This it recovers by the next movement and it again passes through the first space, to be again received by the front bolt-bar. By these movements the bobbin-thread is twisted quite around one upright thread of the warp. Another movement then shifts the bobbin so that it will pass through the next pair of upright threads and so carry on its work, the warp threads moving at the same time. There are twice as many bobbins as there are threads of warp, each bolt-bar having a set which it exchanges with the other, and all being regulated with such nicety, that a width of lace is made in far less time than is required to write this short description. Almost any pattern of hand-made lace may be imitated by machine, each pattern depending upon the variations that can be given to movements of the flat, disc-like bobbins.

Many varieties of lace are manufactured by machinery that are not made by hand, while many are also made which partake of the more prominent features of different styles of hand-made goods.

Border lace is any sort made in long, narrow pieces having a footing on one side, the other edge usually being vandyked, purled, etc.; *Vandyke* lace is usually made of cream colored or black silk, in a combination of light and heavy scroll patterns, outlined by a glossy silken thread; *Bridal* lace is made with the ground wholly composed of *brides* or bars, without a reseau or net; *Broad* lace is a woolen variety made in bands about 4 inches wide, and used as an ornamental border to the upholstery of a carriage; *Cadiz* lace is a kind of needle point lace, considered as a variety of Brussels lace; *Cartisane* lace is a sort of expensive passamenterie, made of thin strips of parchment, covered with silk and gold thread. *Chain* lace is a variety of braid or passament so worked as to suggest links of a chain, made of colored silk and also of gold and silver thread. *Cork* lace signifies Irish lace in general, especially of the older sorts, made principally in the city of Cork, before the recent extension of the lace industry in Ireland. *Cordover* lace is merely a kind of filling used in the pattern of modern point lace. *Cretan* lace is a name given to an old lace made commonly of colored material, whether silk or linen. *Crewel* lace is a kind of edging made of worsted thread intended as a border or binding for garments. *Crochet* lace is the sort made by hand with a crochet hook, or of which the pattern is made in this way but applied to a bobbin or machine-made net. It resembles needle point, although not to be compared to the finer kinds of the latter. *English point* lace is a variety of bobbin lace of Flemish origin, made in the 18th century, and so-called "English" by English dealers in order to evade the law with regards to the tariff. At the present day it represents really the finest Brussels lace where needle-point sprigs are ap-

plied to Brussels bobbinet. *False Valenciennes* resembles Valenciennes but without the true reseau; also a general name for Valenciennes in Brussels. *Flat point* lace has reference to the sorts which have no raised work or embroidery in relief upon the surface. *Flemish point* lace is made in Flanders and is a needle point Brussels. *Hollie point* lace is a needle lace worked in the middle ages. The word is a corruption of Holy point, and was used to denote church laces, whether formed of drawn or cut work, or with darned netting when the pattern of a lace was scriptural in subject or contained sacred emblems. *Imitation* lace is a term applied to machine-lace of any kind. In fineness the imitation often rivals the real. Its chief defect, however, is its mechanical regularity of pattern, which makes the designs lifeless and uninteresting. *Jesuit* lace is a modern needle-point variety made in Ireland; so-called from tradition concerning the introduction of this manufacture since the famine of 1846. *Knotted* lace is a name given to a fringe made of knotted threads. Macrame lace is its modern representative. *Lille* lace gets its name from Lille, France, and is remarkable for its clear and light ground, which is known as *fond clare.* It is the most beautiful of single thread grounds. *Limerick* lace, the most successful of Irish lace, is really not lace at all, but a kind of tambour work upon net and muslin. [See TAMBOUR.] *Dalecarlian* lace is made by the peasants of Dalecarlia, the patterns of which are ancient and traditional. *Damascene* lace is an imitation of Honiton, sometimes being united sprigs of real Honiton with filling of needlework. *Darned* lace is a name given to any sort of lace which has a netted ground, upon which the pattern is applied in needlework. *Dutch* lace is a thick and not very open lace, resembling a coarse Valenciennes, made in the Netherlands, generally by peasants. *Mirecourt* lace in the 17th century was a variety of Guipure, more delicate and thin in texture than other Guipure. At present it is an applique lace, made of sprigs of bobbin lace sewed upon various sorts of grounds. Oriental has a ground formed of fine Brussels net, upon which the pattern, usually of roses, fern leaves and vines is worked. The edge is scalloped and in most cases more heavily embroidered than in ordinary lace; *Escurial* lace has a mesh which is sometimes formed of large squares or diamonds, and again close and filmy fine. The designs are of roses, tulips, leaves, etc., outlined by a silken cord of glossy finish, a peculiarity which in all varieties distinguish Escurial from other hand-run laces. *Spanish* silk lace was originally a needle-point lace brought from the convents of Spain. The patterns are usually confined to simple flowers and leaves, made in close overshot or matted work. Spanish Guipure has a Guipure mesh, with Matlasse designs. Spanish overshot is formed over the pattern of a Matlasse lace, with the addition of loose threads worked over the top or the design. It is the cheapest of Spanish laces. *Thread* lace signifies the sorts made of linen thread, in contradistinction to silk and cotton laces. *Point de Gene*, or Point de Genoa, are machine imitations of the point de Venice and point de Genoa needle-point laces of Italy.

Gold lace is a sort of braid or gimp, used chiefly as a decoration for uniforms, liveries and some church costumes. Gold lace, or more properly gilt lace is a thin covering of gold applied to a surface of silver, which again has a foundation of silk. The silk threads for making this lace are wound round with gold wire so thickly as to conceal the silk; and the making of this gold wire is still more singular than the making of gold thread. In the first place, the refiner prepares a solid rod of silver, about an inch in thickness; he heats this rod, applies upon the surface a coating of gold leaf, burnishes this down and continues until the gold is about one-hundredth part of the thickness of the silver. Then the rod is subjected to a train of processes which brings it down to the condition of fine wire. It is then passed through holes in a steel plate, lessened step by step in diameter. The gold never deserts the silver, but adheres closely to it and shares all its mutations. It was one-hundredth part the thickness of the silver at the beginning, and it maintains the same ratio to the end. It has been calculated that gold on the very finest silver wire for gold lace is not more than one-third of one-millionth part of an inch in thickness; that is, not above one-tenth the thickness of ordinary gold leaf, such as dentists use.

Lace Curtains. The use of curtains originated during the brilliant civilizations which were developed in a very remote antiquity by India, China and Egypt. The manufacture and arrangement of curtains and draperies then received as much attention as any of the nobler arts. Throughout all the centuries the use of curtains has ever formed an important feature in household decoration. Of the many materials utilized for this purpose, lace forms by far the greater part. Since the invention of machines for the manufacture of bobbinet, in 1809, Nottingham, England, has been the greatest center for the production of curtain lace in the world. At the present time, however, the city is not enjoying so flourishing a state, owing to the decrease of the export trade of this industry, and especially to the fact that within the last 10 years the United States have turned their attention more fully to this branch of manufacture. Loom-made curtains, pillow shams, borders and edgings are now made in large quantities in this country, principally at Wilkesbarre and Philadelphia, Penn., and in Rhode Island and Galveston, Texas. The most expensive curtains made by American mills wholesale at $4.50. A brief account of the method of manufacture may be of general interest.

The warp is placed in a perpendicular position, the threads being wide enough apart to pass a quarter between them. These threads may be from 700 to 1,200 in a yard of width, stretched from a roller. The filling is wound upon small bobbins, which consist of two discs riveted together, permitting a space between them for the thread. These bobbins are placed in a comb bar behind the warp. At the first movement of the loom, each bobbin that carries the thread with it passes through two of the parallel warp threads to another comb bar in front of the warp. The front bar has an additional motion from right to left, so that after it has received the

bobbin by its forward motion and has drawn back, bringing bobbin and thread through two upright warp threads, it moves to one side; it again moves forward and passes the bobbin and thread through the next two warp threads, the bobbin being lodged upon the rear bar, one space beyond its last position; this it recovers by its next movement, and again passes through the first space, and is again received by the front bar. As a result of these movements, the weft thread is entwisted about one upright warp thread. The bobbin is then shifted, so that it will pass through the next pair of upright threads, and so continue its work; the warp threads, in the meanwhile, are being continually unwound from their lower and rolled upon their upper beam. Each comb bar has a set of bobbins, which it exchanges with the other, there being in the aggregate twice as many bobbins as there are warp threads. The movements are so nicely adjusted that a width of lace is made in an incredibly brief space of time. The narrow strips are made upon the same loom; these are united by a temporary thread, which is afterward pulled out. A jacquard is attached to some looms for working in the thick thread of gimp for artificial work. Subsequently, the work of bleaching, calendering and washing is performed. Then follows the drying process, in which the fabric is stretched on a cushion, a pin being fixed in each hole to prevent shrinking.

Lace curtains are not valued for the amount of cotton which enters their construction, but for the beauty and taste of the design with which they are woven. The cheapest lace curtains have a weight of not over one-half pound; the best pair of Nottingham curtains has a weight not exceeding three pounds. The cotton yarn for the cheapest pair costs but 20 cents, and for the best pair of lace curtains costs but $1.20. They are retailed from 90 cents up to $15 per pair; the difference between 90 cents and 20 cents, and $1.20 and $15 being covered by wages, designing, tariff and the profits of manufacturer and dealer. If made in Nottingham the cotton passes through many hands before the curtain reaches the final purchaser. Perhaps the second best cotton in the world is Texas cotton. The Texas farmer sells his cotton to a buyer at the county-seat; cotton brokers in Galveston buy the cotton from the county-seat dealer and ship it to Liverpool with a profit; the Liverpool buyers sell it with a profit to a Manchester spinner, who makes cotton yarn of it and sells it with a large profit to the Nottingham lace curtain maker; this maker produces the curtains and sells his product with about 15 per cent net profit to the Nottingham commission houses. These commission houses sell the lace curtains with about 30 per cent net profit to American jobbers, who import them, paying Uncle Sam 60 per cent import duty and 5 per cent custom house expenses, and high freight—selling them with profit to the retail dealer, who in turn sells them to the consumer if the pattern be good, at from 25 to 50 per cent profit.

Lady's Cloth. A term by which is distinguished a class of fine, wide flannels slightly napped, used for making ladies' light wraps and dresses.

It is one of the best as well as one of the most expensive descriptions of flannel, being woven of fine wool and rarely adulterated with an admixture of cotton. [See BROADCLOTH.]

Lambrequin (lam'-bre-quin). A term which has passed through several stages of evolution to reach the particular place it at present fills among dry goods. In mediæval times, lambrequin signified a piece of cloth worn by a knight over his helmet, for protection from heat and dust. Next it is found in architecture and painting, the lower edge of the lambrequins in such decorations being represented as jagged or scalloped, but consisting of the graceful outlines suggestive of the lambrequin floating from a knight's helmet. At present the word indicates a piece of textile fabric, or leather, hanging by one of its edges, and having the opposite edge slitted, scalloped, or otherwise cut in an ornamental manner. In upholstery, a sort of curtain covering the upper part of an opening, as a door or window, and often forming a fancy cornice to the curtain proper.

Lamb's Wool. The wool of lambs, used in manufacture; hence, delicate wool, as of certain breeds of sheep or of lambs, or of mixed varieties; used for the manufacture of hosiery.

Lappet-weaving. A system of weaving used for producing figures on the surface of cloth by means of needles placed in a sliding frame, called the lappet-frame, which has a sliding bar carrying needles, each with a separate thread for producing certain colors in the pattern. The bar is raised and lowered as required by the action of a wheel grooved according to the pattern to be produced. Sometimes two or more such bars are employed simultaneously when several colors are made to appear in weft-patterns.

Lariat (lar'-i-at). A rope used to tie horses and other animals together. Also a thong or noose made of rope, rawhide or buckskin, used for catching wild animals; called in California and Mexico *lasso* and *riata*.

Lasting. [A contraction of *everlasting*.] A strong and durable worsted fabric, formerly called *durance*. It is usually black, and is used for covering buttons, for the uppers of women's shoes and gaiters. It is woven either with a double twill or with a satin twill (then called *Denmark satin*). Draw-bays, prunella and serge de berri are varieties of lasting.

Laventine (lav'-an-tine). A thin silk, used especially for sleeve-linings.

Lawn. A term applied first in 1423 to a fine thin linen fabric at that time much used for kerchiefs and ruching, and also for the sleeves and other parts of the dress of bishops of the Angelican Church. By some authorities the word is said to have been derived from the town of Laon, France, near Cambray, which latter place gave the name of cambric. It is well known that fabrics frequently take their names from the locality where they first acquire excellence and retain them long after local manufacture has been transferred elsewhere. Other authorities, however, claim

that fine, slight linens received the name of *lawn* on account of having been spread upon the smooth grassy lawns to bleach, instead of on the coarse and more ordinary grass, which is probably the correct origin of the term, as exposure in the open air to the action of sunlight and moisture was at that period the only known method of bleaching linen. Lawn at the present time is a thin, open cambric, slightly sized with pure starch, and mainly used for women's summer dresses. The term is applied in trade to various sheer muslins, found in both linen and cotton, printed and plain. *Linon* is the French word for lawn. *Cobweb* lawn, as the name indicates is a fine, gauzy variety. *Cypress* cloth was the name formerly applied to black lawn for mourning purposes, and at one time was identical with black cotton crape; so called on account of cypress branches having anciently been used at funerals as emblems of grief. *Victoria lawn* is white cotton lawn, made in many qualities; named in honor of Victoria, queen of the English. Lawn of every description was in the early days of its manufacture called bishop's lawn, on account of its being used for certain portions of the dress of bishops. *Thread lawn* is pure linen lawn, and is sometimes termed Irish lawn. The term originated in the 18th century to designate an all-linen from a mixed lawn, just as thread lace is used to describe an all linen lace as distinguished from one made of cotton.

Leather. The tanned, tawed or otherwise dressed skin of an animal. The first leather was tanned with the fat liquor out of the human being. Hides were used to cover the nakedness of primeval man, and they were tanned by the sweat, the salt and the grease from his carcass. Since the day that Adam and Eve exchanged fig-leaves for furs, the human animal has had a habit of clothing himself in the integument stripped from his dumb brothers. When or where the first artificial process of converting hides into leather originated, no wise man pretends to know. Doubtless the process was evolved, not invented, as the use of leather antedates the earliest historical records, and no savage tribe has yet been found ignorant of some way to dress skins. The American Indians especially are masters of the art. Rude as are their processes, the product is far ahead of the white man, the soft and pliant buckskin of the moccasin being a positive luxury to the touch. Neat cuttle furnish hides for more than half of the world's leather. Next to them come goats, and after them sheep. Horse hides and deerskins are inconsiderable in amount. Pigskin used for saddles and heavy gloves is in limited demand. Dogskin, elephant skin, snake skin, ratskin and aligator are mere items of account, not at all equal to the kangaroo skin, which has quite superseded some grades of calf. Our home supply of hides is far l elow the demand. Old Mexico furnishes us with many steer and goat hides, and ranks next to South America, whence comes two-thirds of our supply. The heaviest, consequently the best, hides come from Brazil. They weigh over twenty pounds each (dry), and fetch about sixteen cents per pound. These all go for sole leather and machine belts. Cowskins and those from young animals furnish the "kip" leather

of commerce, while the animals a year old or under furnish the many varieties of calfskin. For cheap work both kip and calf are often split—that is divided by machinery into two sheets, each by courtesy called leather. Oak bark, hemlock bark, and the powdered leaves of sumach are the things that supply tanning. Oak-tanned leather is distinguished by its being almost colorless, or a very slight shade of tan, and sometimes nearly white. It fetches a cent or two more per pound than other kinds, and is invariably used when a leather of peculiar strength and toughness is required. Hemlock tanning makes a leather hard and brittle, and imparts to it a red, cherry color, which latter is against it as far as appearances is concerned. The bulk of leather is of this tanning, as it is cheaper. Sumach makes leather almost as light as oak, and makes it soft and pliable. A great many years ago, the time taken to tan sole leather occupied from a year to a year and a half, but nearly all tanners in this country now turn out leather by any of the above methods in four to five months. The impression that quick tannage forbids à good product, has no real foundation. It has been discovered by experience that upon feeding the tannin as quickly as possible to the pores and interstices of the hide, depends the thoroughness by which the *even weight* and *quality* of the leather are gained. The agitating of the hides (that is, the frequent stirring and turning) has been found to cut down in a great measure the time formerly consumed in this process. The object of all tanners is to secure as much gain in weight as possible; and a good tanner can generally get 170 pounds of leather from 100 pounds of dry hide, without injury to the quality.

The hides (dry) are received at the tanneries in bales of 35 to 60, and are first placed in vats of pure cold water, where they remain from 5 to 10 days. When they are thus softened, they are ready for the treatment which is necesary to remove the hair, the object being to soften and to swell the surface of the hides, where the roots of the hair are imbedded, so that the hair can be easily removed. The hides after the soaking are cut down the back into "sides." They are then put into a hide-mill to further soften them, and help loosen the hair. These hide-mills are simple contrivances, with two large wooden pendulums or arms working back and forth in a box made of stone and iron, which pound the hides, on which a stream of water is kept flowing. The hides are then "sweated" by hanging in an air-tight vault of from 50 to 60 degrees temperature, and while there it is necessary to watch them very carefully, as the change which has been commenced in the soak-vats proceeds rapidly here. The air in these sweat-vaults is so heavily charged with moisture and ammonia from the hides, that in their present incipient stage of decay there is a danger of it being carried too far, causing the hair to slip and destroying the grain. From the sweat vaults the hides are again taken to the mill to receive more kneading and pounding, and to remove the hair, which is gradually worked off by the *continual turning and beating they receive*, and is washed away

by a stream of water descending to the mill. The hides now go to the beams-men, who lay them upon a half-circular table, and with large blunt knives remove the remaining hairs. They are also worked and scraped on the flesh side, to take off any extra flesh or fatty matter which may have been left on the hide, and are thoroughly rinsed and scoured until they appear white and clean. The next process consists of *coloring*. In a vat filled with liquor a large wheel, called the "coloring wheel," is arranged to revolve. This wheel is made of wooden slats, and into it 50 or 60 of the soft white hides are thrown, and the wheel set in motion and allowed to run 20 minutes, when the sides are taken out. They are now of a light cherry color, and firmer in appearance. The reason for coloring at this stage is to prevent the sides from turning black during the next process of "pumping." The pumping operation is done in a number of vats called "acid handlers," which contain a solution of sulphuric acid and water, into which the sides are suspended horizontally on sticks, where they remain two days; the liquor, meanwhile, being constantly stirred by a blast of air pumped into the vats at the bottom. This acid treatment opens the pores and fibers, and makes it ready for the reception of the bark extract or tan liquor. In using acid great care must be observed in the first stages, or the leather will be very dark, have a poor grain, and will not "clean up" into light colored soles, an object which is much desired in sole leather. From the acid handlers the sides go to the vats containing weak tanning liquors, where they remain soaking for two days, the object being to give them an even color and to further develop the grain of the leather. Next they are put in the tanning vats, and begin the long process of tanning. For the first few days the sides are changed every two or three days from one vat to another, containing liquor of increasing strength from two degrees, as indicated by a barometer, up to 42 degrees for the last vat. The sides are next placed in what are called "lay away vats," and while being so laid away, a shovelful of ground bark is thrown on top of each side, the whole being covered with bark liquor. This process is continued at intervals for about four months, by which time the hides have absorbed all the tanning liquid possible, and are thoroughly and evenly tanned. After the leather has been taken away from the last lay away vat, it is placed in a large washing wheel, about 25 sides at a time, and is washed for 15 to 20 minutes, when it is packed in piles and allowed to drain for 2 or 3 days. It is then taken up piece by piece and placed on a table, where it is oiled on the grain with curriers' oil (whose source is those Newfoundland cod livers not fresh enough for medicine), and then packed in piles to allow the oil to penetrate into the leather, when it is hung up on horizontal sticks in the drying loft to dry. Two weeks generally elapse in this semi-darkened room, supplied with dry air constantly in circulation. The leather is now "tempered" by sprinkling it with hot water, and then packed away again in air-tight rooms to allow the moisture to draw evenly through the pores for 24 hours. From the air-tight room it goes to the "fitting tables" for rolling, which consists

of being treated with hot water and oil, by which it is brought to a flexible and mellow condition. In America and England all this leather is rolled by a pendulum roller made of brass, about 4 inches in diameter and 6 inches long, which is attached to a long wooden beam working from above like an arm, back and forth on a solid iron bed-piece with a concave face. Desired pressure upon the leather is regulated by a treadle, which the finisher works with his foot. Leather is generally rolled twice, a day or two elapsing between the times, when it is considered "finished;" the rolling process having imparted a fine polished appearance to the grain and a firm feel to the stock. After being weighed and marked the leather is ready for shipment, and is loaded on the cars in regular layers of sides. Kip skins go through much the same process, only less so. Being thinner, they require less time and care. More chemicals, too, are used in the tanning, and when finished much of it is blacked ready for the boot and shoe makers. The finest grade of calfskin leather is imported from France, owing to the fact that the bark of the evergreen oak, indigenous to that country, produces leather of a peculiar softness and fineness of grain not equaled by the oak bark of America.

Many other substances besides tannic acid are employed to preserve hides and skins, and prepare them for certain uses. But these do not make leather which will resist moisture or retain its flexibility after wetting. The most extensively used of these is alum, so that the term alum-tanned leather or, as frequently termed, tawed leather, has become a common designation both in Europe and the United States. The process of alum tanning has in the past ten years completely revolutionized the morocco leather business in the United States. In 1878 hardly ten per cent. of the morocco leather consumed in the United States was made here. Now the conditions are nearly reversed, for more than three-quarters of the morocco used here is of American make. "Morocco" is the general trade term for goat, sheep and light calf skins, no matter how finished, whether pebbled, bright or dull. The finer grades of morocco are manufactured from goat skins, but other grades are obtained from sheep and split calf skins. In the process of tawing (alum-tanning) the substance principally employed is alum, or some of the simple aluminous salts. This system is principally applied to thin and light skins of sheep, lambs, kids and goats. The products obtained by tawing are of a pure white color. After the skins are unhaired, the tawing is accomplished in a large drum or cylinder, into which is introduced for each 100 average skins a mixture consisting of twenty pounds of alum, nine pounds of salt, forty pounds of flour, 250 eggs, seven-eights pint of olive oil, and twelve to sixteen gallons of water. In this mixture, at a temperature of not more than 100 degrees F., the skins are worked for about forty minutes, by which action the tawing is completed. After the withdrawal from the drum the skins are allowed to drain, dried rapidly by artificial heat, damped, staked out by drawing them over a blunt steel knife, and then wetted and shaved down on the beam to the

required thickness. Next they receive, if necessary, a second treatment with the tawing mixture. The dyeing or coloring follows, which is nearly always black, the color consisting of a compound of bichromate of potash, stale urine, logwood extract, and copperas. It is applied either by brushes on a table, or by dyeing the leather in small vats. The dyed leather is washed with pure water, dried, ironed, polished between glass rollers and finally oiled on the flesh side with a mixture of oil and wax.

Morocco leather (in its wide meaning) was originally of the Levant and Turkey. Formally all this sort of leather was tanned with sumac, and to-day sumac tanned goatskins are tanned as they were a hundred years ago. Ten years ago the largest American morrocco factory only turned out a few hundred dozen skins a day. Now establishments in Philadelphia and elsewhere turn out 3,500 dozen every twenty-four hours. The great impetus given to morocco manufacture in this country lately is due to science and invention — the discovery of improved methods of tanning and the developement of modern machinery. The sumac process so long used, has been superseded by alum tannage. Owing to this new method, New York City has become the greatest goatskin port in the world. In round numbers more than 30,000,000 untanned goat skins were imported by this country in 1891. To secure this immense number of skins buyers for New York houses have visited and made permanent homes in the uttermost parts of the earth inhabited by human beings. These historic and valuable animals are always found in greatest numbers where civilization is at its lowest ebb. The New York importers find their supplies among the savage hill tribes of the northern and southern slopes of the Himalayas, in the valleys of Persia, on the steppes of Asia, and among the semi-barbarous people of the Andes; they get them from the sandy wastes of Arabia and the Sahara, from the slave caravans from the head waters of the Blue Nile, and from the Kaffirs of South Africa. They scour the remotest pampas of South America and the Indian pastoras of Central America and Mexico, and all the islands of the sea contribute to the total. The following table shows where most of the goatskins brought to this country during 1890 and 1891 come from:

	1890.	1891.
European, Asiatic and African,	9,280,000	7,668,000
Arabian	2,407,700	1,845,000
Calcutta	3,537,800	4,469,000
Mexican	1,239,500	1,438,000
Texas and Mexican Frontier	643,000	687,000
Oajaca	129,514	100,300
Curacas	697,400	618,000
Rio Hache, Maracaibo, Porto Cabello, Laguayra, etc.	174,000	170,800
Payta (Peru)	298,200	257,500
Buenos Ayres	714,000	685,000
Brazil	2,853,900	3,169,000
West Indies	178,370	148,300
Bogota	51,450	49,800
Angostura, etc	11,790	14,700
	22,216,634	21,320,400
Other sources	7,000,000	9,000,000
	29,216,634	30,320,400

One of the chief depots of supplies tapped by these world-sweeping New York searchers for goatskins is the great fair of Nijni Novgorod in Russia. Immense numbers of skins are brought to this point, coming, many of them, by ancient trade routes over the Ural Mountains, from far in the interior of Asia. Here they are assorted and baled for shipment to America. Other great markets for goatskins are Calcutta, Aden and Berbeyrah, in North Africa, and Ceara, in Brazil, Buyers of goatskins need peculiar qualifications. Not only must they be shrewd business men, knowing thoroughly the people they are dealing with, and be able to drive a trade and talk the language of barter, but they must have iron constitutions likewise. It is said among the importers of the "Swamp" that a buyer who can stand the climate of Arabia can go anywhere. But this precept is never put into practice. A man sent out from America to Arabia to buy goatskins usually makes that inhospitable country his home, and remains there after being acclimated. So, those buyers whose constitutions can stand the ordeal of yellow fever in Brazil, or the insidious climate of India, are kept in those countries as long as they are willing to stay. Then it takes time and patience to traffic in goatskins in some quarters of the earth. The Arabs are the shrewdest traders in the world. They know to a farthing the commercial value of the article they want to sell, and they will stick half a day for a penny. They bring skins over the mountains to Aden from the interior of Arabia. At Aden a broker is employed to bring about a conference between the American buyer and the Arab seller. He gets the two together in a room, coffee is drunk, they are ready for business, and then the fun begins. Arabs are suspicious in trading, and no one but the buyer and seller are permitted to know what the terms are. They clasp right hands and a scarf is thrown over the hands, that none may see. Not a word is uttered. The offer is made in sign language. The buyer grasps the seller's fore-finger at a joint. The first joint indicates an offer of so much; the second joint so much more, and the knuckle joint so much, all the time their hands being hidden by the scarf. Invariably the first offer is rejected. The men part with words of scorn, walk around the room and turn their backs on each other. Then the broker intervenes, more coffee is drunk, and presently they get together again, clasp hands under the scarf and the negotiation is resumed. This goes on about half a day before an agreement is reached. Then the buyer, if he was inexperienced enough to buy by weight, is lucky if he don't find a half-pound or so of valuable Arabian sand sewed up in the shank of each goatskin.

"*Dongola and* "*Tampico*" are trade names for tanned goat skin. "*French Kid*" refers to the soft and flexible skins of young goats tanned by the kid-leather process. [See GLOVES.] "*Pebbled goat* and "*straight grain*" goat refers to the style of finishing the leather. The indentations or pebbles are produced by the leather being passed between rollers having the pattern cut on their surface. *Roan* leather is sheepskin tanned in sumac, colored and dressed throughingly in the same manner as

morocco, used largely in bookbinding. *Skivers* are the split grain sides of sheepskin. The flesh sides are shamoyed and finished as inferior grades of wash leather.

Shamoy or Oil Leather.—The process of preparing leather by impregnating hides with oil is probably the oldest system of leather manufacture. Well shamoyed leather requires the exercise of much skill and numerous manipulative processes. Hides and skins of all sorts may be prepared by shamoying; but sheep, goat, deer, antelope and small calf skins are those usually treated, an enormous number of flesh splits of sheep being shamoyed for common purposes. The extensive employment of deer skins in shamoying gives the product the name of buck leather, and from the use of the "chamois" skin of the Alps, is derived the name of the process of chamois or shamoy. At present none of these latter skins are obtainable. From the fact that shammy skin, or shamoy leather, may be easily washed like cloth it is also sometimes called wash leather. Skins for shamoying are in the preliminary stages treated almost as for ordinary tanning. After unhairing, the surface of the grain (the cuticle) is shaved off in all except the small thin skins. They are then treated with a lime solution and repeatedly washed to bring the pelt to a somewhat open and porous condition, drenched with bran to remove all lime, and rinsed in an acid liquor. The skins are now taken to the fulling machine, where, after being rubbed over individually with fish oil, they are hammered for about two hours to force the oil into the substance of the skin. They are then stretched, hung up for some time, again oiled and fulled. These operations may be repeated from six to twelve times, according to the thickness of the skins treated. After thorough impregnation the skins are dried, then heaped up in a heated room, where a process of oxidation is quickly set up. So soon as the skins assume a yellow color and give off a peculiar odor (not at all like the fish oil with which they have been treated), the process is complete and the fermentation is stopped. It is now found that about one-half the oil is oxidized within the skin and combined with the tissue to form leather; while the remainder is present only in the condition of mechanical impregnation. This uncombined oil is washed out with a warm potash solution, and the fat so recovered, forms a valuable material for the dressing of common leather by curriers. The skins are next smoothed out and the shamoy leather is ready for market. It is used extensively in the manufacture of gloves and underclothing; many druggists sell shammy skins under the impression they are off the backs of the genuine chamois animal of the Alps, whereas in reality they are the flesh-split of a sheepskin.

Alligator Leather.—Since 1860 leather has been tanned from the skins of the alligator, procured principally in Florida, and the tanning a considerable industry at Jacksonville. The parts of the skin used for leather are the belly and flanks. These portions are steeped in lime and tanned by any of the processes already mentioned. The leather has the great advan-

tage of being absolutely waterproof. Good hides are worth $10 each. This sort of leather is becoming rarer of recent years, on account of the increasing rarity of the animals. In some respects the alligator is peculiar and dilatory. The female exhausts fifty years in flirtation before commencing the serious business of her life as the mother of a family.

Kangaroo Leather.—So popular has kangaroo leather become since 1880 that the Australian government, which began by offering bounties for kangaroo scalps, have now decreed a close season, six months long each year, to prevent the total extermination of the animal. Since the demand has become so great kangaroo farms have been started in Western Australia to keep up the supply of skins. The skins come to this country Calcutta at the rate of about 6,000 a week, and furnish a leather pleas the foot, durable in quality, but liable to stretch out of all shape if w not carefully dried. These skins are both tanned and tawed, the principal tanning agent being the mimosa bark, which abounds in Australia. The leather is very similar in appearance and texture to fine goat.

Patent leather was first made at Newark, New Jersey, in 1820, by Seth Bayden. It is made of calfskin and also of kip and large hides, split and skived down to the proper thickness. The leather, after tanning, is finished especially for the making of patent leather, great care being observed to keep it as free as possible from grease or oil. The skins are first tacked on frames and coated with a composition of linseed oil and umber, in the proportion of eighteen gallons of the former to five ounces of the latter, boiled till nearly solid, and then mixed with spirits of turpentine to the proper consistency. From three to four coats of this are necessary to form a surface to receive the varnish. The coats are laid on with a sort of knife or scraper. To render the leather soft and pliant, each coat must be very light and thoroughly dried in between each application. A thin coat is afterwards applied of the same composition, of the proper consistency to put on with a brush, and with sufficient lamp-black boiled into it to produce a perfect black. When thoroughly dry it is ready to varnish. The principal varnish is made from linseed oil and Prussian blue, boiled to the thickness of printers' ink. This is then reduced with spirits of turpentine to suitable thickness to work with a brush and is applied in two or three separate coats, which are scraped and pumiced until the leather is perfectly filled and smooth. The finishing coat is laid on with especial care in a room with the door kept closed and with the floor wet to prevent dust from settling on the leather until it is dry.

Russia Leather was originally, as the name implies, a specialty of Russia, where it was made from the hides of young cattle, and dressed either brownish-red or black in color, being used for upper leather, bookbindings, purses and similar objects. Russia leather is now made throughout Europe and the United States. Horsehide, calf, goat and even "splits" are now finished as Russia leather; but most of these are decidedly inferior in quality; and, as they are merely treated with birch bark dye to give them

the odor by which Russia leather is recognized, they scarce deserve the name under which they pass. Genuine Russia leather is tanned like other light leathers, except that for the tanning agent, willow bark or spruce fir bark is used. After tanning, the skins are treated on the flesh side with an empyreumatic oil obtained by the dry distillation of birch tree bark and buds, to which the peculiar smell of the leather is due. The brownish-red color, commonly seen in Russia leather is given by dyeing with a preparation of Brazil wood rubbed over the grain-side with a sponge. The black color is produced by repeated stainings with acetate of iron. The leather if genuine is very waterproof and strong, and owing to its impregnation with empyreumatic oil, it wards off the attacks of insects. [See GLOVES, BOOTS AND SHOES, PEBBLE.]

Leno (le'-no). [A corrupt form of Fr. *linon*, lawn.] A very thin linen cloth made in imitation of lawn, or muslin, and sometimes called *linen muslin*. It is used for translucent window blinds, and for other purposes for which a gauzy fabric is required.

Levantine. A stout twilled silk, so called from having originally been exported from the Levant.

Line. In button manufacture, one-fortieth of an inch; the size of buttons being denoted by the number of lines across the diameter. Thus a 22-line button equals twenty-two-fortieths of an inch from side to side; an 18-line, eighteen-fortieths of an inch, etc. The term is also used in indicating the width of braids, etc., having reference to the number of ribs or plaits in the width.

Linen. Under this term are comprehended all yarns spun and fabrics woven from flax fiber. The cultivation and preparation of the fiber and its treatment till it reaches the condition ready for the loom, are dealt with under the head of FLAX.

From the earleist periods of human history till the close of the 18th century, the manufacture of linen was one of the most extensive and widely disseminated domestic industries. The origin of its manufacture is traced back to times lost in the twilight of fable, far beyond the dark ages, and centuries before the Christian era. It was old in the time of Herodotus (50 B. C.) Long before the first author wrote his first book, the ancient Egyptians produced linen fabric far exceeding in fineness any cloths which at present is woven by the most improved mechanical inventions. This is clearly proven by the decorations and carvings of their temples, which display with startling accuracy the implements used in the cultivation of flax, the treatment at maturity, as well as the subsequent stages of spinning and weaving. Their mummy wrappings, too, show that with their crude machinery and simple appliances this ancient people wove the finest linen fabrics the world ever saw.* According to the best authorities

* One piece of linen cloth found wrapped about a mummy had 540 warp threads to the inch; while the finest ever spun and woven in England being 350 threads per inch.

the knowledge of flax and its manipulations came first from Egypt into Greece and Italy, and thence travelled westward to France and Flanders, next probably into Germany and England, before it got ground in the more northern and north-eastern parts of Europe, where it has since prospered very much. It is certain that the Germans used in very early times to dress and spin flax, and weave linen cloths; but whether it was they were jealous of their art, or whether, being a proud and warlike people, they were ashamed to have it known that they condescended to labor at the loom, cannot be determined; however, all this work was secretly done in vaults and caverns, the manufacturers being buried, as it were, under ground. In time the industry became largely developed in Russia, Austria, Germany, Holland, Belgium, the north of Ireland and throughout Scotland; and in these countries linen was the fabric most largely in use for clothing until the introduction of cotton. The invention of the spinning-frame by Arkwright, the spinning-jenny by Hargreaves, and the spinning-mule by Crompton in the latter part of the 18th century, benefitting as they did almost exclusively the spinning of cotton; and the immediate growth and development of cotton manufacture, largely due to these inventions, gave the linen trade, as it then existed, a fatal blow. Household spinning and hand-loom weaving immediately began to shrink. The trade which had supported whole villages and provinces entirely dissappeared, and the linen manufacture in crippled conditions, took refuge in special localities, especially in Ireland, where it has resisted with varying fortunes the continued assaults of cotton. Innumerable linen fabrics of fine designs and costly quality, once in great esteem and extensive use, are now unknown; or in cases remembered it is solely by their cotton substitutes.

In the United States the linen manufacture has never taken root and grown as compared with other textile industries. It is true prior to the Civil War the spinning and weaving of linen as a farm-industry was practiced to a considerable extent, but even that has now become extinct. The decline and downfall of the industry is attributed to the change from the household manufacture to that of the central factory; to the increasing use of cotton in the war period; to the tariff revisions of 1872, and latterly, to the fact that encouragement has not been given to farmers for the raising of a fine flax fiber. Another reason for the failure of the linen industry to develop in the United States, is the fact that no machinery has yet been found for superseding hand labor in the cultivation of the plant, and it is only the cheap labor of the old countries which enables them to excel in this field. Flax is the most difficult and stubborn of all textile fibers to work, and as to improving the processes of manufacture after the flax is pulled, the number of inventions that have been tried and found wanting in Ireland, Belgium, Germany and other old flax countries, is only equalled by the patent car-couplers invented by ingenious Americans. Scarcely a month passes in Ireland and England in which some invention is not brought out destined to "revolutionize" the linen trade. But it is found

that no trade resists revolution like linen manufacturing. Owing to the stiffness and length of the flax fibers, a great part of the machinery used for cotton is not available for linen, nor can linen be worked with such rapidity as in the case of cotton. The two largest factories in the United States for the manufacture of crash are the Stevens Linen Works, at Methuen, Mass., and the Minneapolis Linen Mills, at Minneapolis, Minn. The former import their linen yarn from Europe, while the latter use only pure American flax fiber. These mills manufacture only low-grade linens. It is said there is no linen cloth manufactured in the United States of either imported or home-grown flax, exceeding in price 15 cents per yard.

Bleaching of linen is generally understood to mean the process of whitening or decolorizing the cloth. Until about the year 1800, the successful issue of this process depended upon the natural bleaching agencies present in the atmosphere and the sun's rays. The usual plan was to spread out the cloth on a grassy field called a "bleaching green," and to continue sprinkling it with water several times a day. After being thus exposed for from five to six months to the action of the air, light and moisture, the cloth was rendered white. The process was tedious and occupied much valuable land for the best part of the year, and for this reason large quantities of brown linens were sent from Ireland, England and France to Holland for the purpose of bleaching. A particular kind of heavy linen which was regularly sent to Holland to be bleached received on that account the name of *hollands;* and another variety which from its fineness was spread on the smoother grass fields or lawns, received the title of *lawn.* On account of the time consumed by the open-air process of bleaching, many other plans have from time to time been proposed and patented, but the method now adopted to hasten the bleaching of linen is the use of chlorine [See BLEACHING]. By the use of this chemical substance the time required for whitening linen has been reduced from all summer to about five weeks. An attractive and novel sight in the vicinity of Belfast, Ireland, is the numerous bleaching greens, with their acres of linen webs undergoing the final part of the bleaching process, where nature plays her part after the laboratory's labors. Sun and air are absolutely necessary to perfect flax bleaching; chemicals cannot accomplish all, nor will all climates do the work as well as the humid climate of Ireland. It is a well-known fact that the linens bleached along the banks of the river Dan in North of Ireland are whiter and softer than the products of other countries, and all extremely fine and sheer linens are sent to these bleacheries to be whitened. Whether this superiority is due to some chemical combination contained in the waters of this river, or in the heavy dews which fall on its banks, or in the comparative evenness of climate that prevails throughout the seasons, with their frequent exchanges of light and shade and alternate rain and sunshine, which make it a chosen spot for the purpose of bleaching, is not certainly known. Vast quantities of brown linens are annually shipped into Ireland from France, England, Russia, Germany and Belgium to be

bleached and returned. During the old days when bleaching was accomplished entirely "upon the grass" the period of purification, as has already been stated, required all summer; but there was no tendered linens in those days, and the cloth seemed to have everlasting wear. Every bleachery now has its professional overseer. He must know the laws of chemical action as far as they govern the ingredients he employs in his hastening methods —and all these to the point of precision, else his boilings may develop serious damage and consequent loss to his employers whether bleaching for themselves or others; for all who follow bleaching as a business are responsible to those who consign brown cloth to their hands. Mistakes of blundering bleachers are frequently the occasions of "job-lot" offerings of tendered linens for which Belfast has a celebrity at times. Bleaching proper requires about three weeks, then about two weeks for finishing.

Ammonia is a good test as to the completeness and success of bleached linen. *Well bleached* linen is not in the least discolored by it, but linen which is white but not thoroughly freed from pectic matters becomes yellowish in ammonia. Such linen will become yellow if kept in stock for any length of time.

To ascertain if there is a mixture of jute in a linen fabric, put a little solution of chloride of lime into a saucer, and lay in it for four or five minutes the thread or sample of cloth to be examined; then squeeze out the solution and put the fabric into a solution of ordinary hydrochlorate acid, and, after a few moments, take out and wash in plenty of water. Then apply a drop of ammonia to the fabric, and in case there is a mixture of jute, a slightly violet-red color is immediately imparted. Flax and hemp become slightly brown. The red coloration, however, does not remain long, and the proportion of jute mixture can only be roughly shown.

To distinguish linen from cotton, dip the sample or samples in a boiling solution of caustic potassa, and let it remain a few minutes. The the linen will assume a dark yellow, while the cotton will be a light yellow, or nearly white.

To distinguish linen from wool, dip the sample or samples in a boiling solution of caustic soda (8 deg. B). Let it remain for two hours at a steady boil and all the wool will be dissolved, leaving the linen unchanged. Silk is dissolved by cold nitric acid which does not affect wool.

To distinguish thin linen from thin cotton cloth, moisten the tip end of a finger and apply it to the cloth. If it be linen the moisture will be absorbed quickly; if cotton, it will come through more slowly.

The fineness of linen is determined by the relative length of yarn in a given weight, and also by the number of warp-threads contained in a certain space of the reed in weaving, to which the weft threads in a similar space must bear a fixed and regular proportion. In judging linen of whatever fineness and price, particular attention should be paid to the evenness of the threads, and also to the fineness and closeness of the texture. The

color should be perfectly white, and the finish glossy; but this gloss should be principally if not wholly the effect of the calender employed in finishing the cloth. Many inferior fabrics are rendered marketable by a large proportion of starch, from which they not only receive a fine gloss, but also a factitious hardness, or *body*, as it is termed—qualities which disappear after the first washing; and the cloth having lost in this ordeal all its vellum-like consistency, becomes, to use a familiar expression, "as poor as a rag." Hardness and smoothness, therefore, can never be safely depended upon as a criterion; the eye must be rather closely applied to discern whether these qualities actually proceed from the strength and fineness of the fabric. The threads must not only be even, but must have a certain wire-like roundness and be free from fuzz. Linen fabrics have several advantages over cotton, resulting principally from the structure and longer lengths of the flax fiber. The cloth is much smoother and more lustrous than cotton cloth, and has a less "wooly" surface; so that it does not soil as easily as the more spongy cotton. Bleached linen, starched and dressed possesses that unequalled purity, gloss and smoothness which make it alone the material for shirt fronts, collars, etc., and the gossamer delicacy yet strength of the thread it may be spun into, fits it for the fine lace-making to which it is devoted. Flax is a heavier material than cotton, but weight for weight it is much stronger, single threads having proportionate strength in the ratio of 3 to 1¾, and cloth 3 to 2. Medical authorities assert that linen fabrics form a superior material for underwear, for the reason that linen does not clog the pores, but admits of free exhalation. In case of contagious skin eruptions the contagious elements are held in the material of woolen garments, and are therefore likely to be spread and re-inoculated in the skin. Also that woolen underclothing is quite likely to become loaded with effete matters from the perspiration and cast-off epidermis, each alike irritating to the skin and injurious to the lungs. [See FLANNEL, CROFTING, CALENDERING, FLAX, FIBERS, HOLLAND, CRASH, LAWN, BLEACHING.]

Linen Diaper. Linen cloth woven in the same way as damask, but having a small set pattern of diagonal squares, bird's-eyes, or the like; used for towels and children's clothing. [See DAMASK, DIAPER.]

Lingerie (lan'-zhe-re). A French term of wide meaning, used to describe collectively all the linen, cotton, silk and lace articles of underwear which compose a woman's wardrobe, such as the night-gown, corset, undervest, drawers, equestrienne tights, skirts, collars, garters, hose, chemise, etc.

Linoleum. A variety of floor cloth, consisting of oxidized linseed oil combined with ground cork, treated and masticated in the same manner as Kamptulicon (which see), to which it bears a close resemblence. The process of making linoleum was patented in 1863, by F. Walton, who specifies as the most suitable composition for the "body" of linoleum, 4 per

cent of oxidized oil, 1½ per cent of resin, ½ cwt. of kaurie gum and coloring matter, mixed together in a steam heated receptacle, and afterwards mixed with an equal weight of ground cork dust, and spread on and pressed into a woven cloth of jute or hemp, between steam heated rollers. The weight required to press the material into the mesh of the cloth is 4,000 pounds to the square inch. The pattern is printed on the surface by means of blocks. Linoleum has the advantage that it is not cold like tiling or oil cloth; it is made in all widths up to 6 yards.

Linon. A French word signifying *lawn.*

Linsey-woolsey. A coarse flannel of linen and wool mixed was first made at the village of Linsey, Suffolk County, England, in the year 1450. The linsey-woolsey of the present is a similar material, but into which cotton enters instead of linen, and with a weft of coarse, inferior wool. The attempt has been made to reserve the word *linsey* for a flannel of linen and wool mixed, and *woolsey* for a mixture of cotton and wool, but without success.

Lisle Thread (lile thred). An extremely fine and hard-twisted thread first made in the north of France, near the city of Lisle (formerly L'Isle, *the island*) which place probably originated and named it. It was formerly linen but is now spun from cotton. It is used especially for the knitting of gloves, hose, and underwear. The thread—or yarn—is made of superior cotton, treated in a peculiar manner. It is a well known fact that cotton fiber possesses a waxy surface which, if not destroyed by the numerous manipulations in manufacture, gives a brilliant appearance to the fabric when knitted up. Carding of cotton impairs and prevents this effect, but combing conserves it. Carding leaves the fibers in jumble and criss-cross, while combing lays them straight, side by side. The latter process secures a stronger yarn and a more glossy one. The spinning of lisle thread is also done under moisture, thus forming a compact and solid yarn, with a surface capable of exhibiting the colors applied to it with a brilliancy unequalled by a softer yarn. The yarn is spun exceedingly fine, and tightly twisted, afterward being "singed" to remove the minute particles of nap or fuzz. The yarn for the manufacture of lisle fabrics bears the same relation to cotton yarn, that *worsted* does to *woolen* yarn. [See WORSTED.]

Lisse (lece). [Fr. *lisse*, ribbon, border, piping.] A sheer fabric having the same organization as tarlatan, the difference being that lisse is woven finer, of either silk or cotton, and is a much more delicate material. It is used for ladies' neckwear and in the manufacture of ruching. When fluked or crimped it is called *crape lisse.*

List. The border or edge of cloth forming the selvage, usually different in color from the body of the fabric. List is torn off the fabric when garments are cut out, and is used principally in the manufacture of carpets. [See CARPETS.]

Livery. A garment or entire costume formerly worn by the retainers of a feudal lord, the followers of a military superior, or the members of a company, as a gild or corporation. At the present time the term signifies the costume worn by servants, especially men servants.

Llama (la'-ma). A South American animal similar in appearance to the alpaca and the camel. Its hair is frequently used in the manufacture of fine glossy dress fabrics, lace, tassels and braids. [See WOOL.]

Lockram. A kind of linen cloth, usually the cheapest and coarsest sorts.

Logwood. A valuable dye, the product of the logwood tree, native to Central America, and grown also in the West Indies. The best qualities come from Campeachy, but is only obtained in small quantities. The wood deprived of its bark is sent to market in the form of large blocks or billets. It is of a dark, brownish-red color, of firm texture and so heavy as to sink in water. The wood was introduced into Europe as a dyeing substance soon after the discovery of America, but for many years (from 1581 to 1662) its use in England was prohibited by law, on account of the inferior dyes which at first were produced from it. Logwood is prepared for use by dyers in the form of small chips. The chips are moistened in hot water and spread in thin layers till a gentle fermentation sets up. These gradually become coated with brilliant metallic green crystals which are at once accumulated and molded into cakes, when it assumes a dark purplish color. The principal use of logwood is for dyeing woolen goods, on which it produces, with various mordants, shades of blue from a light lavender to a dense blue-black, according to the amount of logwood used and the number of dippings. Logwood blacks are a standard product of print factories. They assume a bright red tint by the action of dilute acids, a test by which they can readily be distinguished from aniline and other fast blacks. *Logwood blue* is a color produced on woolen flannels and yarns, mordanted with alum and cream of tartar. It is similar in tone to indigo blue. The same color is sometimes produced on cotton, but is seldom used on account of its loose, fugitive character.

Loom. [Literally, *an utensil*, from the Anglo-Saxon *loma*, furniture, utensils.] The loom is the machine on which weaving is performed, the simplest form of which is the hand loom, which is not now used in this country except by a few families in rural communities. The power loom has so greatly facilitated and cheapened the production of fabrics that it has entirely replaced the former. The power loom differs much in appearance from the old wooden hand loom, being altogether more compact, and made of iron and steel. The motion of all its parts are accomplished by steam or water power, or by power other than that of the operator. The hand loom is now almost wholly devoted to fine silks and carpets, nearly all other fabrics being woven on power looms, either with or without the Jacquard attachment. The credit of the invention of the power loom is

due to the Rev. E. Cartwright, of England. The circumstance of his discovery, which will be found fully detailed in the following passage, are curious, and of interest in the history of inventions. Mr. Cartwright, says:

"Happening to be at Matlock in the summer of 1784, I fell in company with some gentlemen of Manchester, when the conversation turned on Arkwright's spinning machinery. One of the company observed, that as soon as Arkwright's patent expired, so many mills would be erected, and so much cotton spun, that hands never could be found to weave it. To this observation I replied, that Arkwright must then set his wits to work and invent a weaving mill. This brought on a conversation on the subject, in which the Manchester gentlemen unanimously agreed that the thing was impracticable; and, in defense of their opinion, they adduced arguments which I certainly was incompetent to answer, or even to comprehend, being totally ignorant of the subject having never at any time seen a person weave. I controverted, however, the impracticability of the thing, by remarking that there had lately been exhibited in London an automaton figure which played at chess.

"Some little time afterwards, a particular circumstance recalling this conversation to my mind, it struck me that, as in plain weaving, according to the conception I then had of the business, there could only be three movements, which were to follow each other in succession, there would be little difficulty in producing and repeating them. Full of these ideas, I immediately employed a carpenter and smith to carry them into effect. As soon as the machine was finished, I got a weaver to put it in the warp, which was of such materials as sail-cloth is usually made of. To my great delight a piece of cloth, such as it was, was the production. As I had never before turned my thoughts to anything mechanical, either in theory or practice, nor had even seen a loom at work, or knew anything of its construction, you will readily suppose that my first loom must have been a most rude piece of machinery. The warp was placed perpendicularly, the reed fell with a force of at least half a hundred weight, and the springs which threw the shuttle were strong enough to have thrown a Congreve rocket. In short, it required the strength of two powerful men to work the machine at a slow rate, and only for a short time. Conceiving in my great simplicity that I had accomplished all that was required, I then secured what I thought a most valuable property by a patent, 4th April, 1785. This being done, I then condescended to see how other people wove; and you will guess my astonishment when I compared their easy mode of operation with mine. Availing myself, however, of what I then saw, I made a loom, in its general principles nearly as they are now made; but it was not till the year 1787 that I completed my invention, when I took out my last weaving patent, August 1st of that year."

Cartwright's original loom was but an imperfect machine, although his patent was minute and detailed. Both he and others devoted much labor to its improvement; and in bringing the invention to a successful issue he

spent from $150,000 to $200,000, while in return he received only a gift of $50,000 from the English government. The power-loom fought its way to supremacy but slowly, for an imperfect power-loom is no better than a hand-loom; and it was only after the minor adaptations and adjustments which frequently make the difference between success and failure were brought into operation that the real advantages of power-loom weaving became obvious. Even yet for some purposes, especially for weaving the very finest and most exquisite fabrics, the power-loom has not succeeded in supplanting hand work. The essential parts of a loom are: the *frame*, which supports the working parts; the *yarn-beam*, at the back part of the frame, upon which the warp-threads are wound; the *cloth beam*, at the front part of the frame, upon which the cloth is wound as the weaving proceeds; the *heddles* and their mounting; the *reed*, and the *batten*, which carries the reed. The warp-threads extend in parallel order from yarn-beam to the cloth-beam, being also passed in groups through the eyes of the heddles (or harness), and through the interspaces of the reed. The operation of winding the warp-threads upon the yarn-beam, and passing them in due order through the eyes of the heddles, preparatory to weaving, is called "setting up the piece." The function of the heddles is to form an opening among the warps for the passage of the shuttle, which carries the weft. The warp-threads are separated by the heddles into two or more groups, each controlled and alternately drawn up and down by the motion of the heddles, thus leaving an opening (or shed) between the ranks of the warp-threads, through which the shuttle is thrown, carrying a thread of weft. The reed then beats this weft up close against the weft previously thrown in. The reed is composed of thin slats or fine wires arranged in parallel relation between two parallel bars (similar to a comb), placed at such distance as to allow the threads of the warp to pass through the spaces between the slats or wires freely. The weft-thread is wound upon a bobbin which turns upon a wire in the shuttle, and permits the thread to unwind when the shuttle passes to and fro. The shuttle is made of a piece of hard wood pointed at each end, and having a hollow interior for the reception of the bobbin, Narrow fabric looms for ribbons, etc., generally use an eye-pointed needle as a substitute for the shuttle. The jacquard attachment is a device for forming openings for the passage of the shuttle between the warp-threads, and was invented by Joseph M. Jacquard, a Frenchman of Lyons. This device does away with the necessity of the use of heddles. The invention and adoption of this method of weaving at once advanced the art of figure-weaving beyond the mere limit of geometrical patterns into the realm of fine-art industry. It consists, essentially of a series of perforated metal cards, which one after another are laid flat upon the faces of a revolving and perforated prism, in such manner that the perforations in the cards successively and exactly cover corresponding holes in the prism. Wires, each separately controlling the engagement with a hook connected with a set of warp-threads,

are made to enter the holes of the metal card, and cause the warps to be lifted above the common level of the other warp-threads, and thus form an opening for the passage of the shuttle. Each card thus represents a different opening, and as there may be an indefinite number of cards joined together by flexible connections, are carried upon the perforated revolving prism. As there may be also a number of shuttles carrying weft-threads of different tints, there is no limit to variety of form and color in the figures that may be woven. Looms for the most part are distinguished by the names of the material they weave, as ribbon-loom, figured-fabric loom, carpet-loom, etc. They differ chiefly in harness system, or in other words, in the manner in which the warp-threads are raised to form an opening for the passage of the shuttle. There may, in all sorts of looms, be several shuttles used, in order to introduce several colors of weft-threads, and thus produce more complicated patterns than can be formed by a single weft. [See WEAVING.]

Looped Cord Fabric. A method of weaving in which the weft threads are composed of spiral or looped cords. The cords resemble chenille, the difference being that the loops are tied at close intervals to a straight string of cotton or worsted yarn, which makes them immovable and lasting. The looped cords are made of any size desired, from ⅛ to ½ inch in diameter, and of any color or sort of material. The product when made from a single cord is alike in appearance on both sides, but if made with a double cord (double woven), the two sides are of different colors. This fabric is used as a material for blankets, bed covers, carriage and lap robes, shawls, etc. Looped cord fabrics are sometimes finished in such a manner as to imitate very closely the skins of bears, buffaloes, foxes and other animals. In the process of making the material, the loops which constitute the pile are formed in different lengths. After the weaving of the fabric, the loops are drawn out by a revolving wire brush, and the process finishes the ends so as to make them finer at the points than at the roots. The pile is formed of different lengths, consequently the resulting "fur" is thicker at the bottom than at the outside, and in this manner and by properly dyeing can be made to resemble any sort of real fur that it is desired to imitate. These fabrics are intended for carriage rugs, door mats, and robes.

Louisine (louis-ene'). A thin surah silk, woven in small checks and stripes, and also dyed in solid colors; used for children's wear and light summer costumes.

Lustering. A process of giving to woolen cloth a permanent gloss and smooth surface which will not roughen with wear. This is accomplished by stretching the cloth tightly on a perforated copper cylinder, which is then placed in a steam chest and the steam turned on. It is then boiled for several hours and pressed by hydraulic power between heavy plates. [See HENRIETTA.]

Lustrene (lus'-trene). A glossy twilled lining, made in imitation of Lyons silk, used for lining men's clothes and women's dresses. It measures forty inches in width.

Lustring (lus'-string). A variety of glossy silk dress fabric, in extensive use during the 17th and 18th centuries, and at present denoting plain, solid silk, neither figured nor corded, nor having a satin surface.

M

Mackintosh. The present use of rubber in the manufacture of clothing was discovered and perfected by Charles Goodyear, who was born in Connecticut in 1800 and died in New York City in 1860, and although all the patents which were originally obtained by him have long since run out his name will always be associated with the practical use of India gum in the trade. It was the use of sulphur as a drier of the pure gum, combined with heat that first made his invention practical. Although rubber garments have been in use since 1823, there has been a very marked improvement in the manufacture in recent years. Twenty years ago the only rubber clothing made and worn in this county was the plain, black, rubber-surface gingham or cambric garment. The greatest change brought about in the manufacture of rubber clothing has been the introduction of a water-proof cloth garment called a "Mackintosh." It takes its name from Charles Mackintosh, of Manchester, England, who was the original inventor of the cloth. It is a double-texture fabric—cloth on both sides, with rubber between that is not visible. When made up the garments resemble fashionably-cut coats or cloaks, and are almost odorless. They are either light or heavy, according to the quality of the material used. Mackintosh cloth is prepared by spreading on the cotton or woolen fabric layer after layer of india-rubber paste. Double-texture goods are made by uniting the rubber surfaces of two pieces of the coated material. The cloth is then cut in the desired shape for coat or cloak and the seams united by joining the soft material before it cools. There are a great many other kinds of water-proof garments made, of a cheaper class—single cloths with a rubber surface—but for durability and style the Mackintosh takes the lead, and are said to constitute seventy-five per cent of all rubber garments of a dressy character for both sexes now sold. A line of water-proof clothing is made of single gauzy texture with rubber facing. These garments are made for ladies of a variety of materials that imitate the latest styles of dress goods. They are also largely made in cambric, cashmere, silk and wool, in different patterns. Silk garments of this character are not durable, as they are made delicate and tender by the application of the rubber compound, which causes them to tear and crack too easily, and the reason is given that the oil in the silk rots the rubber. [See INDIA-RUBBER, RUBBERS.]

Macrame (mac-ra-ma'). A strong, hard-twisted, cotton cord, prepared for the manufacture of macrame lace and trimming. Macrema is the name given by the Italians round about Genoa (the home and birthplace of the work) to a coarse material used for towels, the fringed ends of which are knotted in imitation of several of the stitches of the old knotted point lace; hence the origin of the name of the fancy work or *lace*, which dates as far back as the 15th century. [See LACE.]

Madapollam (mad-a-pol'-lam). [So called from *Madapollam*, a town in India.] A coarse heavy cotton cloth, similar to calico, but stouter, and intermediate in quality between calico and muslin; originally of Hindoo manufacture, where they were employed for quilts. Madapollam is now made in this country, being used in some sections for underclothing. The cloth measures 20 to 33 inches in width. It is also made double width and used far curtains, quilts, and comforts.

Madder. A plant, the roots of which are ground up and when dissolved in water, used as a red dye. The use of madder has been known from the earliest times, as cloth dyed with it has been found wrapped around the mummies of Egypt. It was not, however, until the beginning of the present century that the coloring property of madder began to attract especial attention. It had long before been noticed that cattle and hogs which fed on the green parts of the madder plant had a red color communicated to their bones, which was only removed or prevented by keeping them away from this kind of food for a considerable length of time. Also the claws and beaks of birds which fed on madder roots are affected in the same manner, and the milk of cows that use it is tinged with a reddish color, which is even imparted to the butter; all showing it to be one of the most powerful coloring substances known. The numerous dyes it yields are of the greatest permanence, and is employed in dyeing linen and cotton red. Two kinds are fixed upon cotton: one is called *madder-red*, and the other, which possesses a much higher degree of luster and fixity, is called *Turkey red*, from the fact that for a long time it was mainly obtained from Turkey. The roots are now shipped to this country from Bengal and Turkey in large casks, and are broken up and pulverized by means of wooden stampers. The coloring principal of madder is termed *alizarin*, and in trade the term bears the name of *alizari*. Madder colors range from brown, through yellow, rose, and red, to deep purple, and are much used in painting and the fine arts as well as for dyeing fabrics. [See TURKEY RED.]

Madras. A large handkerchief of silk and cotton, usually in bright colors, used by the negroes in the West India islands and elsewhere for turbans. *Madras lace* is a variety of thin, curtain material, often printed in colors. *Madras work* is simple embroidery done upon bright colored madras handkerchiefs, the embroidery emphasizing the pattern of the stuff. These embroideries are used for banner-screens and furniture coverings.

Mail Cloth. A heavy, lustrous silk fabric, of a weave resembling huck-a-back, or canvas, used chiefly for embroidering upon, as for fine table cloths, tidies, and doylies; the heavier qualities, with larger meshes is sometimes utilized for bed spreads and portieres.

Manila (man-il'-a). A fibrous material obtained from the leaves and stalks of a hemp plant that grows in the Phillipine islands. The fiber is used for a great variety of purposes, owing to the many qualities of the manila plant. The outside bark is manufactured into cordage, binding twine and ropes, while the inner fiber is spun and woven into fine muslins and other delicate fabrics. Manila hats are also produced from this fiber. [See HATS.]

Manteau (man'-to). A cloak or mantle; specifically, a woman's cloak or outer garment, particularly one that is open in front and displaying the skirt or petticoat. The manteau is said to have been introduced into England by Henrietta, queen of Charles I. who is also credited with the first introduction of female labor for making the outer clothing for women. Manteau-making thereafter became a common female occupation, and indeed, the term came in time to comprise all kinds of dressmaking.

Mantilla (man-til'-a). A woman's head-covering, often of lace, which falls down upon the shoulders and may be used as a veil; worn in Spain and the Spanish colonies, in Genoa, and elsewhere. There are three kinds of mantillas which form the toilette of the Spanish senorita. The first is composed of white blonde, used only on state occasions, birthdays, bull-fights and Easter Monday. The second is black blonde, trimmed with deep lace. The third, which is used for ordinary wear, is made of black silk, trimmed with velvet. The Spanish woman's mantilla is held sacred by law, and cannot he seized for debt.

Mantle. A loose, sleeveless garment, worn as an outer covering, falling in straight lines from the shoulders; a simple kind of a cloak. The mantle, from its general simplicity of form, may be believed to be perhaps one of the earliest of garments. From a hairy skin huddled on to keep the wearer warm, an advance would be made to a cloak of skins, and from this to the mantle. These simple coverings were for centuries mere pieces of cloth of suitable size and shape, the upper corners of which were brought together and fastened at the neck or over one shoulder, with the loose ends flapping in front. Those worn during the middle ages and later were large and loose, capable of being drawn across the breast by a lace or chain. Long flowing mantles form a part of the distinguishing costume or insignia of British nobles and knights. Under various names and of different shapes, the mantle was common to the Greeks and Romans at all times, the toga of the latter being nothing but a loose mantle. [See CLOAK.]

Mantua-maker (man'-tu-a). One who makes women's gowns; a dress-maker.

Manufacture. Anything made for use from raw materials. To fabricate, especially in considerable quantities or numbers, or by the aid of many hands or of machinery. Figuratively, to produce artificially.

Marbled. A term in cloth-manufacture applied to fabrics woven with wefts of different colors, producing a variegated appearance resembling the veins and clouded appearance of marble.

Marceline (mar'-se-lin). A French trade name for a variety of thin silk used for the lining of women's dresses.

Marking-cotton. Loosely-twisted cotton thread, dyed solid colors, usually Turkey red, and used for simple embroidery work.

Marseilles (mar-salz'). [A name derived the city where first manufactured, *Marseilles*, France.] A stiff corded cotton fabric, used principally for ladies' white dresses and men's vests. The raised cord extends from side to side of the web. *Marseilles quilts* are woven of very fine yarn in large, embossed figures, the latter presenting the appearance of protruding from a smooth and unbroken surface. They are woven in the Jacquard loom on the double weaving principle, the embossing being produced by extra warp-threads. The backing weft sometimes floats outside the cloth, sometimes is bound inside just below the plain face, and at other parts the whole of the yarn is firmly united. Where the backing is brought inside, the top cloth is *raised*, while at those places where the warps are woven together, a *depression* is caused; in this manner the design is made. [See WEAVING, LOOM.]

Marsella (mar-sel'-la). Twilled marseilles.

Marvelieux (mar-vel-o'). A fine, close-twilled, satin-faced silk dress fabric, resembling Rhadame dress silk, and having the same glossy finish, but with the sunken lines or twills hardly so perceptible as in satin Rhadame.

Matelasse (mat-las-a'). A term applied to silk or woolen cloth to denote the particular style of its weaving. Such fabrics have a raised pattern on their surface which look as if they had been quilted or wadded. The French word *matelasser* means to quilt, or to wad. Matelassa silks have usually a rich flowered pattern, and are of one color, the pattern showing only by its slight relief or embossed appearance. The term has also been given to a heavy cloaking fabric, composed of cotton and wool, or silk, cotton and wool mixed; the design being large flower patterns, or brocades of an overshot or embossed appearance.

Matting. A fabric of some coarse material, as rushes, hemp, coir, bamboo, palm leaves, etc., used as a cheap covering for floors. *Cocoanut* matting is made of coir, especially that which is heavy and thick. [See COIR]. *Russia* matting is made from the inner bark of the linden tree. *Napier* matting is made of hemp. *Canton* or *China* matting is of two kinds: "China" matting which is made in two-and five-yard pieces, and

fastened together in one 40-yard piece; and "Japan" matting, which is made in one 40-yard piece, without a joint and can be reversed. The making of matting has been known to the Chinese from a very early period. Grasses from which the matting is made grow in great abundance throughout China, but the principal variety is grown mostly in the province of Canton. To perfect its growth, the plant requires a great deal of moisture, and this it receives lavishly in the lowlands of Canton, being adjacent to both sea and rivers. The excessive moisture makes the growth so rapid that "hearing the grass grow" is almost a truism. The grass requires little cultivation and grows from the root instead of from seed. The variety most used, which grows nowhere except in China and Japan, is three-cornered, and very strong and tough. It grows very rapidly in the wet lands, and usually there are three or four crops harvested in a year, but specimens will not thrive or live long in this country. Life in the districts where the matting is made is odd and picturesque. Every peasant is employed in the manufacture of matting, most of which is made in the homes of the workers. There are very few factories where numbers of workmen are gathered together, although the employer of the labor is usually a resident in Canton. Even children are enlisted in the work. They are employed in splitting the straw, which is the first operation after it is harvested. This is necessary because the straw contains considerable sap, which, if allowed to remain in it, would decompose and rot the straw. Little Chinese youngsters split the long straw with sharp knives. These almond-eyed children are constantly at work, and acquire at an early age the knack required to properly cut the straw. The novice cannot do this, as it requires great care to prevent the straw from being cut too much. After the straw has been split in this way, and the sap has been removed, it is dried or cured in the same way that our American farmer cures his hay. It is then very tough and strong. The colors in the mattings, which have of late years elicited so much admiration because of their beauty and varied shades, are obtained in a very simple and primitive way. Large pots of earthenware are filled with the dyes, in the composition of which both minerals and vegetables are used. The former (principally aniline dyes) make much the more satisfactory and lasting dyes, and are rapidly supplanting the latter altogether. When the dyes are ready the straws are taken and soaked in them. It frequently happens in the finer mattings that the same straws have different colors. One end may be blue the center red and the other end black. This is done by soaking the different parts of the straw in different dyes. But the same primitive and simple methods are followed in all cases. After being dyed the straws are taken out and spread to dry. There are different grades of matting, as of everything else, and one of the important features of making matting, is to get all the straws of a kind together. This sorting process requires more than ordinary intelligence, and usually has to be done under the supervision of an expert. The loom on which the matting is made is two yards long and one yard wide. The

warp is either jute or cotton. In weaving ordinary matting, two men are usually employed. One handles the straw and the other keeps it even and in place. The straws are put in one at a time through a long hollow stick with a slit through the lower surface. The straw being too limber to stand the strain of being thrust through the warp, it is put into this stick, and the latter is forced through the warp strings. When it is in place, the hollow stick is pulled out. The other workman who has a heavy beam in his hand, forces down the straws so that there are no spaces between them. Sometimes after the matting has been woven and dried, the straws shrink, leaving open spaces. These are closed up by what is called the "palming process," in which the straws are crowded together so as to make a solid even surface.

In making what is called damask matting, it is necessary to manipulate the warp strings so as to drop certain colors at intervals. Practically the same process is observed in the United States and Europe in weaving figured cloths, where color effects are introduced at certain intervals by throwing a shuttle containing the colored yarns in between the warp-threads at different points. In cloths these are known as Jacquard spots, from the name of the loom used in producing them. This loom has been one of the most important factors in the production of high-class materials. [See JACQUARD, LOOM]. Although it is worked by steam and is of the most complicated and intricate nature, the principle upon which it proceeds are much the same as those used in the hand-loom of the Chinese matting weavers. In the weaving of damask matting a Chinaman stands on top of the loom. He does what the mechanical contrivance in the Jacquard loom also performs; that is, he manipulates the warp strings, compressing them or lifting them, as is required to bring out the damask effects.

One of the most interesting features of the matting trade in China is the shipment of the matting from Canton to Hong Kong. Hong Kong is the port whence all the Chinese product is exported. The matting is sent down the river in the curious boats, and the manufacturer at Canton never knows until his steamboat returns whether his cargo has safely arrived at its destination or not. The river is infested with pirates, who every now and then swoop down on the steamers, slaughtering the crew and stealing the cargo. Because of this every boat is a floating arsenal. She carries a good-sized canon and has all the machinery encased in iron. The engine room is also protected by iron plate, and the engineer works with a brace of revolvers and a cutlass by his side. Officers relieve each other in standing guard at the engine room, always armed with loaded guns. The crew all go armed, and a vigilant guard is kept at all times. When the matting arrives at Hong Kong it is transferred to some of the harbor junks, which carry it out to the sailing vessels waiting for it. All the matting brought to this country is brought in American sailing vessels, and most of it is landed at New York City. Usually a trip takes from three to four months. The Chinese merchants look entirely different from the Chinamen seen in

this country. They are refined, intelligent, and very neat in their dress They wear sober-colored suits and dress in silk altogether. They understand the principles of business very thoroughly and are great speculators. It is no unusual thing for a Chinese merchant of importance to go out through the country and buy up hundreds of acres of matting straw on speculation.

Mauve (mawv). [French *mauve*, mallow.] A reddish-purple dye obtained from aniline, so called from the resemblance of the color to the purple markings of the petals of mallows, a variety of garden flower.

Measures. A system by which extent is ascertained or expressed; stated quantities. Our measures of lengths originated in the dawn of civilization and came down to us through the Anglo-Saxons. The *yard* was originally the length of a king's arm; the *foot* the length of his pedal extremities. The word inch is derived from the Latin *uncia*, a twelfth part, but why the foot was divided into twelfths instead of tenths or elevenths, no one claims to be wise enough to tell. It has been suggested that probably the inch was originally the length of the second joint of the forefinger, and that twelve of these about equal the length of the forearm,which averages about one foot. *Aune*, which is a cloth measure of one yard and a quarter, is derived from the Latin *alna*, forearm. The *inch* used to be divided into three "barleycorns," which were simply the length of three grains of barley. The *mile* was reckoned at 1,000 paces, as its name shows, being derived from the Latin phrase *millia passuum*, a thousand paces. The system of units ordinarily used in measuring length is termed *Linear measure*. The table is:

Mile.		Rod.		Yard.		Feet.		Inches.
1	=	320	=	1760	=	5280	=	63,360
		40	=	220	=	660	=	7,920
		1	=	5½	=	16½	=	198
				1	=	3	=	36
						1	=	12

Other units considered as belonging to Linear measure are the *pace*, 5 feet; the *fathom*, 6 feet; the *span*, 9 inches; the *hand*, 4 inches (used in measuring the height of horses); the *ell*, 1¼ yards; the *aune*, 1¼ yards; the *meter*, $1\frac{1}{12}$ yards.

Cloth measure is the standard system of linear units employed exclusively in measuring cloth. The table is:

Yard.		Quarters.		Nails.		Inches.
1	=	4	=	16	=	36
		1	=	4	=	9
				1	=	2¼

All dress silks are put up in folds 1¼ yards long (1 *aune*). French cotton fabrics, such as sateens, lawns, organdies, etc., are usually put up in folds of one meter—one yard and a twelfth. The same fabrics made in the

United States are folded in 1-yard lengths. Both French and American silks, however, are folded in aune lengths. [See METRIC SYSTEM, ELL.]

Medici (med'-i-ki). A form of collar for ladies' cloaks and dresses, distinguished by being very high and stiffened, and finished with a slight roll at the top.

Melange (ma-lonzh'). A term derived from the French, signifying a "mixture." In the dry goods trade melange is usually applied to dress fabrics of a black and white color mixture. There is also a variety of dress fabric, of French manufacture, woven with a cotton warp and woolen weft, termed melange.

Melton. [So called from the name of original English manufacturer.] A stout kind of woolen cloth used for men's clothing. In recent years it has been largely used in the manufacture of ready-made overcoats. After melton leaves the loom, the cloth is fulled to a degree completely concealing the warp and weft threads; then a rough nap is raised, which is next sheared down close to the surface, being finished without pressing or glossing. It is dyed in solid colors, usually black or shades of brown. [See FULLING, NAPPING, WOOLENS.]

Mercantile. A term pertaining to the traffic carried on by merchants; having to do with trade or commerce; trading; commercial. *Mercantile* applies only to the actual purchase and sale of goods, according to one's line of business. The *mercantile* class in a community comprises all such as are actually in the business of buying and selling. *Commercial* is a broader term, including the other, and covering the whole theory and practice of commerce, home or foreign.

Mercer. A dealer in small wares, or in merchandise of any sort. In England the term is applied to a dealer in cloths of different sorts, especially silk.

Merino. The finest wool-bearing breed of sheep in the world, of Spanish origin, so called from their anciently being under the superintendency of a *maerino* (major) or superintendent of the Spanish sheep pastures. For centuries the finer wools used for cloth-making throughout Europe were obtained from Spain, which country was the home of the famous Merino breed, developed from races of sheep introduced by the Romans, the originals of which formed the flocks of the patriarchs thousands of years ago, and have been the parent stock of all fine-wooled sheep since. The Spanish Merino sheep were introduced into Saxony in 1765, and by judicious crossing developed the famous Electoral breed, which produce the most expensive wool grown in Europe. At Rambouillet, France, Merino sheep have been bred for more than a century, and the flock is known all over the world. The Merinos of Rambouillet have the orignal character of the Spanish breed, without any taint or crossing. In America the Merinos are by far the most valuable breed, the wool they

produce being second to none. The sheep of the United States are said to be 95 per cent. Merino, this breed thus forming the basis of the entire industry. What are known as the Saxon Merinos (Electoral breed) originated from a flock of 200 Spanish sheep imported to Saxony in 1765. They were bred with great care, and improved over the original in quality of wool. These as well as typical specimens of the species in Spain are yearly brought to the United States and crossed with our native Merinos, to the manifest improvement of the fleece in every instance. [See FLEECE, WOOL.]

Merino. A woolen dress fabric, first made at Bradford, England, in 1826, of pure Merino wool, at which time it was one of the most expensive varieties manufactured. In appearance it is a thin, light "woolen" material, twilled on both sides, back and face alike. *Merino* is also a term applied to a variety of medium-weight, soft-finished knitted underwear, formerly made of merino wool, but now of cotton and wool mixed.

Merveilleuse (mer'-va-lyez). [Fr. *merveilleux*, marvelous, exquisite.] A fashionable woman under the Directory in France at the close of the 18th century, at which time ultra-fashionable people affected extraordinary innovations in costume. Hence, any new style in female costume. [See MARVELIEUX.]

Mesh. One of the open spaces in bobbinet; an opening in netting or network of a size determined by the distance apart of the knots by which the crossing twines or threads are united. In lace, the whole background, often formed of threads very irregularly spaced, is termed the *mesh* of the fabric.

Meter. A French measure of 39.37 inches, or nearly 3 feet 3⅜ inches. It is usually counted as $1\frac{1}{12}$ yards.

Metric System. A system of measurement in which the ***meter*** is the fundamental unit. It was first adopted in France In the year 1800, and is now in use in most other civilized countries, except the English speaking countries, though universally adopted for scientific measurement. Its use is permitted in Great Britain, and was legalized in the United States in 1866. The *meter*, the unit of length, is the one ten-millionth part of the earth's meridian quadrant; that is, the distance from either pole to the equator, which equals just one-fourth of the earth's circumference. The meter is one ten-millionth part of this distance. Its length is 39.37 inches, or nearly 3 feet 3⅜ inches. The following is a table of equivalents :

1 millimetre	=	0.03937 inches.
1 centimetre	=	1.3937 inches.
1 decimetre	=	3.93708 inches.
1 metre	=	3.2809 feet.
1 decametre	=	10.9363 yards.
1 hectometre	=	109.3633 yards.
1 kilometer	=	0.62138 miles.

Milan Braid. A variety of flat braid used for trimming and binding, made of mohair fiber, on account of its superior wearing qualities. The number or "size" of Milan braid is indicated by the number of ribs or plaits extending from end to end of the web. [See BRAID.]

Milled Cloth. Cloth which has been thickened and shrunk in a fulling mill, until it is fulled or felted. *Double-milled* cloth describes those sorts which have been twice milled to give them increased thickness. [See FULLING.]

Milliner. Formerly a man who sold ribbands and dresses for women; now, in common usage, a woman who makes and sells bonnets and other headgear for women. Milliner is a corruption of "Milaner," so called from the city of Milan, Italy, which at one time gave the law to Europe in all matters of taste, dress and elegance.

Milling. The felting or fulling of cloth to thicken it. *Double-milled* cloths are woolen cloths which are fulled or shrunk by being put through the fulling mill twice. [See FULLING.] Also a method of softening and opening the pores of hides by placing them in a hollow revolving drum in contact with oil or any ameliorating liquid, whereby the liquid is worked into all parts of the leather. [See LEATHER.]

Mill-raye. [A French term meaning *all striped* or *all streaked*.] A variety of percale, so named as being descriptive of the pattern, which consists of minute, thread-like stripes, alternately black and white. The width of this light, printed cotton cloth is 32 inches. It is washable material and is used for children's frocks and boys' shirts.

Mitts. A sort of glove without fingers, or with very short fingers. Mitts sometimes cover the hand only, and sometimes the forearm to the elbow. A common material is black and colored lace; they are also knitted of silk of various colors. They were especially worn by women during the early part of this century, the fashion dying out about 1830. Then the custom slumbered for 50 years, and was revived in 1880, or thereabouts, since which time they have formed a staple and constant article of dry goods throughout the entire country. Mitts are principally made of silk and on account of the high protective tariff on manufacturers of silk goods, are largely made in this country. Several domestic manufacturers have grown rich beyond expectation by making this class of goods, and so thoroughly have they adapted themselves to supply every imaginable want of the trade in color, length and texture that the domestic productions entirely surpass the imported goods. [See GLOVES.]

There are some romantic facts related to the early history of mitt manufacturure. "About the year 1700 open-work mitts and gloves and hose ornamented with eyelet holes made by using the work-needle or hand-ticklers, and which had also been embroidered by hand, were imported into England. These were quickly imitated there, but still by hand. The later introduction of an improvement on the hosiery frame by Strutt led to many

attempts to make these eyelet ornaments on a like principle (that is, by machine-knitting). These efforts were generally carried on with much mystery, for the profit anticipated from success was very great, as the wages obtained by hands making such work were from $1.25 to $1.75 per day if diligent, at a time when meat was only 4 cents a pound, and bread in proportion. Amongst these experimenters was a stocking-knitter named Butterworth. He successfully overcame all obstacles, and succeeded in knitting lace mitts by machinery, but was obliged to confide his plan to a machinist named Betts, before he could get the necessary machinery constructed. Eventually a supply of cash became necessary, and was obtained from one Shaw, when the original inventor was deliberately set aside. Further funds becoming requisite to procure a patent, the aid of John Morris, a hosier of Nottingham, was procured, and the parties proceeded to take out a patent. Betts then, in the absence of Shaw, for a large sum of money, made over the entire interest in the patent to Morris. Shaw was so chagrined by the transfer to Morris without any renumeration to himself that he proceeded to Holland to set up the manufacture there. He visited Brussels, Lille and Valenciennes, but met with no encouragement. At the latter city he saw a widow making mitts and handkerchiefs in imitation of Spanish open-work by the new method..... by which she was then making silk mitts with comparative ease and rapidity; and he found that they could be thus produced at a lower cost than with the Butterworth machine. He brought the widow and her plan to England, and as the apparatus cost little, he soon made great progress in its use. But Morris, having plenty of funds, succeeded in vastly improving his machine, and completely ruined Shaw by lowering the prices on the goods; and so this tale of double-dealing and fraud was brought to a close."

Mocha. See GLOVES.

Mockado or Mock Velvet. A stuff manufactured in the 16th and 17th centuries; described as a fabric made of cotton in imitation of velvet; probably similar to what is now known as *velveteen* or *corduroy*.

Mohair. Mohair, Brilliantine and Sicillian are dress fabrics having the same organization and construction. They are each woven with cotton warp and a mohair or alpaca weft. Brilliantine is the finest, woven the closest, and presents the brightest and most lustrous surface. Mohair is a grade lower than brilliantine, while Sicillian is distinguishhd by being a somewhat heavier and stouter fabric than either of the others. Mohair fiber in all textile goods is conducive to wiry strength as well as desirable beauty, and fabrics composed of it are esteemed for their dust-defying quality, which fits them especially for traveling purposes. These fabrics are frequently printed with attractive floral designs after the manner and style of challis and printed silks.

Mohair is the hair of the angora goat. The word is a corruption of the German *mohr* (a Moor). The material was first introduced into Spain by

the Moors, and from thence brought into Germany. Under the head of ANGORA will be found a full account of the origin and production of this fiber. The following table indicates the amount of mohair fiber imported by this country for the last five years and the average price of same :

	Pounds.	Avg. price. Cents.
1887	842,527	26⅝
1888	455,215	28 4-9
1889	1,841,312	28 3-10
1890	1,110,520	28 2-5
1891	1,679,599	26

Moire (mwo'-ra). The French term for clouded or watered silks. The weave on which a moire effect is produced is usually a gros grain. The goods are woven in what the Lyons weavers call *en jumelle*, that is, in double widths, two pieces being woven together. This is necessary in order to obtain the bold waterings or *moirage*, which process depends not only on the quality of the silk, but greatly in the way in which they are folded when subjected to the enormous pressure in watering. When the pieces are being folded, care is taken that the grains of one piece shall fall into the cavities of the other, and *vice versa*, for if they ride one across the other the watering will be spoiled. For more careful work, the *outside* edges of the two pieces are provided with linen threads at stated intervals, which are then knotted together so as to keep the pieces better over each other and the grains perfectly parallel. That very careful weaving, in the first place, is indispensable for obtaining good results, will be obvious. After being properly folded the silk to be moired is wetted slightly, and then submitted to an enormous pressure, generally in a hydraulic machine. The pressure (generally from 80 to 100 tons per piece) applied on the material being uneven, the grain is flattened in the parts desired and the result resembles waves, or moisture drawn into curious lines. For *moire antique* the pattern is engraved on a brass roller, and the material passed between it and one having a plain surface, under great pressure. This style is sometimes called by manufacturers *long moire*, the moirage being more scattered, longer, and in finer, but not less effective, lines. According to the figures produced on the cloth, moires are divided into plain and fancy, the latter showing more elaborate patterns. *Moire antique* is an expensive fabric and is often seen in fancy combinations with satin stripes and swivel effects. The same principle that governs the production of these effects on broad goods also applies to ribbons. *Moire nacre* is a flowered pattern woven on the Jacquard loom, imitating very successively the natural color and shine of mother of pearl. The moire process is sometimes applied to a mohair fabric known as *moreen*, which is only an English corruption of the word moire. [See WATERING.]

Moleskin. [So called from its fancied resemblance to the skin of a mole.] A heavy cotton fabric, double-twilled and extra strong, piece-dyed in shades of brown; used for men's clothing where rough wear is expected.

The cloth is always napped on the wrong side. Imitations are made with a slight nap on the inside and printed on the outside with small checks and stripes, and used for men's summer pantaloons. [See FUSTIAN.]

Momie. French for *mummy*. [See MUMMY.]

Montanac (mon'-ta-nac'). [Probably derived from *montanic*, rough, uneven.] A heavy, napped woolen overcoat-cloth, distinguished by a portion of the nap being formed in woolly loops, intermixed with a soft straight nap, similar to that with which Fur Beaver is finished.

Moquette (mo-ket'). [French *moquette*, tuft of wool.] A variety of carpeting, with a soft, velvety nap of wool, and a warp of hemp or linen. [See CARPET.]

Mordant. A substance used to fix colors; a substance which has an affinity for, or which can at least penetrate the fibre of the material to be colored, and which possesses also the property of combining with the dye-matter, and of forming with it an insoluble compound within or about the fibres. Albumen, gluten, gelatin, tannin, certain oils, certain acids, alumina, soda and lead salts are used as mordants. To obtain permanent dyes from the great majority of coloring materials, the use of mordants is found absolutely necessary. Fiber cannot usually be dyed by means of ready formed lakes, or native dyeing extracts, for the reason that they are of too coarse and gross a nature to penetrate the fiber and remain there. When they are applied to any sort of fibres without the use of a mordant, they rest for the most part on the surface, and are, therefore, fugitive and easily removable by washing or friction. The art of the dyer, therefore, consists in so combining these three elements—cloth, mordant and coloring matter—that he may obtain the formation of a color in the body of each individual fiber whereby it will be chemically combined with the fibre and permanently retained. There are three principal ways in which the mordant and coloring matter can be put into contact with the yarn or cloth, the modifications of which constitute the whole art of dyeing: 1. By the first method, which is by far the most common, the cloth is separately impregnated with the mordant, which is by various means decomposed, so as to deposit its base in an insoluble state within the fiber, and afterwards the coloring matter is applied. Take, for example, the case of dyeing a common black from logwood upon calico, the cotton composing which has no affinity for the coloring matter of logwood. The first process is to pass the calico through a hot solution of sulphate of iron, and to remove the excess by passing the cloth through rollers; the cloth, either previously dried or not, is then passed through a mixture of lime and water which has the effect of decomposing the iron salts. A washing in water to remove the excess of lime prepares the calico for coming into contact with the logwood. The calico, which now has a buff color, when placed into a hot decoction of logwood speedily acquires a dark hue in about half an hour, and has become dyed of a dense black color, and, when smoothed and

finished, forms the common black calico of commerce. A variety of other cases might be cited. Woolen cloth boiled for some time in bichromate of potash acquires a certain amount of salt of chromium, which enables it to take a black color from logwood, or other colors from other dyestuffs. Woolen cloth, boiled with salts of tin, is enabled to dye up a brilliant scarlet in a decoction of cochineal; boiled with alum, it will take a great variety of colors in various dyestuffs. The practice of calico printing illustrates in a very forcible manner the action of mordants. By the aid of proper machinery described in an article upon that subject, portions of a piece of calico are impregnated with mordants, and these portions alone acquire color from the dyeing solutions, and thus designs or patterns are produced upon a white ground. The most usual method of impregnating the cloth, composed of any sort of fiber, with mordant, consists in immersing it in a hot bath containing the required salts, which, under high temperature, decomposes and is absorbed by the fiber. It is then said to be mordanted and the cloth is ready to receive the dyestuff.

2. A second method, less general than that above described, is to apply the coloring matter *before* the mordant. It is only resorted to with heavy goods which absorb a large quantity of the dye-color, or with light tints upon other fabrics; dyes produced in this way are not so permanent as those produced by the first method.

3. A third method is to apply the mordant and coloring matter together, to the cloth or yarn. In common piece dyeing this plan is seldom followed, on account of unsatisfactory results. It consumes less time, however, and calico is frequently colored by this process. [See COCHINEAL, CALICO, LOGWOOD, INDIGO, MADDER, TURKEY-RED.]

Moreen. [Formerly *moireen*, from moire]. A fabric of mohair or wool filling and cotton warp; formerly made in imitation of moire silk, for purposes of upholstery. It was sometimes plain, but more commonly "watered" with embossed patterns by passing the cloth over a hot brass cylinder, on which was engraved various flowers and other fancy figures. At present it is manufactured to some extent and used for petticoats, bathing dresses, etc., and the heavier qualities for curtains.

Morocco. A term used by leather manufacturers, having two distinct significations. 1. Leather made from goatskins tanned with sumac, originally in Morocco, Algiers, but now produced in Europe and America from imported skins. The peculiar qualities of true morocco are great firmness of texture with flexibility, and a grained surface of which there are many varieties. This surface is produced by an embossing process called *graining*. True morocco is of extreme hardness, and makes the most durable book bindings; it is used also for upholstering seats, and for boot-tops. 2. It is also a general term used to describe fine light-weight leather in imitation of the above, made chiefly of sheep, lamb and kid skins as well as of goat, and used in the manufacture of light shoes for men, women and children.

Mosquito Netting. A coarse cotton gauze with large open meshes. The most common kind has a single warp confined between two weft strands. Mosquito net is put up in bunches of twelve pieces, the combined length of which is 100 yards—8⅓ yards per piece.

Mourning. The custom of showing grief by outward signs is universal. The general form in civilized countries consists of wearing garments of colors which vary widely. In the United States and Europe the ordinary color for mourning is black; though white is mixed with black for slight mourning, and also occasionally employed at the death of children and maidens. In China, white is invariably the color adopted for mourning; in Turkey, blue or violet; in Egypt, yellow; in Ethiopia, brown. Persia adopts pale brown; Burmah, yellow; Tartary, deep blue; Asia-Minor, sky blue. The Spartan and Roman ladies mourned in white; and the same color prevailed formerly in Castile on the death of their princes. Kings and cardinals mourn in purple. Each people have their reasons for the particular color which they affect: white is supposed to denote purity; yellow that death is the end of human hopes—in reference to leaves when they fall, and flowers when they fade, which become yellow. Brown denotes the earth, whither the dead return. Black, the privations of life, as being the the privation of light. Blue expresses the happiness which it is hoped the deceased will enjoy in the land beyond the skies; and purple or violet, sorrow on the one side and hope on the other, as being a mixture of black and blue. [See COLOR.]

Mousquetaire (mus-ke-tare'). A style of ladies' kid glove, distinguished by its long loose top and a lengthwise slit at the wrist; so-called from its resemblance to a military glove, or the glove of a musketeer (French *mousquetaire*). The term was also, in 1850, applied to woman's turn-over collar, made of plain, starched linen.

Mousseline-de-laine (mos-e-line'de-lane'). [French for *muslin of wool.*] An untwilled woolen dress cloth made in many solid colors and also printed with varied patterns. It is now fallen into comparative disuse. [See DELAINE.]

Muff. A case or cover into which both hands may be thrust to keep them warm. It is commonly of a rounded form, and made of fur, but sometimes of velvet or silk in a bag shape or other fanciful design. The muff was introduced into France toward the close of the 16th century, at which time the fur was placed *inside*, and satin, velvet or some other expensive material without. It was used by both men and women in the 17th century and often was an essential part of the dress of a man of fashion, being commonly suspended from the neck by a string, but is now exclusively an article of female apparel. Together with a boa or tippet it forms a "set of furs."

Muffler. A term derived from the French word *amusler*, to cover. The *muslau* or *muffle* is a word of French derivation which has been in

use for centuries to describe a cover for the mouth, nose, and even the whole face; hence our word *muzzle*. Muffler, in early times, was the name of a sort of veil worn by females. The French at present call their winter gloves *moufles*, and single pieces of stuffed fur with which a woman covers her hands, a *muff*. In the United States a muffler is a neckerchief, wrapper, or scarf, made of cotton, wool or silk, and worn around the throat for the procurement of warmth.

Mull. [From Latin *mollio*, to soften.] An extremely thin, soft and transparent kind of muslin, used for dresses, neckwear, trimming, etc. It is woven of fine, soft cotton yarns, free from sizing or starch. Thin, changeable silk is also sometimes termed mull, especially the sorts finished without dressing, and used for millinery purposes.

Mullmull. Same as MULL.

Mull Muslin. A bleached muslin of the finest and softest quality.

Mummy Cloth. Cloth in which the mummies or embalmed human bodies, taken out of the Pyramids of Egypt, were enveloped, the material of which was linen. This cloth is in the form of bandages wound round and round the body, sometimes to the number of 20 thicknesses. The stuff presents a surface of a rough and irregular weave, caused by the threads intersecting each other at irregular intervals. This old Egyptian fabric is imitated in various materials at the present day; the term "mummy" or "momie" being applied to the weave rather than to the material of which the fabrics are composeed. The "momied" effect is produced by using a fine warp thread and heavy weft, and causing them to cross each other at *irregular* intervals. By this means a surface with a puckered or indented appearance is formed. The weave was first used in a French all-wool dress fabric, but is now imitated in linen and cotton cloths.

Mungo. See SHODDY.

Muslin. A name derived from *Mosul*, a city in Asiatic Turkey, long celebrated for the fineness and delicacy of its cottons. Mosul, while it did not originate the muslin manufacture, yet earned for itself the reputation at one time of producing muslins of the greatest beauty. Cotton for unknown ages has been grown in that portion of Asia in plenty; the inhabitants, especially the women, were gifted with such quick feeling of finger that they could spin thread of more than hair-like fineness. Cotton with them took the place of silk in the loom, and "gold was not forgotten in the weaving." Their work, not only because it was so much cheaper, but from its own peculiar beauty and comeliness, won for itself a high place in common estimation, and the name of the town where it was wrought in such perfection was consequently given to it as its distinctive title.

The original home, however, of muslin-weaving is in India, where since the time when the mind of man runneth not to the contrary it has formed an important industry, and where even yet wonderful fabrics of airy lightness continue to be woven with the aid of only the most rude and primitive

looms. These India looms consist merely of two bamboo rollers and a pair of heddles and a shuttle. The loom in its entirety is attached between any two native trees affording a comfortable shade. The rigid and clumsy fingers of our American weavers would scarcely be able to make even a piece of rough canvas with the instruments the Hindoo uses in making a web of the finest cambric muslin. It cannot but seem astonishing that in a department of industry, where the raw material has been so grossly neglected [see COTTON], where the machinery is so rude, that the results should be fabrics of the most exquisite delicacy and beauty, *unrivalled by the products of civilized nations*, even those best skilled in the mechanical arts. This can only be explained by the remarkably fine sense of touch possessed by that effeminate people—the Hindoos—by their patience and gentleness, and by the hereditary continuance of muslin-manufacture in families through many generations, which leads to the training of children from their very infancy in the processes of the art. For the lightest India muslins the young women spin the thread during the early part of the day, while the dew is yet on the ground; for such is the extreme tenuity of the fiber that it will not bear manipulation in the dry atmosphere after the sun has risen. Some of the allusions to the wonderful fineness of these India muslins appear to border on the marvelous. We read in a missionary's account of a dress length of cotton being enclosed in a nut-shell; and of a daughter being reproved by her father for the indecent transparency of her dress, retorting that she was robed in 40 yards of the stuff. Another missionary writing from Serampore asserts that "some muslins are made so fine you can hardly feel them with your hand, and when laid on the grass to bleach, and the dew is fallen on it, it is no longer discernible." And the same writer says: "There is made at Seconge a sort of muslin so fine that when a man puts it on, his skin appears as plainly through it as though he were quite naked; but the merchants are not allowed to transport it, for the governor is obliged to send it all to the Great Mogul's seraglio and to the principal lords of the court, to make the sultanesses and noblemen's wives shifts for the hot weather; and the King and the lords take great pleasure to behold them in these shifts, and to see them dance with nothing else upon them." The name bestowed by the Romans on the fabric—*ventus textilis*, or "woven wind"—is not entirely figurative. It is remarkable that every distinct quality of muslin made in India is the production of a particular district, in which the art of making the fabric has been transmitted for centuries from father to son—a custom which alone must have conduced to the perfection of the manufacture. The history of cotton-weaving in India is curious in many ways. When the East India Company first traded in the Eastern seas, India cotton fabrics were without a rival in European markets. The beautiful muslins of Dacca, which were famous when Babylonian and Assyrian kings ruled Western Asia, were among the wares first brought to England and America by the old East India Company. In 1787 the value of the imports of these muslins into England was

estimated at $2,000,000 annually. But the invention of the spinning jenny in England was presently followed by a cry for protection by both the British and American manufacturers. A heavy duty was imposed on all India goods and the manufacture of Dacca muslins for export purposes was killed.

The term *muslin*, as accepted in the United States signifies a thin, plain woven cotton cloth, brown or bleached, of any width. The India muslin is known by different names, according to its place of manufacture and and its fineness and beauty. The first muslin woven in this country was at Pawtucket, Rhode Island, December 21, 1790, by Samuel Slater, the father of American cotton manufacture. Prior to this date all common muslins consumed by the colonists were imported, being of English manufacture, and of linen warp, with cotton weft. Proximity to the raw material, and the inventions of the cotton gin and spinning appliances made it possible for the United States to produce her own muslins. In 1890, one hundred years from the date of the erection of the first muslin loom, there were the following number of mills engaged directly and indirectly in the production of brown, bleached and colored cottons:

Mills making bleached and colored cottons	150
Mills making brown and bleached cottons	125
Mills making colored cottons	250
Mills making print cloth	85

The above if added together would make 610 establishments, but the number is not so large as that, for the reason that many mills make in varying quantity all of the cottons described, while others are devoted exclusively to specific manufactures, such as brown and bleached sheetings and shirtings, or brown and colored cottons or print cloths, and are necessarily contained in each classification. However, the above figures show one thing clearly: that all of the various "regular" and "standard" tickets, as well as "fancy" brands of brown and bleached muslins made in this country, numbering well up among the thousands, are produced by these factories. While diversification of quality and style of our domestic cotton fabrics is steadily and rapidly enlarging, it is a question whether they will keep pace in this direction with the increase in the variety of fancy names given them. As an illustration, one particular make of muslin having a standard reputation will not only be made and branded with its own original and regular ticket, but to satisfy the caprice or necessity of the trade in various parts of the country, will probably have a dozen different fancy names that bear no relation whatever to the original brand or to the name of the factory making it. This is due to the keen and close competition on the part of both jobbing and retail trades, which reduces sometimes the profit to such a low ebb, that they cannot afford to carry the goods unless they have some protection in the way of fancy tickets that are not strictly competitive, so far as the brand is concerned.

The following estimate is the cost making *one pound* of cotton into brown muslin:

	CENTS.
One pound *middling* cotton, delivered at mill	8 50
Waste	1 48
Labor	3 80
General expenses	2 08
	15 86

[1] "Standard" muslin weighs 2.85 yards to the pound.

The cost (or nearly so) of manufacturing any brown muslin may be ascertained by dividing 15.86 (cents) by the number of yards of the muslin to the pound. Heavy muslins like Indian Head and Wachusett A weigh 2.85 yards to the pound; Pepperill R 3.75 per pound; Lawrence LL 4 yards to the pound; while light muslin, like Augusta B weigh 4.55 yards per pound; Great Falls N 5, Utica C 5.45, and Windsor H 5 yards to the pound. Bleached cottons usually come one cent higher than brown, and lose a certain per cent of their weight in bleaching. A power loom weaves five yards of muslin per hour, and one young woman or boy can tend from eight to twelve looms.

The variety of fancy muslins are endless, the following being among the most-used descriptions: *Arni muslin*, an extremely fine muslin made at Arni, in the presidency of Madrid, Bengal; *Book muslin*, a thin starchy muslin, used principally for covering books and as lining for cheap dresses; *Corded muslin*, a variety in which a thick, hair-like cord is introduced into the fabric; *Coteline muslin*, a hair-cord muslin, printed in all patterns and colors. It is of French manufacture, thirty-one inches wide, and designed for dress material; *Dacca muslin*, a fine thin variety made at Dacca, in Bengal. The machine-made "Dacca" muslin, produced in this country is chiefly used for curtains. It is two yards wide, when figured, and narrower when plain. *Figured muslin*, varieties wrought in the loom to imitate tamboured muslin, or muslin with figures printed in color on it; *Linen* muslin, same as *leno*; *Tamboured* muslin, see TAMBOUR. [See APPENDIX "B," SHEETING.]

Mutual Accounts. Accounts in which each of two firm or parties have one or more charges against the other.

Myrtle-green. A rich pure green of full chroma but low luminosity. [See COLORS.]

Mysore Silk. Soft fine undressed silk of Hindoo manufacture. They are imported in all colors, printed and plain. The patterns are of a Hindoo character, chiefly all-over floral designs, although some are printed in gold and silver in bold large figures, while others are printed black on the natural color of the silk.

N

Nacre (nak-ra'). A French word applied in the United States to decorated objects; as *nacre* porcelain, *nacre* ribbons. The word in the original French means a mother-of-pearl shell, and the application in the country

signifies having an iridescence resembling that of the inner, polished portion of mother-of-pearl. [See MOIRE.]

Nail. A unit of English cloth-measure 2¼ inches, or one-sixteenth of a yard. Abbreviated *N.*

Nagapore Silk. A kind of India silk, soft, slight and undressed, and usually in plain colors of the dyes peculiar to the far East.

Nainsook (nan'-suk). [From Hindoo *nainsukh*, a term which was formerly used to designate India muslin, or sprigged muslin.] A kind of fine, soft, bleached muslin, woven in small damasked checks and stripes, and used as a summer fabric, principally for the making of white dresses and aprons.

Nankeen (nan-ken'). A plain-woven cotton fabric, in former years (1820-1840) extensively imported from *Nanking*, China, to Europe, whence its name; the "king," however in the course of time and travel having been changed to "keen." It was long supposed the Chinese held the secret for dyeing its peculiar yellowish-buff color, which was found to be remarkably durable. But it was finally discovered by some missionaries that this peculiar color was not produced by dyeing at all, the cloth being made of a buff-colored variety of cotton, which is still occasionally grown in China and India. A similar cotton grows in small quantities in the Southern States, the yellow color apparently depending on some peculiarity in the soil. The color of our "artificial" nankeen is produced by an elaborate process, in which the cloth is first dipped into a saturated solution of alum; then a decoction of oak-bark; then in a bath of lime-water; and next in a bath of nitro-muriate of tin, which makes a permanent dye. Blue, white, and pink varieties have been made, but the brownish-yellowish variety formerly in use for trousers by gentlemen and corsets by ladies, is the nankeen with which the name is generally associated. The weave is either plain or twilled, of the weight of heavy sheeting. At present its use is confined to the manufacture of children's clothes and underwear.

Nap. [French *naper*, to nip off the knots on the surface of cloth.] The wooly surface of felt, cloth aad plants. Specifically, the surface-covering of down or short fibers combed out of the substance of a fabric and all lying smoothly in one direction. The nap is the surface-covering of a fabric formed by *teasling*, the direction in which it lies always indicating the *warp*. From the nature of the surface of napped fabrics, as well as structure of the body of the cloth, they necessarily form very warm articles of clothing, the closeness of texture and the intermixing of the loose fibers of the nap all tending to assist in retaining warmth. [See TEASLING.]

Napery. [From Fr. *nappe*, a table-cloth.] Linen cloths used for domestic purposes, especially for the table; table-cloths, napkins, tea-cloths, etc. [See TABLE LINEN.]

Napkin. [From Fr. *nappa,* which means literally "little cloth."] A small, square piece of linen cloth, now usually damask, used at table to protect the clothes. In the 16th century handkerchiefs were commonly called napkins, and they are still styled pocket-napkins by the Scotch. Napkins are woven in pieces of long lengths like linen damask, and sold at wholesale in separate packs of one dozen each, all attached. The modern ocean steamer uses on each voyage about 1,200 napkins a day, and as many towels. As they do no laundrying on a trip, they are obliged to have a stock of from 10,000 to 20,000 of each of these household articles. [See TABLE LINEN.]

Napping. See TEASLING.

Natural Thread. The fiber of the mescal plant, grown in New Mexico and Arizona. It looks very much like a cabbage plant. On a large stalk which grows up out of the head, are long-stemmed leaves with sharp, hard-pointed ends. The soft sides of the leaf can be removed and the stem stretched out to four or five feet, so elastic is it. After allowing this to dry in the sun, it forms an eyeless needle already threaded. As fine a thread as is needed can be made, and it is as strong as wire. Ropes and heavy twine are made from the fiber that will be as strong as a steel-wire cable. This plant is found nowhere else on the face of the earth, so that Mexico and the United States have a monopoly of the trade.

Neck Cloth. A folded cloth worn around the neck, as a band or cravat; an article of dress which replaced the ruff and falling band, and formed a marked feature in the fashionable dress of men in 1740 to 1775. Throughout the 17th century the ends were commonly of lace and fell over the breast. Later, and down to about 1820, the neck-cloth was plain and composed of fine white linen.

Necktie. Properly a narrow band, generally of silk or satin, worn around the neck, and tied in a knot in front; by extension any band, scarf or tie worn around the neck or fastened in front of the collar. [See CRAVAT.]

Needle. The date at which needles were invented and first used is lost in the darkness of prehistoric times. From Eve with her needle of thorn spikes to the toiling girl of the present the needle has ever been a symbol of the vocation of the weaker sex. The earliest needlework—Eve's tailoring with fig-leaves, the needlework of the Hebrew women, the coat of many colors worn by Joseph, and the benevolent industry of Dorcas—serve as so many evidences of the early use of this necessity of the household. The word occurs in the oldest books, both Hebrew and Sancrit, and needles have been found in caves, mounds and ancient tombs, which facts attest their prehistoric manufacture. The bronze ones found in the Egyptian pyramids are from 3 to 3½ inches long, but what their general size and quality were can only be a matter of conjecture, particularly those used by the Egyptian women in working upon fine linen, which, from the very nature of the work done, must have been of the most minute kind. In

Europe prior to the present century needles were luxuries, and not lightly esteemed. The first needles used in England were made of ivory or of metal. In the latter case the eye was formed by looping metal round at the head, so the thread would not slip off when tied. Although such a needle would not bear comparison with the beautiful little instrument with which we are so familiar as to view it, generally with the contempt which proverbially follows great intimacy, yet some good work was done with these clumsy tools. For long ages, from the days when the wife of Edward the Confessor was accounted "perfect mistress of the needle," and when all English ladies were so skilled in embroidery that anything worked with unusual skill received the name of *English work*, down to the 14th century, the rough old needles were made to play a good part in the production of exquisite needle-work, and did far more work than any of their more finished descendants. Until the year 1818 needles in all European countries as well as in the United States were made by hand, by wire-drawers; and it is a pleasant fact to recall that to our own country the credit is due of the invention of needle-making by machinery. It is probable that there are but few among the hundreds of thousands who buy, sell and use needles who have any idea of the many and various processes the piece of steel goes through before it is ready for the seamstress. There are altogether twelve different processes through which the needle-wire goes before the perfect needle is produced. It is first received on large wooden spools from the wire-drawer, and cut into short lengths and placed in large quantities in regular piles; after which a heavy platform is lowered upon them and worked back and forth over the wires—rubbing them out straight, on the same principle that a bent pin is placed between the sole of the boot and the floor, and by a to-and-fro motion, rubbed out straight. The 'pointing" comes next, being accomplished by placing the wires between a revolving pully and belt. As the pully revolves the wires are also rapidly turned, and coming in contact with a fine grindstone, the points are quickly ground down. After this comes the polishing and then the stamping machine, which flattens the steel around the eye, so that it is very thin. Then the "eyes" are punched through, and taken between the thumb and finger by the workmen and passed over a small grindstone, which removes the surplus steel from the outside edges of the eyes. The tempering of the steel is the next process, large shovels being used on which the needles are laid and held in the furnace until the proper temper is obtained. From here they are taken and thrown into buckets of oil which hardens and at the same time makes them elastic. Then follows brightening the needles, large quantities being placed in chamois skins, filled with oil and powdered emery. They are rolled up and securely tied, and a platform lowered upon the bundles moving them back and forth, rubbing the needles together and by means of the oil and emery, brightening them. To free them from oil they are placed in large pans of sawdust, and shaken until thoroughly dried. A little polishing over a buff wheel then finishes the needle with

the exception of the inside of the eye. To do this a large number are threaded upon a small wire which is extremely hard and rough. The needles are revolved (on the wire) at a very high rate of speed, thoroughly brightening the inside of the eye and removing the roughness, which prevents the cutting of the thread. All needles marked "helix" have the eye finished in this way. Many cheap needles are not put through this last process. Girls next stick them into small pieces of cloth. 10 "papers" are tied into a "bunch," 25 needles to the paper, making a quarter of a thousand. They are sold at wholesale at so much per 1,000 needles. Originally needles were made of three distinct shapes: The first short and rather stubby with the point ground down which was rounding, and were called "ground-downs." These are still used to some extent by tailors. The next shape a little narrower and sharper at the point, are termed "betweens." "Sharps" are longer, slimmer, and more narrow-pointed. "Millinery" and "straw" needles are still longer in corresponding sizes than any of the above. One-half of the needles consumed in this country are made at Brooklyn, N. Y., the balance being imported from Redditch, England.

Needle-loom. A form of loom used especially for ribbons and narrow fabrics, in which the weft is carried through the shed formed by the warp-threads by means of a reciprocating needle instead of a shuttle. The loop of the weft is locked at the selvage by the passage through it of an extra shuttle with its thread.

Needle-threader. A device for passing a thread through the eye of a needle. One such device is a hollow cone with a perforated apex, which is adjusted to the eye of the needle, the thread being pushed through the cone.

Net. An open textile fabric, of cotton, linen, hemp, silk, or other material, tied or woven with a mesh of any size. *Netting* is an art so ancient that no date can be fixed for its invention. That it was practiced for fishing and bird-catching by the earliest inhabiants of earth, there is not a doubt, as ancient scriptural metaphors plainly illustrate the practice of using nets for snaring. The nets for such purposes are represented on Egyptian and Babylonian monuments, and are shown there to have in no-wise differed from modern nets. There is still to be seen in the Museum at Berlin, Germany, some Egyptian nets, and the implements by which they were made, that are 3,000 years old. Netting is formed by the intersecting of threads which wind around each other and are knotted, forming a mesh. Netting was made by hand until 1809, in which year the machine for making bobbinet was invented. The term net is also applied to light, open-woven fabrics, such as gauze and muslin; worn or used as a protection from annoying insects. [See BOBBINET, LACE.]

Nether-stocking. The lower part of the hose or leg-covering, as distinguished from the trunk-hose or thigh-covering of the olden time; the stocking as distinguished from the breeches.

Netting-machine. A bobbinet loom. A machine by means of which the action of the hands is imitated, and a fabric is produced secured by knots at the intersection of the warp and weft threads. Fish-netting as well as lace-netting was formerly made by hand. Most of the nets now used for fishing purposes are woven on a net-loom invented by Geo. Patterson, of Scotland, in 1820. In principle it is the same as the bobbinet-loom. [See BOBBINET.]

Nettle-cloth. A thick cotton cloth which, when japanned, is used instead of leather for waist-belts and vizors for caps. [See JAPANNING.]

New Orleans Cotton. A grade grown on the banks of the Mississippi and Red rivers. It is clean, soft and glossy in appearance; rather short in staple but even and strong, and easily incorporated with other cottons of a long staple. It is exported in very large quantities to the British and French markets.

New Market. A style of ladies' winter cloaks, imported from England about 1880, at which time it superseded a style known as the dolman. New Market was formerly the name of a long close-fitting overcoat worn by men when riding or driving, which derived its name from New Market, England, a town famous the world over for its horses and its horse racing. The form of the New Market garment for ladies has not departed far from the original, it still being a tight-fitting cloak made usually of heavy cloth the skirt reaching quite to the ground.

Night-gown. A night-dress for women, high in the neck, with long sleeves, covering the whole person. A *night shirt* is a similar garment for men.

Noil. The short lengths and knots of wool taken from the long staple in the process of combing. The noils thus accumulated are used either to make felt, or are put into cloth to increase its thickness. It is the function of the combing machine now in use to separate the *top*, or long fiber, from the *noil*, or short and broken wool. *Noil-yarn* is also a term applied to an inferior quality of yarn spun from the combings of waste silk or wool.

Nom-de-drap (nom'-de-drah). [A French phrase for *cloth in name.*] A term applied to silk dress fabric made of pure silk-worm-silk, with only enough admixture in the dye to carry the color; silk of the most durable kind. [See SILK, ADULTERATION OF FABRICS.]

Normal. A descriptive term used with reference to knit underwear, having application to both color and quality. Normal means natural, or according to a rule or established custom. "Normal mixture" underwear signifies that the goods are part cotton and part wool, and composed of yarns half gray and half black.

Nottingham Lace. See LACE CURTAINS.

Nubia. [From Latin *nubes*, a cloud.] A knitted or crocheted scarf of soft, fleecy material, worn about the head and neck.

Nun's Cotton. A general designation applied to all fine white embroidery-cotton, from its use in embroidery on linen by Catholic nuns in convents. It is marked on the labels with a cross—the symbol of Catholicism—and is sometimes called *cross-cotton.* [See MARKING COTTON.]

Nun's Veiling. A variety of wide untwilled woolen dress fabric, very soft, fine and thin; formerly used by nuns for veils, when it was more transparent; but now used exclusively for ladies' summer dresses, dyed black, white and in colors.

Nursery Cloth. Fine bleached muslin, diapered linen, nankeen or other fabrics used in the manufacture of baby-cloths for infants.

Nutria Fur. The fur of an animal of the genus *rodent,* somewhat resembling both the musk-rat and the beaver. It is smaller than the latter, but larger than the former. It inhabits the banks of the rivers in Buenos Ayres and Chili, being a kind of water rat. Nutria skins are dressed and dyed as a substitute for seal-skin, and the fur is used in the manufacture of hats as a substitute for beaver, which of late years has grown scarce. [See FURS, HATS AND CAPS.]

O

Obi Cloth. A kind of Japanese silk, embroidered with gay colors, with fanciful designs, used for hangings and coverings.

Oil-cloth. The body of floor oil-cloth is composed of burlaps, which is made of jute. By far the larger quantity of burlaps consumed in this country is imported from Dundee, Scotland. This coarse cloth is woven soft and limp, and the first operation in the manufacture of floor oil-cloth is to stiffen or "size" the cloth. This is done by passing it through a hot mixture of starch and glue, and then over heated rollers, coming out, it might be said, laundried. It is then ready for the paint-machine, where it is given the "body." This paint is composed of raw oil, turpentine, ochre and umber. There are four qualities of oilcloth, depending on the number of body coats of paint; that which is to be the best quality receives six coats; the poorer grades a less number. The cloth is in pieces twenty-five yards long, by from one to two and a half wide. The thickness of each coat is governed by a steel knife, in manipulating which a workman becomes so proficient that he can tell nearly to the pound what a piece of oil-cloth will weigh when the coating process is completed. Three men at a paint machine can turn out in a day 100 pieces containing 50 square yards each—5,000 square yards. The operation of coating the best quality of oil-cloth occupies a week; as each coat requires twenty-four hours to dry. In drying the long pieces, they are not laid on a flat surface, but are suspended from the ends. After the last painting, which is applied to both sides alike, the pieces are sent to the rubbing machine, where cylinder surfaces coated

with glue and sand pass rapidly over the side which is to have the pattern printed on it, ridding it of all roughness and irregularities. The best quality is afterward given an extra coat of paint, when they are ready for the printers. The printing is the most interesting part of the operation. For every color in the operation there must be a corresponding-shaped wooden block. These blocks all come from the state of Maine, and are about two inches thick and about two feet square, composed of several pieces of wood. The top layer is of maple, crossed and recrossed by narrow grooves which form a surface of small squares, 144 of them to the square inch. These little squares look like, and *are* in reality, so many square pegs. Where the pattern is desired to show, the pegs are left standing; those on the parts of the surface *not* to be printed being cut away. Some patterns containing many colors require from twenty-five to thirty blocks, each with different portions of the pattern cut out of the surface, and consequently requiring also twenty-five or thirty different impressions to reproduce the design. The styles of patterns change twice a year. Some are designed in Utica, and others come from Philadelphia and New York. Oil-cloth is open to the objection that it has a cold, hard, uncomfortable surface, while it is almost as noisy to the tread as ordinary wood flooring. Many substances have been proposed to supplant it, in which these objectionable features have been overcome. Of these bodies linoleum and kamptulicon have been the most successful.

Oil Red. See TURKEY-RED.

Oiled Silk. Thin silk saturated with boiled oil, semi-transparent and waterproof. It is much used in tailoring and dressmaking to prevent perspiration from passing through, as at the armpits of garments and the lining of men's hats and ladies' bonnets.

Oil Skin. Heavy cotton or linen cloth impregnated with a preparation of oil to make it waterproof. It is the material of which oil-skin coats or "slickers" are made.

Open Account. A course of business dealing still continued between two parties. An account of which up to date there has been no statement made; an account not stated. Also termed an *account current*, and formerly abbreviated *a/c* a sign now almost exclusively used for *account*. A *stated account* is an account or statement showing the result of a course of transactions for adjustment or settlement between two parties.

Organdie. A fine variety of white goods, woven plain, cross-barred, striped and printed with figures. The stripes are damasked, showing lustrous in contrast with the ground. The word is derived from *organzine*, the most brilliant and lustrous variety of silk yarn.

Organzine (or-gan-zene'). A silk thread for the warp in weaving, made of several singles twisted together. In preparing organzine the silk after being wound off from the cocoons into hanks, is placed on a winding-wheel, which in turn reels off the hanks onto wooden reels. These

are then placed on spindles, and the fibers of each are made to pass through a minute hole and small hollow brush, which together clean the thread and remove any knots or projections from it, throwing it at the same time into hanks again. [See SILK.] Then the threads of *two* hanks are taken and again reeled off, this time into *one* hank, being twisted together to the left as one thread; then this thread is *doubled* and twisted tightly to the right, forming a single thread with four strands. These operations, consisting of winding, cleaning, twisting and doubling, constitute organzine silk. It is the strongest, most lustrous and the highest priced silk yarn used in any kind of weaving, being used principally for the warps of silk fabrics, and in the manufacture of poplins, velvet, plush and sewing thread. Silk yarn used for the wefts of fabrics is called *tram*. [See TRAM.]

Osnaburg. A term used in the United States to describe a coarse, plain-woven cotton fabric, manufactured principally in the South; in color both plain, unbleached, and in fancy stripes and plaids, used largely by the negroes for dresses and shirts. The word is derived from *Osnaburg*, the name of a district in England in the county of Hanover, where the first heavy cotton cloth was woven.

Ostrich feathers. The fine feathers of the ostrich, long known and used as ornaments. The bird is a native of Africa, but is now partially domesticated also in Southern California. Our supply comes mainly from Tripoli, in the vicinity of which city are many farms wholly devoted to the rearing of the birds for their feathers. At the plucking season the birds are collected from distant parts of the farm and driven into the plucking-kraal, where they are so closely crowded together that even the most savage bird has not room to make himself disagreeable. The outlet of the plucking-kraal is through the plucking-box, into which, one by one, the birds are driven to be denuded of their plumes. This box holds the bird so tightly that he cannot kick or turn round. A few rapid snips from the shears of the two operators, one standing on either side of the box, soon divest the bird of his magnificent white feathers. They are cut before the quills are quite "ripe," or ready to fall out, so that the tips may be perfect and not draggled or destroyed. The feathers on the upper part, extremities, back, wings, and tail of the ostrich are the most valuable, the long white feathers on the wing fetching the highest price, either dyed or in their natural color. The wing feathers are chiefly employed for head-dresses. The male birds are the black ones with white feathers in the wing and tail; the female is drab. The feathers on both are equally valuable, as they are mostly dyed before being put on the market. The only feathers sold with their natural colors are the white and the black-and-white found on the male. There are no long black plumes on the birds; these being made by dyeing the white ones. Good ostrich "plumes" sell for $8 to $10 a piece and even more for some fancy grades. All of the ostrich plumes of commerce are really double plumes, made by uniting two of the natural feathers. The stems

are pared down and the two are sewed together, back to back. The heavy double plumes are then dyed in any and all colors—appropriate and outlandish, even yellow, lilac and green—to suit the taste of the feminine public. It is safe to predict that ostrich feathers will always remain in fashion. They are now and always have been used to a very large extent as part of dress of the upper classes in all European countries. The three white ostrich plumes have formed the well-known badge of the princes of Wales for the last 500 years. Ostrich feather dealing has become a recognized and established trade in the London and New York markets, the imports coming from Tripoli, Magadar, Aleppo, Alexandria and the Cape of Good Hope, while California also contributes to the supply.

A full-grown ostrich weighs about 300 pounds, and when stretching its neck stands over 8 feet from the ground. They are first plucked at the age of 6 to 8 months, and again 6 to 9 months later, and at every succeeding 9 months. The chicken feathers, that is, the first plucking—known as spadonas," are of little value, usually only about $8 to $15 per bird. The second plucking, at the age of from 13 to 15 months, is of more value, from $25 to $40 per bird, and from 6 to 9 months later the third plucking is ready. The bird has now matured and really fine feathers are grown, and from this and all succeeding pluckings are realized from $75 to $150. In each wing over the protector or floss feathers, there grow to maturity in 8 months 26 long white plumes. In the black male these are pure white, but the female adds slight shadings of ecru or gray. The sweep of short feathers above the splendid fan of white is plucked for tips, and each wing furnishes 75 of these. The tail feathers are toned into a deep old ivory, and 65 of these are of commercial use. The length of time between each plucking, the weight of the feathers, and the richness of their plumage depends partly upon what care is taken not to extract feathers too early, but more especially upon the quality of the pasturage. If an ostrich has always a plentiful supply of food the feathers will grow and ripen quicker, and may be plucked every 7 months. [See FEATHERS.]

Ottoman. [From *Ottoman* empire, Turkish empire, a word applied to anything regarded as distinctly Turkish in character.] A fine, soft undressed silk dress fabric, woven in large cords, extending from selvage to selvage. The weave is similar to that of faille and marseilles, except that it is more pronounced. *Ottoman Stripes* are dress fabrics, of cotton or of wool, in which the usually narrow stripes are made lustrous by being woven in a fine twill (damasked), which in contrast with the ground are visible by the opposite reflections of light.

Outing Flannel. A soft, loose-woven flannellette, woven of cotton and finished with a slight nap. [See FLANNELLETTE.]

Overalls. Loose trousers made of duck or denim, made to wear over others to protect them from being soiled. The quality of overalls is denoted by the weight of the material of which they are made, expressed in ounces.

Overcoat. A coat worn by men over the other dress, a top coat; a great coat; opera coat; New Market; ulster. *Overcoating* is the material from which overcoats are made.

Overshoe. A term signifying any sort of an outer water-proof shoe; specifically, an outside shoe lined with flannel, fur, or other warm material. [See RUBBER SHOES.]

Oxford Shirting. See SHIRTING.

P

Padding. In calico-printing, the process of applying to the fabric a mordant, which when dried, is next printed with a design, the result that, after the cloth has been dyed in the bath and cleared, white patterns appear upon a ground of uniform color. These white patterns or spaces may be afterward printed upon in steam or pigment colors. Calicoes produced in this way are said to be in the *padding style*. The so-called padding styles in calico printing are, in reality, a modification of the madder styles or alzarin dyed colors, and, although not used so largely as formerly, are still employed in print works to a certain extent.

Paduasoy (pad'-u-a-soi). A smooth, strong, rich silk originally manufactured at Padua, Italy; in vogue during the last century for ladies' dresses and gentlemen's coats; also a lady's garment made of this material.

Pajamas (pa-ja'-maz). Loose drawers or trousers, usually of silk or silk and cotton, tied round the waist with a cord, used by both sexes in India, and adopted from the Mohammedans by Europeans as a sleeping garment. In this country the term is extended to include also a loose coat or blouse used as a sleeping or lounging garment.

Palempore (pal'-em-pore). A flowered chintz bed-cover, of a kind formerly made at many places in India, but now extensively in Europe and the United States.

Paletot (pal'-e-to). [A term derived directly from French *paletot*, an overcoat, but further traceable to Latin *palla*, a long upper garment, and *toque*, a cap.] A loose, light-weight outer garment, with sleeves, cape and hanging hood, for men or women.

Pallium. A symbol of office worn by bishops and archbishops of the Catholic church. It consists of a white woolen band, about two inches wide, and long enough to be worn around the shoulders and be crossed in front. It is always made at Rome from the wool of two lambs which the sisterhood of Santa Agnese offer every year on the occasion of the feast of their patronal saint. The pallium has crosses worked upon the white wool in black, and ornaments are attached to the ends. It is sent by the pope to every newly-appointed archbishop, the origin of its use dating back to the year 336 A. D.

Pantalets. Long frilled drawers reaching to the ankles worn by women and girls.

Pantella. A stocking of recent introduction, designed to dispense with the use of garters and provide a complete covering for the legs, the tops being knit sufficiently long to reach to the waist, and fasten to the corset. They are finished at the top with satin ends on the outside, into which button holes are worked, and are made rights and lefts. [See EQUESTRIENNE TIGHTS.]

Pantaloons. A term derived from *Pantalone*, a ridiculous character in Italian comedy, and a buffoon in pantomine, who first wore "breeches" and "stockings" that were all of one piece. This character took his name from Pantaleon, the patron saint of Venice, and hence is a personal name very frequent among the Italians, and sometimes applied to each other as a nickname. The fashion of wearing pantaloons came into general popularity with the French Revolution when puffed breeches and tights, lace and gewgaws subsided and made way for the comparatively simple dress which characterized that period. Although pantaloons at this time only came to the middle of the calf of the leg, where they were met by half top-boots, they soon afterward extended in length to rest upon the foot. [See HOSE, TROUSERS.]

Paper. A material consisting of a compacted web or felting of vegetable fibers, commonly in the form of a thin flexible sheet. The fibers most used for writing-papers are those of linen and cotton rags, and for printing-papers those of straw, wood, waste-paper and selected grasses. These fibers are prepared by grinding, bleaching and boiling until they are reduced to a fluid pulp, in which state they readily mat and felt together when freed from the water with which they have been saturated. More than 400 fibers usable for this purpose are known. Paper was formerly made wholly by hand. Some fine grades of writing-paper are still made by hand, but the larger portion of the paper, for whatever use, is now made by machinery. The production of paper is perhaps more closely regulated by the law of supply and demand than any other manufactured product. In the earlier days of paper-making there was little demand for it, as then it was necessary either to write books by hand, or to print them from hand-engraved plates. The invention of the printing-press created the first demand for paper which caused its manufacture to become a profitable industry. The hand method of paper-making was only discontinued upon the invention of the cylinder printing.press. This invention gave such an impetus to the distributing of printed matter that hand paper-makers were unable to supply the demand; hence a new order of things was inaugurated and machinery for the making of paper was perfected with great rapidity. Inventive ingenuity of the highest order is constantly at work to discover new uses for paper, such as building materials, domes for churches, boats, vessels, barrels, car wheels, railroad ties, pails, tubs, etc., in all of which lightness is combined with strength.

Wood forms the basis of all news and common paper. Almost any kind can be used, but spruce is regarded by manufacturers as the most serviceable in the long run. Other kinds which may be used to a greater or less degree, are white pine, Norway pine, white fir, birch, cypress, tamarack, poplar, sweet gum and hemlock. The best shape for the wood is in logs 4 to 10 inches in diameter, free from knots and used as soon after felling as possible. A great deal depends on the quality of the wood. If the wood is poor and lacking in fiber, then the paper made from it will be weak and lacking in toughness. The wood which can be used for paper-making costs all the way from $7.50 to $10 a cord in the East, and as low as $3.50 a cord in the West. In Michigan the lowest prices of all prevail.

There are three ways of making paper: First by mixing wood pulp with rags; second, by mixing wood pulp with the so-called "sulphite wood-pulp," or sulphite; third by using sulphite alone. The first process is rapidly becoming obsolete, having been superseded in the last decade by the sulphite process, which is, in the main, the ordinary method. The third process is something of an experiment, and the resulting paper is apt to be too transparent. The groundwork of the first two processes is wood-pulp. This is made in the following manner: After the logs have been freed from all knots and bark they are cut in blocks. Then the blocks are placed in the pulping machine. This consists of a big grindstone, 4 or 5 feet in diameter, with a 12-inch fall. The prepared blocks are fastened down against the surface of the swiftly revolving stone by automatic screws, which keep the wood constantly in contact with it. A heavy stream of water forces the resulting pulp over screens which catch all slivers, chips and other impurities. The pulverized pulp is then run over a cylinder and forced out on a wet piece of felt, where it is dried for convenience in handling. The remaining water is then pressed out. All paper manufacturers do not make their own wood-pulp, but buy it. It costs them from ⅝ of a cent a pound upward, according to the quality of wood used. The dried wood-pulp is put up in paper bundles for shipment to the paper manufacturers. This wood, to make paper, must be mixed with the sulphite pulp —so called because the wood is chemically reduced by means of sulphurous acid.

The method of making the sulphite is very interesting, and is quite recent. Up to a few years ago it was difficult, because there were no good boilers in which to prepare the pulp. This has been obviated, and now sulphite has almost entirely taken the place of rags in the manufacture of paper. Black or white spruce is the wood generally used for making sulphite. It is not ground after the manner of wood-pulp, but is prepared in machines called chippers. In these, the wood is cut up into even chips ⅝ to ⅞ of an inch long, ½ to ⅝ of an inch wide, ⅛ to ¼ of an inch thick Then these chips are put into a digester and boiled from 12 to 18 hours, under a pressure of 75 to 80 pounds. Plenty of water is added, and the whole mixture is treated with sulphurous acid and a little chloride of lime.

Thorough boiling reduces it to a pulp. This is washed and bleached and is ready for the machinery. The pulp in a watery form is passed over a wire netting of fine mesh which is moving under rollers. Gradually the water is forced out, and by the time the pulp reaches the end of the long line of rollers under which it passes, it is dried and pressed out into flat sheets. After this it is cut into sheets, baled, and is ready for shipment to the proper factory.

Sulphite looks like ordinary cardboard. It is very tough and of light color. It varies in quality, costing all the way from two and a half to five cents a pound. Sulphite has many good qualities in the eyes of the manufacturer. It is cheap compared to rags, for which it is substituted. It is clean, has great strength and toughness and makes hard stock. It is easily bleached and comes in a form easy for shipment and storage. Although sulphite is a recent invention $7,000,000 is now invested in its manufacture and 7,500 tons turned out monthly.

After the wood pulp and the sulphite is made, the paper-making proper comes in. The wood pulp and the sulphite are mixed in a proportion of one part sulphite to four of wood pulp. After a thorough mixing the two are soaked and beaten together in a machine for the purpose. When linen or cotton rags are used they are thoroughly soaked and cleaned, and boiled in a mass in the same manner. The resulting mass of pulpy material in either case is moistened until it assumes a thin, watery aspect. Then it is passed through a machine on a moving wire net which is constantly shaken so that all the moisture percolates out. Then the fibers gradually lock together and are passed under hot rollers, all the time on netting, until the material reaches the end of the machine, when it comes out in a long roll of paper. While the paper is passing through the rollers the watermark is put in if any is to be used. It is done by means of a roller called a "dandy." This roller is made of fine wire, and whatever markings and letters are to be put in the paper, are worked in the wire. Then, while the paper is still soft and wet, it receives the impress of the whole, which makes the markings a trifle thinner than the rest of the paper and hence more transparent and visible. *Laid paper*, so called from the dim, narrow lines warer-marked in it, is made with a dandy-roller in the same way. Paper which has no water-is called *plain wove*. After the paper is water-marked, if it is of good quality it is calendered, after the manner of calendering cotton cloth. This process gives it a smooth finish, varying with the number of times it is put through the series of polished rollers, which are the essential parts of the calendering machine. The rollers are very heavy and highly burnished. The roll of paper is passed through them under pressure and comes out with a smooth, shining surface. This process can be repeated any number of times, and each time the paper receives a higher polish. After this the paper is ready to be cut, which is done by machines with knives that can be set to any width. The paper is then ready for counting and making into quires and reams and bundles. This is all done by hand. The ordi-

nary counts of paper are the *quire* of twenty-four sheets, the *ream* of twenty quires, (two of which are always inferior to the other eighteen) and the *bundle* of two reams. Newspaper is not often calendered, but is used as it comes out of the hot rollers of the drying machine. The rolls are long and very heavy, often measuring a mile in length and weighing as high as 1,200 pounds. The industry is one of the largest in the country. New England is largely given over to the industry, which, however, flourishes in many Western states as well, one requisite being clear soft water. There are 1,180 mills in the United States, with a capacity for producing 15,000,000 tons of paper annually. Of this enormous product, 4,000,000 tons are used in printing books and newspapers and 3,500,000 for wrapping paper. The most rigid economy is practiced in paper making, hence the high degree of mechanical skill and executive ability connected with this industry, as compared with the cost of the product. Large mills making over fifty tons of "news" every twenty-four hours, often contract to supply their entire product to a single large newspaper publishing house, at a price as low sometimes as three cents per pound. In 1891, a paper mill and a Philadelphia newspaper resolved to ascertain how quickly a tree could be converted into newspapers, and an experiment resulted as follows: Chopping one and a half cords of poplar wood, stripping and loading on boat, three hours; time consumed in manufacturing wood pulp, twelve hours; manufacturing the wood pulp into paper, five hours; transporting to printing office, one hour and twenty minutes; wetting paper preparatory to printing, thirty minutes; printing 10,000 newswapers, ten minutes. Total time from tree to paper, twenty-two hours.

There are certain standard dimensions of paper, the rolls being commercially cut to those sizes. Printing and writing paper of the same names ars sometimes of different sizes, according to the purpose for which they are intended. The sizes mostly used have names and measurements, in inches, as specified in the following table:

Atlas, writing	26	x	33
Check Folio, writing	17	x	24
Columbier, writing	23	x	33¼
Crown, writing	15	x	19
Demy, writing	16	x	21
Double Cap, writing	17	x	28
Double elephant	26	x	40
Double medium, printing	24	x	38
Double royal, printing	26	x	40
Double super royal, printing	29	x	43
Elephant, writing	22¼	x	27½
Extra size folio, writing	19	x	23
Flat cap, writing	14	x	17
Folio post, writing	17	x	22
Fool's cap, writing	12½	x	16
Imperial, printing	22	x	32
Imperial, writing	22	x	30
Medium-and-half, printing	24	x	30

Medium, printing	19	x	24
Medium, writing	18	x	23
Royal, printing	20	x	25
Royal, writing	19	x	24
Small cap, writing	13	x	16
Small double medium, printing	24	x	36
Super royal, printing	22	x	28
Super royal, writing	20	x	28

Paper Collars. A collar for men, made of paper, cut to fit the neck, and covered with thin muslin, by pasting. Since the introduction of celluloid the paper collar has rapidly declined in popularity, At present the annual product amounts to 1,500,000 per year. Twenty years ago paper collars were universally worn, their very cheapness inducing extravagance in their use, and the industry was a large and flourishing one. Fortunes were made by many manufacturers, but there is not one made now to where in 1875 there were a hundred. *Paper cuffs* have likewise fallen a prey to man's indifference.

Paper Linge. [French *paper linen.*] An imitation of linen damask, made of linen paper. The French manufacture this novelty so cleverly that it is almost impossible to detect the difference between it and damask. Even to the touch, imitations made of paper linge are very much like linen. They are used for many purposes for which damask articles are applicable.

Papier-mache (pa'-pa-ma-sha'). A substance composed principally of paper (to which other substances may be added to impart special qualities), usually prepared by pulping a mass of paper to a doughy consistency, which can be molded into any desired form. Ornaments, picture-frames, jars, boxes and the like, are made from it.

Paramatta Cloth. A twilled dress fabric made in imitation of bombazine, the weft of which is worsted and the warp cotton. It is usually employed for purposes of mourning. When first introduced the cloth was composed of silk warp and worsted weft. It was invented at Bradford, England, where it soon became a prominent manufacture, but the name it bears was derived from a town in New South Wales, on account, in all probability, of the wool of which it was composed being imported thence.

Parasol. [From *parry*, guard, and *Sol*, the sun.] A light umbrella, or sun-shade, carried by women. According to historical records the parasol with a movable canopy was first used, as a mark of dignity, by the Romans. It came afterwards to be naturally devoted to the practical purpose for which it is used at the present day. Similarly, the employment of richer fabrics and the occasional addition of elaborate embroidery or lace, compose the few changes which, in our day, fashion has been able to make in its character.

Partnership. The relation existing between persons who combine their services, property and credit for the purpose of conducting business for their joint benefit. The written contract of partnership is not, as to

outside persons dealing with the firm, *conclusive* evidence of the partnership of the firm. Even if *other* persons who do not appear in the articles of partnership can be shown by verbal testimony to be actually members of the firm, their liability is that of partners the same as if they were included in the written articles. According to law, a partner is not entitled unless by special agreement, to any special compensation for his skill, labor or services while employed in the partnership business. He owes these gratuitously for the success and accomplishment of the partnership operations. A managing partner who employs his minor children, with the consent of the other partner or partners, is entitled to compensation for their services. Where an attempt is made, after a dissolution of partnership, to charge with liability a person who has retired from the firm, on the ground that the person or jobber selling goods has never been notified of the dissolution, the evidence of the remaining partner that he has changed his bill and letter heads from the old style to the new style of the firm, and has received checks in payment signed to the new firm name, is sufficient evidence that the transaction was bona fide. A *limited partnership* is one in which a partner contributes to the common stock a specific sum in cash, and is liable for the debts of the partnership only to the amount of his investment. This privilege usually carries with it the understanding that the limited or special partner shall take no part in the conduct of the business. A *general partnership* is one in which the relation is not qualified as *limited* or *special*, and in which, therefore, all the members are jointly liable for all the debts. *Dormant* or *silent* partners are persons who are interested in a business, and share its profits and losses, but who are not known to the public as connected with it. If they are discovered, however, they are equally liable as if their names had appeared in the firm. Capitalists frequently advance money to persons of limited means and become dormant partners in the business, taking a share of the profits instead of interest on the money advanced, and appearing as creditors in case of loss or failure of active partner. This is illegal and exposes them to be mulcted for all the liabilities of the firm beyond the assets, as well as losing the capital invested, no matter what agreement is drawn up to the contrary. The capitalist who invests money in this manner must rely on the integrity and capacity of the active partner, for the latter virtually has him in his power. A married woman is as free to enter into a business partnership with her husband as with any one else. If she does so, and the firm incurs liabilities, she has all the responsibility of a partner, and is liable to the creditors for the debts of the firm, even if it consumes the one-third usually allowed out of the husband's assets, in case of his failure.

Passe (pas-sa'). Past; out of use or style; faded.

Passementerie (pas-men'-tri). A term applied to heavy embroidery or lace edgings and trimmings, especially those made of gimp and braid, or covered with beads and silk. [See GIMP.] *Jet passementerie* is the

variety in which beads or beaded work forms the pattern; *plain passementerie* is made without beading, and either of silk, cotton or wool.

Passement (pas'-ment). A decorative edging or trimming, especially a gimp or braid, wrought in complex and fanciful patterns. This sort of embroidery was first made as a trimming for garments in the 17th century. In those ancient days it was an expensive material wrought with small beads and discs of gold, and worked with colored silk thread, laid in small round rolls alternately beside the gold, so as to lend a tinge of green, crimson, pink or blue to the tissue.

Pearl Buttons. See BUTTONS, APPENDIX "A."

Pearl. In lace and ribbon-making one of the loops which from the outer edge. [See PURL, PICOT.]

Pea-jacket. A heavy short coat, generally of pilot-cloth, worn in cold or stormy weather.

Peau de soie (po'-de-soa). [From French *peau*, leather, and *soie*, silk—signifying a silk with a fine, even grain or leather-like surface.] A silk dress fabric, woven like ordinary gross-grain, but with a rib so fine and close as to produce a face very similar to a plain-woven fabric. The best grades of peau de soie are finished on both sides exactly alike, but the cheaper qualities are single-faced. The peau de soie so much in vogue in recent years is but the "paduasoy" in which Martha Washington and her compeers of colonial days delighted to adorn themselves. The weave is the same, though the title has been slightly altered. [See PADUASOY.]

Pebble. To finish leather so as to cause the grain to become prominent, and to present a roughened or ribbed appearance. The imparting of a pattern in more costly leather (as *goat*) is strictly a variety of graining, though technically termed *pebbling*. The artificially roughened or indented surface on the grain side of the leather is produced by working it upon that side with a roller having a pattern of the desired design cut into its surface. The term is properly restricted to the act of producing an *irregular* pattern, such as would be produced by pressing irregularly distributed minute pebbles upon the leather, whence the name. A pattern consisting of straight lines is called a *straight-grained* pebble. The term graining includes pebbling, which is but a special kind of graining, of which glassing or glazing is still another variety.

Pekin. A trimming fabric, made in alternate stipes of satin and velvet, which vary in width from one-half to two inches. Pekin silk goods are dyed black and a variety of colors, and are much used in the trimming of ladies' garments. Pekin gauze is a variety in which gauze is substituted for satin stripes.

Pelisse (pe-lece'). [From French *pelisse*, a skin of fur.] A garment, according to its name, that should be fashioned out of prepared skins, on which the hair has been preserved; a fur coat. In this country it is a long

cloak of silk or other materials, either with or without fur, worn by women. The French from whom the term is imported, consider a lining, or at least trimmings, of fur as a necessary constituent of the pelisse; but in this country pelisses are often made even without any trimming whatever. The ecclesiastical surplice is connected with this garment. Monks formerly having to attend early services at all times of the year in cold churches were permitted to wear "pellicas", coats of skin. A synod in the year 1200 held in London restricted the monks to the use of lamb and fox skins, with a view of preventing a spread of luxury in dress. The pelisses of these light skins in time beeame worn and unsightly and were then covered with a linen tunic during divine service. These were styled super-pelice, which by an easy transition became *surplice*.

Penang. A cotton fabric similar to percale, except that it is heavier. It owes its name to the Island of Penang, whence it was formerly exported in large quantities from England.

Percale. [A French term signifying *cambric muslin*, or *cotton cambric*, as distinguished from linen cambric.] A kind of cambric very closely and firmly woven, with a round thread, and containing more dressing than ordinary muslin, but without the glossy finish of cambric; it is printed in fancy patterns on white and colored grounds. Percale was introduced into the United States in 1865. [See MILL-RAYE, SHIRTING.]

Petticoat. A skirt; formerly the skirt of a woman's dress or robe, frequently worn over a hoop or "crinoline;" now, an underskirt worn by women and children. Although the petticoat has been relegated to an inferior position among feminine wearing apparel, it nevertheless is being year by year composed of superior materials. At present it is made of silk of the rustling sort, a fashion which fifty years ago would have impressed the average feminine mind as wantonly extravagant. However, the recent innovation bids fair to become a permanent and popular style, and much might be said in its favor. Silk is an agreeable and healthy material. Used in dress it retains the electricity of the body; its hues reflects the sun-beams, giving them a quicker brilliancy, and it heightens colors with a charming light. It possesses an element of cheerfulness of which the dull surfaces of wool and cotton are destitute. It also promotes cleanliness, will not readily gather dirt, and does not harbor vermin as kindly as wool does.

Picking. The final operation in finishing woven fabrics, by going over the surface and removing burrs and blemishes by hand, or retouching the color with dye by means of a camel's hair brush.

Picot (pe'-ko). [French *picot*, from *pic*, a purl or point.] A small loop forming part of an ornamental edging, but larger than the purl and thicker, consisting of a thread upon which other thread has been wound, or to which small stitches or knots have been added. When the term is used to designate ribbons it has the same meaning as applied to *purl* in lace-making— signifying small attached loops or circles.

Piece-dyed. Dyed in the piece; said of cloth dyed after weaving as distinguished from that made of yarn dyed before weaving.

Piece-goods. All kinds of cotton, linen, silk or wool fabrics which are woven in lengths suitable for retail sale by the usual linear measure; ascalcoes, shirtings, sheetings, dress goods, long cloths, etc.

Pigment Color. In dyeing, a color prepared in the form of a powder, and insoluble in the liquid by which it is applied to the fabric. Pigments are distinguished from other dyes and washes by their entire insolubility in the media in which they are mixed: whereas dye-stuffs are tinctorial substances applied in solution.

Pile. [From Latin *pilus*, hair.] Nap of a regular and closely set kind, consisting of threads standing close together, and shaved smooth, so as to form a uniform and even surface. In dry goods parlance the term is generally confined to the surface-covering of fabrics which is woven in loops and afterward either left standing thus or sheared down to a certain height, as in velvet, plush and various kinds of carpets. [See NAP.]

Pile Weaving. A process of weaving in which a third thread is introduced, and formed into loops by weaving it over wires laid across the entire breadth of the cloth. The wires are then drawn out leaving the loops standing, or the loops may be cut so as to form a cut pile, as in velvet and plush. The *pile wire* is used only in pile-weaving. In the manufacture of cut-pile fabrics grooved pile-wires are used, laid with the grooves facing the tops of the loops. In cutting the pile-threads, the knife slides edge upward through the groove or channel of the wire, thus making the cutting uniform, without danger of injuring the warp or weft. [See VELVET].

Pillow. A soft cushion filled with down, feathers, curled hair, or other yielding material, used to support the head during repose. Feathers are almost universally used in northern countries in the manufacture of pillows, but in warm climates the heat which they generate is found to be uncomfortable. In India, China and Japan, pillows are made of pigskin, sheepskin and goatskin. The ends are of wood, cut almost square, with the sides slightly hollowed out, making the pillow case concave. The ends are joined together and permanently held in place by three or more small bamboo sticks or slates. The skin is drawn over this frame, fastened at both ends, and is then carefully dried. It is then colored, ornamented and varnished. The pillows vary in size from 3x3x12 to 6x6x18 inches. After they have been used several times, they are very easy and comfortable. As they are hollow, the air-chamber keeps them much cooler than are pillows made of feathers, down or straw. They have another peculiarity. The high tension of the skin converts them into sounding boards and enables a person lying upon one to hear sounds otherwise inaudible. A skin-pillow of high tension and fine quality of skin will enable the ordinary person to hear the ticking of a watch 5 feet away, and to understand a conversation carried on in whispers 18 feet away.

Pillow-lace. See LACE.

Pilot-cloth. A woolen cloth, slightly heavier than ordinary Kersey, and with a shorter and closer nap, but otherwise having the same organization as Kersey cloth. It is chiefly carried in stock by tailors for the making of overcoats and is usually dyed indigo-blue in color. The fabric received its name in the palmy days of Mississippi river steamboating. It was customary for the pilots of boats, as well as other officers, to be uniformed, and the regulation cloth adopted was a medium heavy stuff similar to Kersey, or the old-fashioned beaver minus the nap on the wrong side.

Pin. A small piece of wire, generally brass and tinned, pointed at one end and with a rounded head at the other, used as a fastener. There is no article used in the whole catalogue of dress which is of greater antiquity than the pin. It has been in use since the day that man and woman first felt the desire to shield their bodies from the gaze of the curious. First as the natural thorn it came into being, and the thorn seems to have given the pin its shape, when later they were made of iron and brass. As in the case of needles, pins are found to have been in use by nearly every nation and savage tribe on the globe. The date of their introduction into Europe is not known with certainty. All pins, in whatever country made, prior to 1824 was of the form spoken of now as the "pin with the old German head." The era of the solid headed pin dates from 1824. The old pin has been aptly described as a shank with a separate head of fine wire twisted around it. This head, variously known as a "spun head," or a "wound head," would sometimes fit on tightly and then again loosely. So apt was it to come entirely away from the shank that the mothers of the last century and the early part of the present, frequently warned their children "not to scratch the ear with the head of a pin," fearing that it would come loose and cause deafness. For hundreds of years the nations of Europe used this rough, loose-headed pin, they being highly prized as articles of luxury among the ladies. A curious fact in the early history of pins was the passage of an act by the English parliament in the 14th century allowing the pin-maker to sell his pins in "open shop" only on the 1st and 2d of January of each year. This was intended to prevent the sale of these "luxuries" to too great an extent, as they were then regarded. It was on these two days of the year that the court ladies and city dames of high and low degree flocked to the shops to buy them, having first been provided with money by their husbands called "pin money." When pins became cheap and common, the ladies spent their allowances on other fancies, but the term "pin money" still remained in vogue. The invention of making solid-headed wire pins by machinery is generally attributed to Lemuel Wellman Wright, of New Hampshire, in the year 1824. Before that time they were imported, and sold at $1 a package. Now, a better pin is made at 3 cents a package. Then handwork had to be employed; now everything is made by machinery. Wright's first machine did very little more than make solid

heads to the pins by a process in principle like that of nail-making, that is, by driving a portion of the pin itself into a countersunk hole. The machine failed in the hands of the patentee, and it was not fairly utilized until some years after his death. Since then successive improvements have been made in the mode of manufacture, and the processes have been greatly simplified. The beautiful automatic machinery by which pins are made at present, and the no less intricate machines by which they are stuck into papers, are wonderful when compared with former methods of manufacture. In a pin-making machine, as now used, wire of suitable size running off of a reel, is drawn in and straightened by passing between studs set in a table. When a pin length has entered it is caught by lateral jaws beyond which enough of the wire projects to form the head. Against this a steel punch advances and flattens the wire by a die arrangement into the form of a head. The pin-length is immediately cut off and dropped into a slit just wide enough to admit the body of the pin passing through, but retaining the head. The pins, thus suspended in rows by the heads, are carried to a sliding frame with a dozen grooves, in each of which a pin is deposited as it passes under the slit. In this position the pins are pointed by being held against a revolving file-cut roller. A dozen are thus arranged in a row with their points all in one direction. The sheet of paper to receive the pins is passed through a grooving machine, which creases it into ridges, through which a row of a dozen pins is driven at every thrust forward of the carrying frame. This process can be repeated with great rapidity and the pins stuck as fast as they are made.

In England, particularly during the early days of their manufacture, pins were known in trade as "corkings," or "corking pins," the word "cork" being yet used in England and Scotland to designate a bristle, beard, or metal sliver. In those days pins were made of two kinds: white (brass), and dark natural-colored iron, the former then, as they are now, being the most expensive. They were then made in three different sizes, viz: *Big corkings*, *middle corkings* and *short corkings*. The letters in present use indicating the size of brass pins are derived from this ancient designation. The sizes of brass pins, from *large* to *small*, are as follows:

BC (Big Corkings)	F 3½ (Fine, No. 3½ Wire)
MC (Middle Corkings)	BB (Very Small)
SC (Short Corkings)	SW (Short Whites)

Brass pins which are put up *full count*, that is 400 pins per paper, are termed *Ne plus ultra* (the utmost point, perfection). Brass pins are also put up in papers of 275 pins and sold at a lower price, but these are never branded *Ne plus ultra*. Adamantine pins are put up in papers of 240 to 280, and are numbered from 2 *large* to 5 *small*.

Pina-cloth (pe'-nya). A thin and translucent fabric made of the fiber of the pineapple-plant. This cloth is chiefly made at Manila, and in its manufacture resembles horsehair cloth, because the threads of both warp

and weft are each single unspun fibers. Also called *pineapple-cloth* and *pine-cloth*.

Pinafore. A child's apron.

Pineapple cloth. A sort of fine fabric made of the filaments of the leaves of the pineapple plant. The leaves are gathered by the natives just before the ripening of the fruit, and the prickly edges being cut off, the leaves are beaten upon a wooden block with a mallet until a silky looking mass of fiber is obtained; which after being washed and dried is ready for spinning. The yarn so prepared is woven by the natives into fine shawls, scarfs, handkerchiefs, etc. The texture is soft and delicate, and the color generally a pale yellow.

Pique (pe-ka'). (French *pique*, quilting). A washable cotton material, so woven as to have a small pattern in relief, usually a cord or rib, in imitation of *quilting*, extending lengthwise of the fabric. Pique is frequently printed with small delicate patterns, though more often plain white; usually rather stiff and thick and used for children's clothing, waistcoats and summer dresses.

Plaid. A pattern in textile fabrics consisting of bars or stripes of color crossing each other at right angles. The term *plaid* is also applied to a loose garment, often having a tartan pattern. It is a large rectangular piece of woolen stuff, and is worn in Scotland by both sexes for warmth and for protection against the weather. It is a special dress of the Highlanders, and forms part of the uniform of certain infantry regiments of the British army. [See TARTAN, KILT.]

Plastron (plas'-tron). A garment or part of a garment covering the breast.

Plush. A term derived from French *peluch*, which in turn is derived from Latin *pilus*, hair, from the fact that when plush was first manufactured it was made with a worsted foundation and a pile of goat's hair or mohair. The use and manufacture of plush in Europe dates from the sixteenth century, though it is highly probable that a fabric similar in appearance has been woven in China from time immemorial. Plush may be roughly described as long napped velvet, and any kind of fiber may be used in its manufacture, the distinction from velvet being found in the *longer* and *less dense* pile upon the surface of plush. The process employed in weaving it will be found fully explained in the article on WEAVING. The silk plush now so extensively used for dress and millinery purposes is made on a cotton foundation, the ground-warp being frequently dyed of the same color as the silk pile-warp. Silk plush having a longer and a less dense pile than velvet, the pile admits of being brushed from side to side much easier, thus reflecting the rays of light to a better advantage, and producing a watered or changeable effect. One form of plush is that which has taken the place of the napped beaver-felt in the dress-hats of

gentlemen, which is consequently known as *hatter's* plush. This variety is all produced in Lyons, France, not a single yard being made in the United States. Indeed there are no plushes composed entirely of silk manufactured in this country, although cotton-back and mohair plushes are produced in fairly good qualities; in some instances being equal if not superior to the goods of Europe. This is especially true of the furniture plushes woven in Pennsylvania and Connecticut, and the exquisite seal plushes, woven in wide widths for winter cloaks and caps. The railroads of the United States consume about 40,000 yards of the best mohair plush for car seats every year, which large quantity up to the present time has been almost entirely supplied by our home mills. Crimped and embossed plush for furniture coverings are being produced in large quantities since the passage of the McKinley tariff act, which has greatly aided in the recent developement this industry. Plush is embossed by means of large steel rollers, on the surface of which a pattern is cut in relief. They are heated, and revolve slowly while the dampened material is drawn underneath; thus the pile is stamped flat in places, leaving some erect to form the pattern. Much mohair plush in England is woven by hand, an expert weaver producing about forty yards per month. A power loom will average about fourteen yards per week. Very frequently plushes are made to imitate the skins of animals. Every one is aware that a great many animals have next to the skin a short close fur, covered with a longer hair, the hair lying over the fur and serving to turn off the wet, while the fur serves to keep the animal warm. In imitating such furs two lengths of pile must be furnished the plush. In fact, two distinct plushes are combined upon one ground—one having a float an inch or more in length, and the other having a float of only a quarter of an inch. In case two different materials be used, such as fine wool for the short, and silk or bright mohair for the long pile, beautiful effects are obtained, and very correct imitations of the skins of some animals made. In making imitation sealskin, smoothness and brightness of the fiber are the essential conditions. If the pile is required to stand erect upon the surface of the cloth, unless it is very short pile, the hair or fiber of which it is made must be very strong, so that it can retain its erect position. In the manufacture of silk plush the pile is made of organzine silk; in mohair of the best angora hair. [See UTRECHT VELVET, PILE WEAVING, VELVET, WEAVING, MOHAIR, ANGORA.]

Ply. A fold; a thickness. A term often used to designate the number of strands of which yarn is made.

P. M. An abbreviation of "premium money." The letters are used to mark goods which have become shop-worn or are slow sale, indicating that the salesman will be paid a premium for disposing of them, usually a certain per cent.

Polo-cap. A variety finished without peak or roll, usually made of silk, low, flat-crowned and soft. Men's traveling caps are made polo style.

Polonaise (po-lo-naz'). A light, open gown looped up at the sides, showing the front of an elaborate petticoat, and longer behind, worn toward the close of the last century, also a similar but plainer gown, not so much drawn back, and draped more simply worn at the present time.

Pompadour. A design used in the manufacture of silk fabrics, consisting of small delicate leaves and flowers, with pink and blue colors intermingling and frequently brightened with bright yellow or gold. *Pompadour parasol* is a form in fashion about 1860, having a folding handle and generally covered with moire antique or other heavy silk. *Pompadour* or *Cronstadt* veiling is a variety having a large mesh with occasional large dots or patches fastened to its surface.

Ponceau (pon-so'). [From Latin *puniceus*, red.] Poppy-corn color—a flame color. In dyeing, the name for various coal-tar colors of different shades of red.

Poncho (pon'-cho). A kind of covering worn by the Spanish Americans, having the form of a blanket, with a slit in the middle for the head to pass through. Also a name given to a rubber blanket used by soldiers and campers, to either throw over them at night, or to cover their laps while riding or driving; made with a slit in the center through which the lines may be passed.

Pongee silk. Properly, a thin, soft, washable, silk fabric, woven from the natural, uncolored raw silk, without further manipulation after it leaves the cocoon than to boil it "out of the gum." Formerly our entire supply of this silk was imported from China and Japan, where it was woven on the primitive hand looms. At present it is largely produced in the United States. There is also a fabric called *pongee*, which consists of a silk warp and a woolen weft, usually dyed in shades of silver-gray and wood-brown, of a soft texture and glossy appearance. The word is said to be a corruption of Chinese *pun ki*, "own loom," or *pun chi*, "own weaving," as if home-made; according to other authorities the word pongee is derived from *pon chi*, "native silk." However, the heathen Chinee is tricky, and all silks woven in China at the present time are stamped with one or other of these phrases. Native pongee silk resembles the Tusar silk of India, woven principally in the province of Shantung, from the cocoons of a wild silk worm which feeds on the leaves of the scrub oak. The finest kinds, bleached, dyed or figured, after importation are known in the trade as China silks.

Poplin. In the 15th century a fabric was woven at Avignon, France, (which at that time was a papal diocese) and called *papaline*, in compliment to the reigning pope. This fabric was made of silk and much esteemed, vast quantities being manufactured to supply the gorgeous church vestments and hangings then in use. An imitation of this material was introduced into England, made with a wool weft, and the name corrupted to *poplin*. In 1775 the manufacture was introduced into Ireland, by the French Protestant refugees, and from that time to the present, Irish poplin

has been famous. The best modern poplins consist of a warp of silk and a filling somewhat heavier than the warp, which gives the surface an appearance somewhat resembling rep. The genuine *Irish poplin*, made at Dublin, is a light weight variety, and is sometimes called *single poplin*. It is invariably manufactured from the best organzine silk, which is used to form the warp or longitudinal threads of the cloth, and from yarn spun from wool of the very best quality, which constitute the weft or body of the material. It is celebrated for its uniformly fine quality, much resembling whole-silk goods in appearance, but superior to them in durability, and produced at less cost. Cotton and linen are substituted, wholly or partially in making cheap goods, but they are very inferior in beauty to the true poplins. They are watered, brocaded or plain. *Double poplin* is a variety in which both the silk warp and the wool weft are very heavy, the heavy woolen weft making the corded appearance very prominent. It is stiffer and heavier than single poplin. *Terry poplin* is another very durable variety which is woven by throwing up to the surface alternate threads of the silk warp, an appearance somewhat resembling Terry velvet being obtained.

Portiere (por-tier'). [French for door-curtain.] A heavy curtain or drapery hung at a doorway, or entrance to a room, to intercept the view or currents of air, and also for mere decoration. Portieres are usually composed of chenille or velour, and are attached to a pole placed horizonally over the archway, and fitted with sliding rings.

Prayer rug. A rug or small carpet intended to be spread on the floor of a mosque or on the ground by a Moslem when engaged in his devotions. He stands on it with his face turned towards Mecca, and prostrates himself, touching the carpet with his forehead from time to time. In many of the prayer rugs of Persia and Arabia the place to receive the forehead in prostration is indicated in the pattern at one end of the carpet. They are among the finest rugs imported to this country.

Princess. A term in dressmaking which denotes the form and style of a long gown for women, made in one continuous piece without drapery, and fitting closely. Demi-princess is a gown of which a part only, as the back, is of one piece from top to bottom.

Print. A contraction of "printed calicoes." [See CALICO.]

Prunella. A kind of lasting of which clergymen's gowns were once made, but now only used for the uppers of women's cloth shoes. The name is supposed to have been derived from its former color, that of *prunelle*, French for plum.

Purple. The high estimation in which the color called purple has been held, dates back to a very remote period. The word is exceedingly common in the Scriptures, appearing there sometimes to signify a material of the name, and again as cloth of which the texture was lost sight of in the value of the color. Tradition ascribes the discovery of the purple dye to

a dog, which biting the Perpura mollusk, from which the dye is derived, had its mouth stained with the color. The discovery is said to have been made, and the manufacture carried on, at Tyre, the ancient city of Phœnicia, or Canaan, lying between northern Palestine and Syria on the Mediterranean. It is certain that the best purple dye was obtained from these mollusks, but it is almost equally as certain that the name of Tyrian Purple was given to more fabrics than could possible have been made or dyed at Tyre, or even dyed elsewhere from the purple secretions of the Purpura shell fish. In the time of Augustus, the price of dyeing a pound of wool with genuine Tyrian purple was $160; and in Nero's reign to wear this costly color without his authority was punished with death; a restrictive law which probably indicates that the particular sort of it known as Tyrian purple, may from its very great cost, have been confined to the exclusive use of the wealthy. So much confusion exists in the statements concerning these "fine" and "ordinary" purples that not a few have considered the whole matter of the Purpura shell-fish dye a sort of myth; not that there is no truth in the shell-fish *producing* a dye—that cannot be gainsaid—but that the many wonderful stories told about it in ancient times were used as a blind to cover and conceal the knowledge of cochineal and a tin mordant, which it is maintained the Tyrians possessed. When we consider the simple mode of fishing practiced at that time and the small intensity of the color, which required three pounds of the liquor to one pound of wool, we should say they could not have had a large trade; since according to modern researches into this dye, one single Purpura mollusk produces only about *one drop* of the liquor, then it would take 10,000 fish to dye one pound of wool. By whatever means the dye was produced, the purple of ancient times was the most beautiful, brilliant and dazzling of all colors in the world, and for ages has been the symbol of imperial power and majesty. Modern research has revived the process of producing purple from shell-fish dyes, after the art had been lost several centuries; but to no purpose, for cheaper and finer methods had by that time been discovered. Purples are now produced from coal-tar. The ancient term "purple," however, has not always been used to designate the bluish-red or reddish-blue with which we associate the word, but frequently included distinct crimsons.

Q.

Quaker Color. The color of the drab or gray fabrics much worn by a religious sect known as the Quakers; an olive-gray to dove color. Among the Quakers the color is regarded as the symbol of purity.

Quality Binding. A kind of wide worsted tape, used for binding the borders of carpets and similar work.

Quarter Blanket. A horse-blanket intended to cover only the back and a part of the hips. It is usually put on under the harness.

Queenstitch. A simple pattern in embroidery, made by a square of four stitches drawn within another larger one, made in the same way. A checkered pattern is produced by a series of these.

Quilling. A narrow bordering of net, lace or ribbon, pleated, crimped or fluted so as to resemble a row of goosequills laid in successive ridges; ruffling.

Quilt. A coverlet or counterpane. The *Honeycomb quilt*, as its name implies, is a cloth with the figures on its surface formed by raised ridges, both warp and weft way. It is generally woven of bleached knitting-cotton, two or three double. *Grecian quilts* are also woven of bleached knitting-cotton, and yet the coarse threads give a smooth, glossy surface in consequence of the weave, being on the damask principle. *Alhambra* quilts are woven of vari-colored cotton yarns, usually in flower designs. [See MARSEILLES, COUNTERPANE, COVERLET.]

Quilting. A cover or lining made by stitching together two thicknesses of a fabric (usually silk or satin), with cotton wadding between them. Usually one yard in width and used for cloak lining and the making of small coverlets. The fabric known as *pique* is sometimes called French quilting.

R

Radsimir (rad'-si-mer). [From French *ras de St. Maur*, cloth of St. Maur.] A rich description of dress silk, in the weaving of which a marseilles or cut cashmere effect is produced by dropping a thread of weft at regular intervals, generally from one-sixteenth to one-quarter of an inch apart. This produces a sunken line from side to side of the web, alike on back and face. Between the sunken lines the weave is fine and close, like peau de soi.

Rag-wool. See SHODDY, ADULTERATION OF FABRICS.

Raiment. A contraction of *arrayment*. That in which a person is clad, or arrayed; clothing; vesture; dress; garb; costume; habiliments; attire; array; garments.

Ramie. A fiber-producing plant native to China, Japan and the Malay islands, but can be, and is, grown in any moderate climate, especially in the Southern United States and as far north as New Jersey and Kentucky, as demonstrated by recent experiments. It has long been cultivated in the East Indies to supply fiber for fish-nets and cloths, and in China and Japan fabrics of great beauty are made from this material. Ramie fiber partakes somewhat of the nature of flax or hemp. The inner fiber is unsurpassed in strength, and in fineness it rivals flax, and possesses a silky luster shared only by jute. The plant is cultivated after the manner of hops, about 3,000 being set out to the acre. The roots take a ready hold in soil of a rich or

damp nature, which in all cases must be deep, as the fine roots descend, to reach moisture, sometimes as far as 10 or 12 feet. The plants are put in the ground in April and with proper cultivation yield two crops the first year. Four crops can be gathered after the first year. The stalks when ready for cutting are from 6 to 8 feet high, and as large as a man's little finger. When ready to harvest, the stalks turn yellow around the base, and if then cut new sprouts immediately spring up, being in this respect similar to alfalfa. One of the objections which Southern planters have raised to the cultivation of ramie is the fact that the process of removing the fiber necessitates an expensive machine, or else the shipment of the stalks as soon they are cut to some point where such a machine is in operation, and as the freight on the *waste* of the stalk is 90 per cent., it eats up a considerable portion of the profit. In Europe ramie fiber is used for a great variety of textile fabrics, and it is said that 50,000,000 pounds of ramie are annually shipped to France and England from China, at an average price of $18 per ton. It is also spun in larger quantities in Saxony, at Baden, which city claims the credit of being the cradle of the ramie industry. The successful spinning of the fiber requires machinery as delicate as for silk, the great difficulty being that while nearly as fine as silk, ramie is too strong and when it becomes entangled in the machinery, is the last to break.

It is a well-known fact among silk-buyers that in many of the foreign silks imported to this country that ramie is used as a mixture. The fact was not discovered for a long time, but little doubt now exists as to its reality. The material is being used in the manner indicated to a much larger extent than is generally supposed. The appearance of the union goods thus formed deceives even experts, so great have been the advances made in connection with the preparation in spinning, weaving and dyeing the ramie fiber, which takes color very well, and presents an elegant appearance when properly finished. It is generally admitted that ramie can be employed for many of the purposes to which silk is now put, and if there is to be any competition at all by ramie cloth, it will be with silk. That is what it most resembles. It does not, however, impart so much warmth as the latter, but is exceedingly strong, stronger indeed, as has already been noted, than silk itself. Its rich and glossy appearance, combined with its valuable coloring properties, appear to have attracted greater attention in France and Germany than in this country, though all through the South experiments under the direction of the Department of Agriculture are still proceeding with a view to improving the processes employed in preparing the fiber. In different countries the plant is known under different names: The Malays call it *ramie;* in China it is known as *China grass* and *silk* grass; the French know it as *cambric*, while the botanical name for it is *rhea.*

Ratteen. [From Ger. *ratee*, honey comb.] A cheap coarse woolen cloth resembling frieze in outward appearance; it is chiefly employed for coat and overcoat linings. A thinner quality is called *rattinet.*

Rebozo (re-bo'-tho). A narrow shawl or long scarf, worn by Mexican and Spanish American women, covering the head and shoulders, and sometimes part of the face; a kind of mantilla (which see).

Recherche. (re-sher'-sa). Exceedingly fine; out of the common; rare; dainty; hifalutin.

Redingote. A double breasted outside coat with long plain skirts, not cut away at the point; also similar garment for women, worn either as a wrap or as a part of a house dress, frequently cut away at the front.

Reed. That part of a loom used to separate the threads of the warp and for beating the weft threads up in the web. It if made of parellel slips of metal or reed, which resembles in their closeness the teeth of a comb. They are fixed at their ends into two pieces of wood, set a few inches apart. The term *reed* also signifies a flexible metal stay used by ladies for distending their dress skirts behind. These come in a set of three, each of a different length.

Reefer. A heavy garment for men; originally a close-fitting jacket or short coat made of strong coarse cloth for use by sailors and fishermen, but copied for general use in flannel fabrics by the fashions of 1889–90. It is similar to a blazer, except that it is a heavier garment, being especially suitable for spring wear, while the blazer form is better adapted for summer weather.

Reel. The process of winding silk round an appropriate frame, in order to make a skein of it. Wool, cotton and spun-silk are each first carded and spun and then reeled, but *reel* silk is wound directly from the cocoons. [See FILATURE.]

Regular. A term as applied to dry goods having two distinct meanings: *Regular goods* are those varieties upon which the retailer is allowed a certain discount from the invoice price at stipulated times, usually 6 per cent. discount at the expiration of 10 days from date of invoice, 5 off 30, and 2 off at the end of 60 days. *Regular made* knitted goods designates the best quality, in which the seams are connected by hand, and without the formation of a ridge or welt. [See HOSIERY.]

Remnant. A contraction of *remanent*, from Latin *remanes*, that which remains or is left behind.

Rep. [Corrupted from *rib*.] A style of weaving in which the surface presents a transverse-ribbed appearance, by close, round twills or cords extending in a diagonal direction across the web. *Furniture rep* is a flowered cotton goods woven in this manner. *Worsted rep* is used for upholstering and curtains, and is 1½ yards wide, dyed in solid colors. *Silk rep* is used for ladies' dresses, ecclesiastical vestments, etc., and is narrow, usually 22 inches. The word is also applied to a thin worsted dress goods. In a general sense rep is used to describe any transversely-ribbed cloth, as distinct from "cords," which are of similar structure, but extending lengthwise of the fabric.

Repellent. A general term for solid-colored, plain-woven, six-quarter-wide cloths used for making ladies' and children's wraps and winter dresses, ordinarily woven with cotton warp and wool weft, though occasionally made of pure wool; sometimes called *waterproof.* When first made, they were woven so thick and close as to *repel* rain and moisture, hence the name repellent or waterproof.

Reseau [ra-zow']. A term designating the ground of lace when composed of regular uniform meshes, whether of one shape only, or of two or more shapes alternating; net or network.

Retail. A word derived from French *retailler*, "to cut again"—from *re*, again and *tailler*, to cut; whence also comes our word "tailor."

Reticule. [From French *reticule*; Latin, *reticulus*, a little net.] A bag, originally of net-work, but later of any formation of material, carried in the hand or upon the arm, and answering the purpose of a pocket.

Ribbon. A strip of fine fabric, as silk, satin, or velvet, having two selvages. Ribbons in this sense were introduced into Europe in the 16th century Prior to this time they were not made separately, but were woven onto the *bands* or borders of garments and were narrow like a *rib*, hence the origin of the word *ribband*, which was the old English and the present French term for our *ribbon.* During the early days of their manufacture they were frequently made of gilt, intermingled with threads of gold and silver. These were regarded as articles of luxury, and in order to suppress the tendency of the public in this direction the English parliament passed an act forbidding their use by tradesmen, artificers and yeomen, reserving the right to wear them to the nobility. In the 17th century, silk ribbons were worn in great profusion, and it was then that they acquired that hold upon public favor which has lasted to the present day, the fashion of wearing them and their general structure in all that time indulging in but few fluctuations. History relates that in the years between 1650 and 1700 ribbons were worn in the greatest profusion by the men of Europe. Every portion of their attire was trimmed with them. Evelyn, an authority on the costumes of his time, in describing the dress of a fop of the period, says: "It was a fine silken thing which I espied walking 'th other day through Westminster Hall, that had as much ribbon about him as would have plundered six shops and set up twenty country pedlars. All his body was drest like a May pole. A frigate newly rigg'd, kept not half such a clatter and flutter in a storm as this puppet's streamers did when the wind was in his shrouds; the motion was wonderful to behold, and the well chosen colors were red, orange and blue, of well grain'd satin, which argued a happy fancy."

The terms *blue ribbon* and *red ribbon*, bestowed by county fairs and other competitive exhibitions as marks of excellence, originated in England, on account of a badge of blue ribbon being used to designate the *Order of the Garter*, which is the highest order of English Knighthood,

and the red ribbon badge designating the *Order of Bath*, the next highest in rank. [See GARTER.]

Ordinarily ribbons are made of widths varying from one-fourth of an inch to seven or eight inches, though sash ribbons are occasionally made of much greater widths. The different widths or *numbers* of ribbons were formerly denoted by the thickness of so many penny pieces. The old English penny was nearly the size of our silver dollar, and a ribbon the width of one of these pennies set up edgewise was called No. 1; a ribbon the width of *two* pennies set up edgewise was a No. 2; a ribbon as wide as seven of them was No. 7, and so on. Thus the custom of numbering originated and is still retained. Ribbons all measure ten yards to the bolt and never exceed nine inches in width. The city of St. Etienne, in France, is the principal seat of ribbon manufacture in the world, (the ribbons being chiefly the product of 18,000 hand looms distributed among the homes of the weavers) though many are made at Basel, in Switzerland, Crefeld, Germany, at Coventry, England, and in the United States. The great local industry at St. Etienne is as important as all the rest combined, the value of the ribbons annually woven in that city amounting to $16,000,000, and the amount of pure silk consumed 12,000 pounds. France and Switzerland make the best ribbons on account of using only hand looms, which preserves a perfect evenness of tension and disposition of the threads; the product of power looms is disposed to cockle or crimp in places. The principal seat of the ribbon industry in the United States is Patterson, New Jersey, where they are woven on looms made especially for the purpose, called ribbon looms, or needle looms. [See LOOM.] The raw silk which enters into their construction comes in bales from Japan, Italy and France, and is worth from $5 to $5.25 per pound. The silk from Japan is mostly pure white, while that from Italy is a beautiful gold, resembling very much golden blonde hair. Before the silk is ready to be made into ribbons it has to go through the hands of throwsters, dyers and twisters. In the weaving of the finest ribbons the slightest difference in temperature, the breaking of a single silk thread as fine as a hair, spoils all. The greatest care has to be exercised to turn out perfect goods. In former years all our ribbons were imported but at present our home mills produce about one-half of the amount consumed. [See VELVET RIBBON, PICOT, SILK, MOIRE, WEAVING.]

Rigby Cloth. A variety of waterproof cloth. The term Rigby applies more to the process than to the cloth, as any woolen cloth may be subjected to the Rigby system of waterproofing. Tweeds and worsteds are especially submitted to the Rigby chemical treatment, the result being that while they are made waterproof they at the same time remain sufficiently porous to admit the passage of a small amount of air through the fabric. [See CRAVENETTE.]

Rigolette (rig-o-let'). A light wrap sometimes worn by women upon the head; a head-covering resembling a scarf rather than a hood, and usually knitted or crocheted of wool.

Robe de Chambre. A morning gown, or dressing gown.

Rope. See CORDAGE.

Rubbers. A general term used to designate both lined and unlined rubber footwear. Many people suppose that rubbers are made by melting the material and running it into molds. Such is not the case. The manufacture of rubber shoes is not very much different from the manufacture of leather shoes. They are made on lasts in the same manner, but instead of being sewed they are cemented. About seventy per cent of pure rubber is all that is contained in the manufactured article. The best Para gum costs ninety-five cents a pound on the wharf at New York. In the smallest pair of rubber shoes there are about two ounces of pure rubber, and from that, on up to probably four pounds in a pair of heavy rubber boots. Old rubbers are ground up, lining and all, into what is called "rag carpet," which is used for insoles. The work is nearly all done by hand, the factories employing men, women and children. A boot-maker gets twenty cents a pair for making boots, and a good workman can turn out from ten to twelve pairs a day. The raw material comes mainly from South America, and is of a spongy nature and an earthy color. First, the rubber is put into warm water in order to soften it and remove the dirt and other impurities. It is then put into a masticating machine which tears it into very small pieces. Still warm and somewhat adhesive in consequence, these small fragments are quickly spread out into a thick sheet, which travels between the rollers one inch apart; the rollers press the fragments together and they adhere slightly in the form of a thick blanket—two feet wide and six feet long. These sheets are next dried and passed between large hollow steel rollers heated with steam internally, which compress the material into soft, thin sheets. Then it is taken into the compounding room where it is mixed with a compound and vulcanized. The chemical materials (sulphur, etc.) being added, the sheets are folded up and kneaded well together. This kneading process is performed by passing it several times through the hot rollers, folding it after each, and rolling it into a dough-like mass. When this operation is completed, it is finally rolled out into thin sheets several yards in length, which are reeled off on cold rollers, so as to allow cooling. It is then ready to be cut into "uppers" for the cheapest kind of rubbers, which are unlined. The better grades are lined with cotton cloth of different colors, and sometimes with other materials, as felt. The lining is made fast to the rubber sheet by passing the piece of cloth through the rollers simultaneously with the rubber in the last process, a firm adhesion of the two being effected by the heat and moisture. Another machine is so constructed that it produces a sheet thick enough for the soles, and on one surface a roughening is made by engraved lines crossing each other to prevent

the soles from slipping in wet weather or on icy ground. Another ingenious pressure forms the heels. After the sheets for the uppers and heels have been cooled and reeled off, they pass through the cutting machines and are here cut in different sizes and shapes. Some cut out the inside lining and the outside uppers for fronts and heel stepping, while others with great nicety cut the heeled-soles out. These various parts are now taken to the "makers," usually females, and the cast-iron "last" is rapidly covered over with the different pieces, beginning with the insole and lining, the edges of which are cemented with a composition containing gutta-percha, which produces a firm adhesion. The sole is then fitted on with equal facility, and the workman then runs a wheel-tool round the edge and other parts to produce the representation of "seam" marks. They are next coated with a varnish which quickly hardens, and are transferred to vulcanizing ovens where they are submitted to a high degree of heat, which produces a chemical union between the rubber and other materials mixed with it at the beginning of the operations. When taken from the ovens they are removed to the packing-room, where they are boxed and shipped. There are twenty rubber boot and shoe factories in the United States, each with a capacity of 25,000 pairs per day, whose products are shipped to every civilized country on the globe. These factories make special shapes for different countries, those for China and Japan not being at all suitable for Turkey or Mexico. [See INDIA-RUBBER.]

Ruching. A kind of ruffled or goffered quilling, used chiefly for ladies' neckwear; made of bobbinet, tulle, lace and chiffon.

Ruff. [From Dutch *ruyffel*, to wrinkle or rumple.] A projecting band or frill, pleated or bristling, especially one worn around the neck. In the 16th century, ruffs of muslin or lawn, often edged with lace, pleated and stiffly starched, were worn by both men and women. Indeed, among the first articles of adornment worn, upon which a profusion of lace was displayed, was the ruff. Some of them were very broad, projecting six inches or more in all directions from the neck. In England about 1576 "he was held to be the greatest gallant or beau who had the deepest *ruff* and the largest *rapier* (sword). These articles of finery became at last sufficiently preposterous to attract the royal notice and caused Queen Elizabeth not only to make proclamation against both, but to "place selected grave citizens at every gate of the city to cut the ruffs and break the swords of all passengers, if the former exceeded a half-yard in depth, or the latter a full yard in length." The Queen's proclamation was issued in 1579, and ordered that "no person shall use or wear such excessive long clokes, being in common sight monstrous, as now of late are beginning to be used, and prior to two years past hath not been in use in this realme. Neither shoulde also any person use or weare such great and excessive ruffes, in or about the uppermost part of their neckes, as had not been used before two yeares past; but that all persons shoulde, in modest and seemly sort, leave

off such fonde, disguised and monstrous manner of attyring themselves, as both was unsupportable for charges, and indecent to be worne." Narrower ruffs of different descriptions and of various materials have formed a part of the costume of women at different periods down to the present day. The ruff at the present day is known as the *ruch*, or *ruff band*, or *ruching*, and sometimes incorrectly termed *ruffle*.

Rug. A small pile-woven mat or carpet, in size ranging from one foot square to the dimensions of an ordinary setting room. The cheaper grades of rugs are made on power looms in this country, while the finer sorts are imported from Asia, being hand-made. There are certain districts in Persia where whole tribes are specially devoted to the weaving of rugs. In Turkey, Persia and Arabia the rug is the finest and most highly esteemed article of the household. It is a custom among them that young girls must weave a rug of unusual excellence before their marriage, the same forming a portion of their dowry. Formerly, the wool which went to compose these family heirlooms was dyed with pure vegetable dyes, generally in shades of dark rich blues. Each family in those countries have in their keeping, handed down through countless generations, some particular design or pattern of rug, which they prize highly for the memories associated with it, and zealously guard from injury. These, when they can be purchased by American or European buyers form the genuine *Antique rugs* of commerce. The reason that they are finer, and consequently more desirable, is that they were not made for sale, but for the maker's own use, or for some prince or other high Oriental magnate. The wedding-bed is often a richly-wrought rug, laid over soft, sweet-smelling rushes upon the earthen floor of a tent, and many fine rugs are made as princely wedding gifts for the wealthy. For these reasons, time and price in their production cut no figure in the making. While of a close and durable texture, impervious alike to air and water, the genuine Antique rugs are generally quite flexible, and the close, short surface of the pile is delightfully soft. Nothing can exceed the tender bloom which the colors of an Antique of prime quality display when mellowed by time.

At present aniline dyes are used to a large extent by the Oriental rug-weavers, and while these are cheaper, they are not so beautiful or so durable as the vegetable-dyed specimens formerly made. The industry is a large one throughout Turkey and Persia, the rugs made for export usually being woven by the men. The rugmaker has no design or pattern to work from, but draws his inspiration solely from the instinct for certain types of the beautiful universal among the people. His techanical knowledge is acquired by seeing his father or his mother at the loom; families follow this pursuit from generation to generation. The loom stands on the porch of the flat-roofed adobe house, or under the giant shade trees. The frame is composed of rough, untrimmed limbs, on which the bark may still be seen. The warp, which is sometimes of wool or linen, though oftener of cotton cords, is stretched from top to bottom, and the weaver sits before it tailor-

fashion, resting on his knees and heels. The weft or woolen stuff of which the pile of the rug is made, is spun by the same individual who makes the rug, and they also dye the wool. The weaver lays the different colored thread in strands at his side. As he needs to use them, he cuts them into short tufts with scissors or with knife. These bits are twisted into the warp with his fingers, and thus form the woof or pile. When a row has been interwoven with the warp, a frame with teeth is hammered down upon it until it becomes an integral part of the layer below, and thus a consistent mass is formed with a rich even pile. When the length is finished it is fringed at the ends. The bulk of these so called Smyrna or Eastern rugs come to England and America. The seat of manufacture is in the remote parts of Asia Minor and Smyrna and Constantinople serves as the medium of transport only. The goods are shipped to this point by the native weavers, where they meet with English and American purchasers. Some of these rugs of the Orient have to come thousands of miles before they reach the Turkish capital. These caravans may have forded many dangerous streams with their valuable burden. Roving bands of Arabian robbers may have attacked the caravan in the desert sands; hence it is not to be wondered at that many of the rugs are injured before they reach the final buyer in America. No machinery has yet been introduced in Asia for making either carpets or rugs, every tuft and knot being tied by the deft fingers of the Eastern weaver. In some of these rugs there is wonderful ability of construction shown. The knots are so fine in them that they are invisible to the naked eye, and cannot be discerned in searching for them. In all likelihood generations will yet elapse before the Oriental weavers will make rugs by machinery. The Eastern governments as well as the people themselves are obstinately conservative, and are fanatically opposed to changes of any kind. Recently the Turkish government has emphatically refused the request of wealthy citizens of Symrna to build factories for the manufacture of rugs, on the ground that it would be taking away the labor of the people. A genuine Oriental rug can be identified by simply learning to distinguish its characteristics. An eye that is once accustomed to recognize the peculiar Oriental character in a rug, and understand the mystic language it seems to speak can make no mistake, and is not likely to be imposed upon. The peculiar charm and characteristic of the Antique rug is its naturalness; the soft, yet deep colors; the strength of texture, and the charming irregularity of the design suggests the beauty of natural scenery, and are equally unmistakable and inimitable. To imitate successfully by artificial means the color and texture of Oriental rugs would cost more than to purchase the original, and, as to design, the most perfect machine-made imitation would at once reveal a very *regular* irregularity.

Russet. A coarse woolen cloth, home spun and home woven, used for men's garments; a term generally derived from the redish-brown color of much cloth of this quality (probably colored with copperas), and retained when the color was different, as gray or ash-colored.

Russet leather. Leather finished, but not polished or colored; except as colored by the tanning liquor.

Russian Embroidery. Embroidering in simple and formal patterns, zig-zags, frets, etc., especially that which is applied to washable materials, as towels, etc. Such embroidery as originally practiced by the Russian peasants, including also the insertion of open-work patterns, and needle-work representations of animals, houses and the like.

S

Sack. [A word found with little variation in all languages, generally regarded as being derived from ancient Hebrew *saq*, a bag for holding corn] A coarse-woven bag for holding grain, etc.; it is known among nearly all eastern nations as a *sack*. The wide diffusion of the word is probably due to the incident in the story of Joseph, in which the cup was hidden in a sack of corn (Genesis, xiii). Also a kind of jacket or short coat, cut round at the bottom, fitting the body more or less closely, and worn at the present day by both men and women; as a sealskin *sack*, a *sack* coat. Among our rude ancestors it was a kind of a cloak of a square form, worn over the shoulders and body, and fastened in front by a clasp or thorn. It was originally made of skin, afterwards of wool, but of whatever material always called a sack. When first introduced in France in 1665, for ladies' use, the garment was cut with a loose, sack-like back, not shaped into the waist, but hanging straight from the neckband. Sometimes spelled *sacque*.

Sack-cloth. A penitential fabric. The ancients, more particularly the Hebrews and Assyrians during the period of great affliction, laid aside the garments best suited to their ease and comfort and put on sack cloth, which was woven of the coarse, short hair of animals, twisted together and used for both warp and weft; this coarse, prickly material was made into garments which fit close like a sack, without trimming or other adornment, and were worn solely to inflict personal discomfort in cases of grief or penance. [See HAIRCLOTH.]

Safety pin. A pin bent back on itself, the bend forming a spring, and having the point fitting into a kind of sheath, so that it will not prick the wearer while in use, usually used for fastening infants' clothing. Safety pins range in size from 1, 1½, 2, 2½ up to 4, from small to large in the order named. Also called *nursery* pins.

Salary. Literally and originally, *money for salt*, derived from Latin *salarium*, money given the Roman soldiers for salt. At present the term signifies a recompense for services; wages.

Samite. A costly silk, frequently mentioned by old writers under the various titles of samittum, samitium, seyamitum, samilus, xamitum, or ex-

ametum. The name denoted the substance of the fabric. Silks in mediæval times had various names, distinguishing either their quality, or their pattern, or whence they came. *Holosericum* was a stuff made entirely of silk; *subsericum* partly so. *Exhamitum*, or as old English documents so often call it, "samite," tells (from the Greek *hex*, 6) the number of threads composing the warp of the texture. Originally it was a heavy silk material, each thread of which was supposed to be twisted of six fibers. Later samite was applied to any rich, heavy silk material which had a satin-like gloss, and it is probable that before the term became obsolete it was used to signify satins generally. Sometimes during the 13th century, however, samite, having long been the epithet betokening all that was rich and good in silk, was forgotten, and other names and weaves usurped its place.

Sash. [From Turk *shash.*] An article borrowed by the English crusaders from the turbans of Orientals, only being disposed about the waist instead of the head. Sashes were originally worn by army and navy officers made of crimson satin, so that the other garments might make a more splendid appearance.

Sateen. A twilled cotton fabric, used for ladies' dresses when printed with appropriate patterns, and for linings and underwear when dyed in solid colors. Sateen may be made a 3, 4, or 5 leaf twill, which when woven of fine yarn and properly calendered produces a sort of satin face. *French sateen* is "quarter satin," the warp passing over four wefts each time and under one, and so on in regular order. Satin itself is woven sixteen "harness," that is the warp passes over sixteen threads each time and under one, and so on. *Amazon sateen* is an extra heavy variety designed especially for women's riding habits. *Sateen finished drill*, is a fine all-linen fabric used for working table scarfs and fancy mats.

Satine. Printed calico, finished with a high gloss or luster. [See CALENDER, CALICO.]

Satin. A silken fabric of high luster, used chiefly as a dress material, but also for innumerable minor purposes. When satin first appeared in trade it was called round the shores of the Mediterranean "a ceytuni." The term slipped through early Italian lips into "zetani"; coming westward this name, in its turn, dropped its "i" and smoothed itself into "satin." So, also, it is called in France; while in Italy it now goes by the name of "raso," denoting a smooth surface, and the Spaniards keep up its first designation. Satin is said by some to have been first made in China, though this is open to doubt. It is certain they were known in England as early as the thirteenth century, and probably in France and Spain prior to that time under other designations. For a long period they were very little used, probably on account of their rarity, and it was not until the fifteenth century that they became common. It is evident that the high price they bore must necessarily have precluded them from general use, as instances of the payment of $27 for a coat of Persian satin are quite common. The general

color of these early satins was red, the mention of black satin by one writer being recorded as a notable fact. Proof of the increased production of satin in the fifteenth century is afforded by its sale to certain classes of people being forbidden by numerous laws. By one of these the use of satin and damask was confined to esquires and yeomen of the kings' household; to gentlemen having posessions of the yearly value of $200, and to persons of higher rank. As time went on the industry of manufacturing satin was established in England, at the town of Spitalfields, by French refugees, and the fabric became so cheap and plentiful that the prohibitory laws were abolished. After this time satin became so common in all countries as not to need especial mention.

Coming to the point as to what satin really is, it may be said, in brief, that it is a twill of a peculiar description. The high luster of the surface is due partly to the quality of the silk used, partly by dressing with hot rollers, but mainly by the manner of weaving. There has been printed an account of a romantic discovery of the manner of making satin, which is so entirely incorrect as to be all romance without even a foundation of fact:

"The word 'satin,' which in the original was applied to all silk stuffs in general, has since the last century, been used to designate only tissues which present a lustered surface. The discovery of this particular brilliant stuff was accidental. Octavio Main, a silk weaver finding business very dull, and not knowing what to invent to give a new impulse to the trade, was one day pacing to and fro before his loom. Every time he passed the machine, with no definite object in view, he pulled little threads from the warp and put them into his mouth, which soon after he spat out. Later on he found the little ball of silk on the floor of his workshop, and was attracted by the brilliant appearance of the threads. He repeated the experiment, and by using certain mucilaginous preparations succeeded in giving satin to the world."

All silks were *not* originally known as satins. Satin does *not* depend for its glossiness on any previous preparation of the warp, but upon its peculiar manner of weaving, and afterwards upon a dressing given by rolling the fabric over heated cylinders. The circumstance above related is applicable to TAFFETA (which see). In the weaving of most silk fabrics, the warp and weft intersect each other every alternate time, as in plain weaving, or every third or fourth time as in twill weaving, in *regular order*, but in satin it is the *fine silk warp only* that appears on the surface of the fabric. The weft is completely hidden. Instead of the warp passing under the weft every other time, it passes over 8 (10, 12 or 16, according as may be desired) wefts, then *under* one and over eight more, and so on, but the warps in passing over the wefts do not interweave at regular intervals (which would produce a *twill*), but at irregular intervals, thus producing an even, close and smooth surface, which is capable of reflecting the rays of light very entire. It is thus that the fabric acquires that luster and brilliancy which particularly distinguish it. The weft (or back) in ordinary qualities is cotton or linen, while the best goods, such as satin de Lyon, are all silk. When first taken out of the loom satin is somewhat flossy, and is "dressed" by being rolled in heated metal cylinders, which operation im-

parts to them a more brilliant luster and also removes the floss. In some of the older families of this country are preserved a few specimens of early attempts at making satin goods from home-raised silk. A comparison of those relics with the products of the present day brings the great improvements made in weaving into clearer light. The thread which makes the surface of satin is now more thoroughly tied down than formerly. In the best goods it no longer "floats" when the fingers are drawn across it. A solidity and eveness have been conferred on the fabric which renders it at once more compact and durable. A good quality of satin wears exceedingly well, but it cannot be cleaned or dyed satisfactorily, as it is liable to become frayed. [See SILK, BROCADE.]

Satin Cloth. A French woolen material of satin weave, having a smooth face. It is employed for women's dresses; is dyed in a variety of colors, and is of a stout quality and durable. In width it measures from 27 to 30 inches, and is otherwise known by its French name, *satin de laine.*

Satin Damask. A silk textile with an elaborate floral design. In some cases the pattern is raised in velvet upon the satin ground.

Satin de Bruges (satin de bruzh). A fabric of silk and wool, having a smooth and satin-like surface.

Satin Cuttanee (satin cut-tan-ee). A fine but thick cotton-backed material woven in stripes, and employed generally for upholstery purposes, though sometimes used for ladies' tea-gowns. Also called *Indian cuttanee satin.*

Satin de Lyon. A fine quality of lustrous satin, produced at Lyons, France, woven with a silk back. There is also another popular variety of silk under this name which has less luster than the ordinary all-silk satins, and is of a thinner quality. The back is twilled, and it is much used for fine linings.

Satin Duchess. A name applied to a heavy grade of silk dress fabric. It is woven with a grain so fine that it does not produce a grain effect, but partakes more of the nature of a perfectly close and plain weave, the surface being apparently composed of minute elevations and depressions, or nicked similar to peau de soie, but having more luster. Originally satin duchess was a thick and generally a plain satin, of good quality, usually in black colors without pattern.

Satin or Broken Twill. In weaving this class of fabrics the peculiarity is that the order of interweaving the two sets does not follow consecutively, but at intervals. In these the order of interweaving is (generally) at every fifth end or pick, and the two succeeding picks do not interweave with adjoining ends, but at intervals of two. In other words, if No. 1 pick passes over the first end of warp, No. 2 will pass over the third end, and so on, in an irregular manner, in order to prevent the construction of a twill or ridge.

Satinet. A material used almost exclusively in the manufacture of men's ready-made clothing. It is woven with a cotton warp and a weft of short, inferior or shoddy wool, which is mixed with enough long wool to enable it to be spun; and is woven in such a way as to bring the filling to the face of the cloth. On leaving the loom it is fulled, by which process the cotton is entirely concealed by the wool, sheared down smooth, and the pattern printed on the surface much in the same manner that figures are printed on calico. Large quantities of satinets are produced in New England, there being in all 60 mills representing 186 sets of machinery. A single set running on standard goods turns out 300 yards per day, making the total product of the 186 sets 55,800 yards per day, or 1,450,000 yards per month. The average value of these varieties at the mills is about 25 cents per yard, though the best are sold from 35 to 42 cents, single width Satinet is but from 10 to 15 cents cheaper than union cassimere, which in point of wear is much to be preferred, on account of the pattern being woven into the body of the goods, instead of simply stamped on, as is practiced in satinet-making. [See SHODDY, WEAVING.]

Satinette. A fabric closely allied to satin, being a cheaper description of the same, but equally durable, made in black and colors, and used as a dress material.

Satin Jean. A thick, strong fabric, woven on the satin principle; used for corsets, linings and women's shoes.

Satin Regence. A rich and expensive description of dress silk, woven with a satin surface broken by fine, sunken lines extending across the web from selvage to selvage. It is among the most costly of modern silk dress fabrics.

Satin Rhadame (satin rad'-a-my). A dress fabric, the satin surface of which is broken by fine twilled lines, extending diagonally across the web. It is a lustrous fabric largely in use for fine silk dresses, made both all silk and cotton-backed.

Satin Royal. A very fine and expensive variety of dress silk, with a glossy satin finish on both sides, each face being crossed by fine twills or sunken lines, after the manner of satin rhadame. It is always made entirely of pure silk, and has no right nor wrong side.

Satin Sheeting. A material made of "waste silk," of satin weave on the face and twilled cotton on the back, the chief substance of the material being cotton. It is made in different degrees of fineness, runs 54 inches in width, and is employed for upholstery and embroidery purposes. Satin sheeting is thicker in substance, coarser in weaving, and less glossy than the ordinary cotton-backed satin.

Satin Surah (satin su'-rah). A medium-heavy satin-faced dress material, the surface of which is diagonally crossed by a round cord or twill. [See SURAH.]

Say Cloth. A cloth now obsolete, but which at one time (two or three centuries ago) was a well known woolen serge, and one of the earliest productions of English and Irish looms. The manufacture flourished exceedingly from 1300 to 1700. After this period say cloth became merged in the common denomination of *Cloth*, until the name was revived and applied to a worsted material, which in 1800 was described as "a stout shalloon, twilled the same, and woven with a 4-leaf twill, but the warp and weft of say were heavier in order to make a stouter stuff, being made 42 inches wide and 42 yards long."

Sayette (sa-et'). [From It. *saiette* serge.] A light fabric made of fine wool and silk; it is a species of serge, adapted for linings, furniture-coverings, and the like. Also, this name is applied to a kind of woolen yarn, intermediate in quality between *combed* yarn and *carded* yarn. A long wool is used, but instead of being combed it is carded on a mill of peculiar construction. It is used in making stockings, carpets, and Berlin wool work. Also called *half-worsted yarn.* [See FAYETTE.]

Scarfing. A cotton fabric, 18 inches in width, used for embroidering scarfs or covers for bedroom-dressers. When woven in fancy open patterns it is sometimes called *scrim scarfing;* also made in linen.

Schedule. A paper in the form of a list, often as an explanatory addition to another document, containing an itemized statement of the goods located in a certain store, or belonging to a certain person, intended to accompany a bill of sale, or other legal paper or proceeding.

Scissors. A small pair of shears or blades, movable on a pivot. The word signified in the original Latin, not the cutting instrument, but the person who used it. (Latin *scissor*, one who divides.) In the same manner, tailors were in early times known and described as "cissors," the Italian word *cessour* still signifying a tailor or a cutter.

Scotch Cambric. A fine cotton cambric, sometimes white and sometimes printed, used especially for women's summer dresses.

Scotch Cap. A knitted and fulled skull cap for men. [See BONNET.]

Scotch Carpet. See CARPET.

Scrim. [From Fr. *escrim*, a shield, or protection.] A soft and loose-woven cotton fabric, often of fancy, lacey weave, used principally for window curtains and drapery.

Sealskin. For the supply of sealskin fur the markets of the United States and Europe are at the present day nearly entirely dependent upon the Behring Sea fisheries. The vast rookeries which at one time existed in the Southern hemisphere—in Patagonia, in the Faulkland islands, in Kerguelen Land, and in numbers of islands in various parts of the Antarctic seas—have been hunted almost out of existence. Seals are practically unknown where three-quarters of a century ago they were to be counted by millions. Indeed, although that side of the globe is rich in breeding

grounds of the finest description, with cool water, misty atmosphere, and good landings, there are now but few of these where the seal is found at all. The animal has disappeared before the ruthless energy and unrestrained greed of fishers of all nationalities, who for more than half a century traversed the waters bordering on the Antartic and slaughtered it—careless whether the prized fur which had attracted them thither should be known to the markets of the future, so long as they succeeded in securing from it in their own markets the greatest advantage with the least trouble and expense to themselves. This state of affairs was rapidly being approached in the Behring Sea, when the United States and Canadian governments entered into agreement to restrict the wholesale slaughter of the seals, which has been carried on to such an extent the past few years that there was every prospect of the animals being killed off during the next 20 years. With the result of promiscuous fishing in the Antartic regions to guide them these governments have decreed that but 50,000 seals shall be taken from the Behring Sea annually. Even under this restriction there is an immense waste connected with every skin obtained, on account of the seals being killed in open sea. It is estimated that for every animal recovered six are lost, for they invariably sink to the bottom on being shot. By far the greater proportion of sealskins that are captured are used in the United States, though France, Russia and Germany use a good many. The demand in this country averages from 60,000 to 65,000 per annum. All the skins captured are sent to London, where they are auctioned off in the month of October of every year. The best skins are dyed in London, where the process is a secret. Attempts have been made time and again in this country to discover their process, but have always resulted in failure. In London, or for that matter in the whole world, there are but two firms who can do the work. The making of the fine seal brown shade is known to the trade as the "old apple dye." Its history is said to be as follows: "About 1834 a man named Apple worked in a London refinery as a sugar baker. One day two fellow-workmen—an Austrian named Philip Danowitz, the other a Frenchman—came to him with a secret. At home Danowitz had been a dyer, while the Frenchman had been a weaver. Together they had made some experiments with dyes, and had by accident stumbled upon a beautiful shade of brown. Neither, however, had any money to continue investigations. Apple had saved a few pounds, and with this he bought off the Frenchman, and together with Danowitz set about trying experiments with a few sealskins. They were eminently successful. The furriers were quick to see the commercial value of the new dye, and soon arrangements were made whereby a factory was erected and business begun in earnest. Apple was shrewd and secured an interest in the business. Danowitz was made foreman. He gave the secret to a fellow workman named Hayes. By him it was imparted to one George Simmons, who revealed it to a man named Winchelow. With Winchelow its spread ceased, and the closest of corporations was formed." Few skins

are less attractive than seals' when taken off the animal. The fur is completely covered and hidden by a dirty grey-brown and grizzled over-hair. This over-hair has to be removed; and is an operation requiring a very great amount of patience and skill, with a consequent increase in price. The expelling of the long, coarse over-hairs is effected by warmth and moisture, which softens the roots and enables them to be pulled out, or by shaving the inner skin very thin, which operation cuts off the roots of the hair which penetrate deeply, and leaves untouched those of the fur, which are very superficial. Whichever method is employed, the hair must be taken off uniformly or the fur will never lie smoothly, but will always have a rumpled look, which can not be corrected by any subsequent treatment. This will explain to some extent the cause of the high price of sealskin goods, and also the different prices one hears of, as a good many skins are more or less spoiled in dressing. Another cause, too, is on account of the monopoly of coloring the skins which the two dye houses hold. Formerly the pelt was dipped into a vat, but as the dye quickly rotted the skin, other means had to be resorted to. At present the dye is applied with a stiff brush, which goes to the root of the hair, but not further; the skin is then rolled up, fur inside, and after a little time, hung up and dried. The dry dye is then removed, and a further coat applied, dried, removed, and so on, till the requisite shade is obtained. From 8 to 12 coats are needed to produce a good color.

Sealskin Cloth. A variety of cloaking made of the finest kind of mohair, the shade given by dyeing being exactly like that given to seal fur. It is manufactured at Yorkshire, England, and is used for ladies' outdoor jackets. This cloth must not be confounded with *sealskin plush*, which is also made in imitation of seal fur and used for ladies' cloaks and caps. The pile of the latter is composed of wild Tussar silk. [See TUSSAR, PLUSH.]

Selvage. [From *self edge*, or that which makes an edge of itself without hemming.] The edge of a web or fabric so woven that it does not allow of raveling; also, that part of a web at either edge which is not finished like the surface of the cloth, and which is meant to be torn away when the material is made up, or for use in making the seam; sometimes spelled *selvedge*.

Seersucker. A washable cotton fabric, woven in stripes, usually of blue and white or brown and white. [See GINGHAM.]

Serge. A twilled worsted fabric, which, according to some writers, being at one time made from silk; and so, through the L. *sericum*, silk, derived its name. Other authorities show the word as coming from Ger. *sarge* or Dutch *sargia*, old records showing the word to have been at one time spelled *sarge*. The latter derivation is probably correct, as no serges of silk can be found mentioned until recent times, when *serge de soi* was in the last century sold as a dress material and more recently as a lining.

Worsted serges were known and used as early as the twelfth century, the twill being of flat appearance and woven curiously fine. This fabric, known as wool serge, has for 600 years been almost exclusively used for men's clothing. The modern fabric varies but little from those made centuries ago. In weight and texture it belongs to the flannel family, being woven in a fine or coarse twill with a *worsted* warp and a *woolen* weft, which accounts for the springy, elastic nature of true serge.

Fabrics under the general title of serge are woven of either silk or wool, or a mixture of both. Wool serges are finished both rough and smooth-faced, and also with napped and smooth backs. *Serge cloth* is smooth on one side and rough on the other. *Witney serges* are heavy and wooly throughout. *Botany serges* are of a soft, loose diagonal weave, with a somewhat heavy wale or rib. *Storm serge* is a broad-twilled, old-fashioned weave, somewhat similar to the modern "clay" diagonal. *French flannel serge* or *serge de Berri* is composed of long wool, and has somewhat the appearance of India cashmere dress goods. *Pompadour flannel serge* is so designated on account of the small flower designs with which they are decorated. [See POMPADOUR.] The coarse and heavy kinds, employed for upholstery are of double width, whether of wool or silk. *Silk serge* is principally employed at present by tailors for the lining of coats, and for umbrella covers.

Seric (ser-ik'). [From Latin *seric*, whence comes our word "silk."] The *Seres* were an Asiatic people from whom the ancient Greeks and Romans got their first silk. The name seres in old historical records is used vaguely, but their land is generally understood to be China in its more northern aspect. [See SILK.]

Serpentine Braid. A black worsted trimming braid, so called from its resemblence to the winding or sinuous motion of a serpent. [See BRAID.]

Serviette (ser-vi-et'). A napkin.

Sewing silk. The present manufacture of sewing silk is a direct development of the colonial fireside industry, and formed the first factory silk product of the United States. Immediately after the Revolution when money was a scarce article among our gallant ancestors the women of New England adopted silk culture as a means for obtaining a livelihood. They reeled the lustrous thread from the cocoons upon the clumsy hand reels, spun the thread on spinning wheels made for wool, dyed the precious skeins at home and bartered them for merchandise of various sorts at the country store. In the lack of money skein-silk took its place and the Legislatures of New England provided a fine of $7 against any one convicted of offering for sale "any sewing silk, unless each skein consist of twenty threads, each of the length of 2 yards." Twenty-five skeins made a bunch and 4 bunches a "package." Previous to the invention of the sewing machine, silk thread was all made into skeins, being formed of two strands twisted from right to

left. It was sufficiently smooth for the needle used in hand sewing, but would not answer for the sewing-machine. After many experiments the discovery was made that this defect could be obviated by making the thread of 3 *fine* strands, and twisting them harder and closer than the skein thread for hand-sewing. The latter at present has completely taken the place of the former, except with merchant tailors and other makers of clothing. In the United States alone $15,000,000 worth of sewing thread and twist is consumed annually, nearly all of which is made in New England. One establishment in Florence, Massachusetts, employs 60 automatic spooling machines, each winding 110 dozen a day. Skein silk, which is sold by the ounce, is weighed out by automatic machines. Sewing silks and twists are dyed in two different qualities—"pure dyed" and "standard dyed." In the first case, one ounce of dye matter is added to 12 ounces of scoured silk; in the second, 4 ounces are added; equalizing, it is claimed, the gum subtracted in the scouring. Beyond this proportion, if the silk is weighted with dye, it is not so strong as its weight would imply. Spool silk comes in 50 and 100 yard lengths. Black is made in sizes 000, 00, 0, A, B, C, D, and E, from fine to coarse in the order named. Colors are made in size A, only, that being the medium and most used number.

Shadow Silk. It is the habit of manufacturers of giving names, and sometimes queer ones, to every novelty that is introduced, and frequently the name is a misnomer; or again, a revival of silks or other goods long ago in vogue will be heralded under a new name. The name sometimes attracts as much attention as the goods. Shadow silk is, in reality, only another name for changeable or iridescent silk, a style that has been woven since the "time when the mind of man runneth not to the contrary." The surface of these goods has the appearance of being composed of light and dark tints, which change into intermediate shades with every movement of the wearer, according as the sunlight or sombre light strikes upon it. This is due to the warp being of a high luster and lighter color than the weft. [See CHANGEABLE, SHOT, CHIEN.]

Shaker Flannel. *Shaker* is the name of a religious sect which emigrated to the United States in 1774 and colonized in different portions of various Eastern States. The people belonging to these societies live together in communities and possess large tracts of land, flour and woolen mills, etc., which they own in common. The flannels which they at one time manufactured, of mixed wool and cotton, were of superior quality, and hence took the name of the people who made it. Shaker flannel at the present time is a soft finished, slightly napped material, made of cotton warp and wool weft, in plain white or solid red. There are also varieties of all-wool and all-cotton flannels, *called* Shaker, on account of the soft finish and nappy surface.

Shalloon. A variety of worsted serge, twilled on both sides exactly alike.

Shantung Pongee Silk. A soft, undyed and undressed Chinese washing silk, made in imitation of the India or Hindoo goods of the same character, but higher luster. The various qualities are uniformly nineteen inches in width, and measure twenty yards per piece. The silk is manufactured in the province of Shantung, China, and printed with patterns after being landed in this country. [See PONGEE.]

Shaps. [Corrupted from Spanish *chaparejos*.] Leather overalls or leggins, worn by cow-boys in western United States and Mexico.

Shawl. [From Persian and Hindostanee *shal*.] An article of apparel made after the shape of a large kerchief, the manufacture of which is believed to have originated in the valley of Cashmere, a district still pre-eminent in the production of these goods. The manufacture of shawls was first begun in England in 1784. They copied the Hindoo and Persian styles, but the process was very slow and the result consequently costly. The best specimens at this time were made with silk warp and worsted weft, but the designs were darned by hand. It was not until 1805 that a shawl was produced entirely in the loom in England. In Paisley and Edinburg, Scotland, the manufacture was introduced about the same time, but in the United States the manufacture of fine broche shawls has never been established. [See SHETLAND, CASHMERE, CAMEL'S HAIR.]

Shawl Material. A brocaded fabric of silk and wool, used for dresses and portions of dresses by women. The material is soft and flexible and is usually woven in designs of Oriental character, or in patterns similar to those seen in Brocha and Paisley shawls.

Sheep-gut. An article known in trade under the erroneous title of *cat-gut*. It is made of the twisted intestines of sheep. Whip cord, hatters' cord, bow string, violin, guitar, and harp strings are all made of sheep-gut, variously prepared.

Sheer. A term applied to cotton or linen fabrics which are fine and thin; soft and pliable.

Sheeting. Bleached or unbleached muslin, woven plain or twilled, ranging in width from 72 to 108 inches; in weight from 2½ to 4 square yards to the pound weight; and in number of threads to the inch from 46 to 88 each way. "Standard" sheeting weighs 2.85 yard to the pound. *Pillow-casing* ranges in width from 52 to 64 inches. [See MUSLIN, APPENDIX "B."]

Shetland Lace. An ornamental woolen trimming, made like open-work lace, except that it is made of finer woolen yarn, and is, therefore, coarser and larger in pattern, and capable of being made very warm.

Shetland Shawls. A variety of fine light-weight shawls originally made on the Shetland Islands, off the coast of Scotland. The wool of which the genuine article is made, is obtained from a native breed of sheep, which resemble the famous Cashmere goats of Thibet. The yarn is spun and

prepared by the native women, who also knit the shawls, always by hand. These shawls have long been in favor for their warmth and lightness, but the acme of perfection seems to have been reached in one lately exhibited at Lerwick, Shetland Isles, which was entirely of hand-work, being hand carded, spun and knit, the wool for the same having been pulled from the neck of the living animal. This shawl measures two and one-quarter yards square, weighs only three ounces, and can easily be passed through an ordinary sized finger-ring. It contains 10,200 yards of 2-ply yarn of dazzling whiteness, and is knitted in intricate and varied patterns. Imitations of Shetland shawls are knitted in this country, by machinery, of ordinary wool, in various sizes and colors, and sold under the same name. The demand for the Shetland increases year by year; no other garment in the way of a wrap hangs more gracefully, and nothing for light evening wear has so soft and pleasing an effect.

Shift. An undergarment; a shirt; especially a woman's under garment; a chemise.

Shirt. The English speaking peoples are indebted to the Arabs for the article of apparel known as the shirt, the Arabic name for which was *camis*, whence comes Italian *camisca*, and French *chemise*. It was called by our Saxon ancestors indiscriminately sherte, camise and shift, at which time the undermost garments of both sexes were of similar shape and materials. The word "shirt" is derived from the Saxon word *sceort*, short; and that from Latin *curtus*, having a similar meaning; hence *curtail*, etc., so that shirt is literally a short garment. One-half inch in the length of the neckband constitutes a "size" in shirt-numbering. With this is associated the length of the sleeve, the difference in the lengths of which is one inch. The best stock shirt manufacturers make 6 lengths of sleeves, ranging from 30 inches to 36 inches long, but the neckband number is the one used in naming the size of the shirt. The size of collars and cuffs is one-half inch in their lengths. The regulation or "standard" dimensions of the bosom of ordinary open-back shirts is 7¼ by 13½ inches. An open-front, or open-back-and-front should be 8 by 15. Anything beyond this is superfluous and injures the set. In the South, it is the fashion to discard the waistcoat in summer, and so the bosoms of Southern summer shirts are made 17 inches in length, in order that they may reach below the waistband of the trousers. The following singular calculation has been made by a shirt-maker, regarding the number of stitches required to complete a shirt: Stitches in collar, four rows, 3,000; cross ends of same, 500; buttonhole and sewing on button, 150; gathering neck and sewing on collar, 1,204; stitching the wristbands, 1,228; ends of wristbands, 68; buttonholes in wristbands, 148; hemming slits, 264; gathering sleeves, 840; setting on wristbands, 1,468; stitching on shoulder-straps, 1,880; hemming the bosom, 393; sewing up side seams of sleeves, 2,554; cording bosom, 1,104; "tapping" the sleeves, 1,526; sewing all other seams and setting side gussets,

1,272; total number of stitches, 20,649. The embroidered bosoms, now so extensively used for dress shirts in this country, come largely from Germany, where men as well as women work upon them in the country districts, when field labor is suspended. Some years ago a damask manufacturer in Scotland made a shirt entirely in the loom, without any kind of needlework, and sent it to the Hunterian Museum in Glasgow. The neck, wristbands and shoulder-straps were of double cloth, neatly stitched; the buttonholes properly worked with appropriate stitch, the buttons sewed on, the gussets inserted, and a ruffle added. On the breast the Glasgow arms were woven, and the motto, "Let Glasgow Flourish." One of the queerest of superstitions is that entertained by steamboat hands and raftsmen along the Mississippi river, regarding the finding of a drowned person by means of his shirt. The shirt is taken to the place where the unfortunate is supposed to have gone down, spread out upon the water and allowed to float away. If the shirt in floating along with the current crosses the spot where the body lies it will slowly and unsteadily eddy about the surface for a few moments, as if locating the exact spot, and then rapidly sink to the bottom.

Shirting. Any fabric designed for making shirts, such as cheviot, osnaburg and percale; specifically, brown or bleached muslin, as distinguished from sheeting. Calico and percale shirting are usually printed with but one or two colors, in small neat patterns. Fancy shirting is woven in simple patterns, such as plaids and stripes, after the manner of gingham, and is termed in trade *Oxford* shirting. A gingham is a cotton fabric used as a ladies' dress material, whereas Oxford shirting is a cotton material used for making shirts, or ladies' and children's waists. By examining Oxford shirting it will be found that two warps run side by side, and that the filling binds these two together. It is this peculiarity in weave that gives the name Oxford to this class of shirting. Cotton shirting flannels differ materially in point of structure from gingham, particularly in the softness of the weft yarns used, though each are plain-woven, with the patterns woven in instead of being printed on. The napping or teasling process requires that the weft be very loosely twisted, otherwise the yarn will not yield to the teeth of the napping machine. The napping of cotton shirting flannels is usually performed by passing the goods over cylinders armed with wire teeth, which pull out the surface fibers of the filling threads. When a heavy appearance is desired with a long, woolly surface, the teasling process is completed when the cloth leaves the napping machine; but if a smooth, even surface is required, as in the delicate French flannel, the goods are calendered by being passed between iron rollers heated by steam. [See FLANNELETTE, DOMET, PERCALE, OSNABURG, CALICO, CHEVIOT.]

Shirt-waist. A garment for both women's and children's wear, resembling a shirt in fashion, but extending no lower than the waist, where it is belted. They are manufactured of all kinds and qualities of materials,

ranging in size from 4-year small to 18-year large—the bust measure being indicated by ages.

Shoddy. Formerly a term applied to the waste thrown off in wool-spinning, but now applied to the shredded wool of old cloth, reduced to a fibrous condition to be re-manufactured.

It is surprising how little people, in general, know what shoddy is, and the prejudice against the use of shoddy in woolen goods is simply a result of this ignorance. The term of shoddy is erroneously applied to all fibers that have been carded from a fabric, no matter what grade or quality. This is the first mistake. All of the various wool fibers obtained from cloth is called "mungo." These, again, are subdivided into "new" and "old" mungo. Old mungo is used only in the very poorest class of woolen goods—into satinets and cheap "beavers." If the clothing manufacturer wants a pound of goods for forty cents or less, labor and all expense included, he must know that he cannot obtain cloth in which even new mungo has been used, and if there is a demand for that class of goods the supply will be forthcoming. New mungos made from fine all-wool cassimeres and from blue, black and brown new worsted clippings is a choice fiber, and will equal fall Texas and California wool in length and strength, as the fabric has been but little pulled and not worn. The term shoddy, however, applies to all fibers obtained from fabrics *which have not been fulled at all*, viz., flannels and knitted goods. The lady, when she discards her opera hood or fascinator, does not dream that she will wear that same article again transformed in a fine cloak. Her fascinator was crocheted from pure fine Berlin zephyr yarn. She has not injured it any. It has been subject to very little wear, and when it is picked back into the yarn from which it was made, and that yarn opened up by cards into a wool fiber, it will take a very fine wool to compete with it. It is ridiculous to assume that all this material should be burnt up and new wool used in its stead, especially when new wool cannot compete with this class of stock unless of very choice grade. The same applies to ladies' dresses. Many a gentleman wears on his back a part of the dress his wife discarded—that dress being made from the best Australian combing wool; worked up again, it retains its character—is, of course shorter and cannot be combed again, but the fibers being used with new wool into fulled goods will make as serviceable a garment as could be desired. To classify such stock in the same catagory with old mungo and call it all shoddy will appear very ludicrous. The fact is, that these better qualities of shoddies are used as wool in the highest class of goods, and the consumer obtains full value—just the same as if he wishes to buy a suit all fitted for $6, he will get it—but there will be neither shoddy nor wool in it, except the wool contained in old cloth (mungo) and some cotton to help spin it. Some shoddy is better than wool, and some wool is better than shoddy.

More than one claim has been put forward for the credit of founding this important manufacture, but there seems little doubt that Benjamin

Law, of Batley, England, first wove a piece of cloth from shoddy in 1813. Previous to this time woolen rags had little commercial value, being used only to be torn up into "flock" for stuffing saddles or furniture, or employed in agriculture for manure. Shoddy consists of rags and shreds of stockings, flannels and other good worsted fabrics. Mungo consists of the clippings of fulled goods and tailors' waste, torn and reduced to fragments of the original fiber. These rags are first thoroughly oiled, and then passed through a machine significantly called the "devil," which literally rends the rags into minute particles that look more like dust than fibers. This is done by the rapid rotation of a large cylinder armed with powerful iron spikes, with equally strong toothed-rollers revolving in an opposite direction. Mungo cannot be used without a due proportion of natural-length wool, usually one-fourth of pure wool being employed in spinning. Both shoddy and mungo find their way into a very large proportion of woolen goods, such as linings, rugs, wraps and heavy overcoating, druggets, blankets and satinets. "Shoddy" was formerly a term of opprobrium in connection with woolen manufactures—the bad name being obtained during the war—but it is now recognized as a material of great utility for many purposes where body and warmth are more essential than toughness or elasticity. When not employed fraudulently its use wrongs nobody. By mixing mungo with wool or cotton in fair proportions, manufacturers are enabled to supply comfortable and serviceable material for clothing at a low price; and so long as the world contains poor people, so long will it be desirable that such materials shall be manufactured.

There is not much room for doubt respecting the influence upon the price of wool by the use of these fibers. That the employment of these substances operates to put down the price of wool can hardly be questioned by any one who will examine the subject. The use of both wool and shoddy represents the supply of a demand which could not be supplied (in the absence of the former) without a larger consumption of wool, and thus the lessened demand for wool acts to keep down the price. The withdrawal of shoddy from industry would certainly advance the price of wool—notably the price of cheap wool. It is also claimed by a certain class of political economists that the shoddy industry was developed and its existence made possible by restrictions placed on the importation of pure raw wool. If it were not for our high duties (they claim) on imported cheap wool, our manufacturers could purchase the raw material from South America and Australia and make a strictly all-wool fabric at the same price at which they can produce the substituted article, thus giving the consumer a strictly pure wool material at the same cost. [See WOOL, WOOLEN, WORSTED.]

Shoes. See BOOTS AND SHOES.

Shoe Pegs. A short wooden nail used for fastening the uppers to the soles of boots and shoes. Shoe peg making is an important branch of business in Maine and Pennsylvania, over 1500 cords of wood being annually

consumed in the manufacture. The pegs are sold by the bushel, and are worth from 75 cents to $1 per bushel. The value of the yearly product amounts to over $300,000, large quantities being exported.

Shoe Protector. A narrow band of water-proofed velvet designed to be sewn on the inside of the dress skirt at the bottom, to prevent the chafing of the shoe.

Shoe Thread. A strong unbleached flax thread yarn, made for the special use of shoemakers. The thread receives no twisting by machinery, the cobbler doing this for himself, waxing it previously. It is put up in boxes of 8 balls to the pound.

Shot. A term applied to silk fabrics having a changeable color like that produced in weaving, by all the warp threads being of one color and all the weft of another. Silk is the usual material thus woven but there are also shotted alpacas and shotted velvets. [See CHANGEABLE, SHADOW SILK, CHIEN.]

Shroud. A winding-sheet; a covering of the nature of a garment in in which a dead body is wrapped, as a long white robe or gown, prepared expressly for the burial.

Shuttle. An instrument for carrying the thread of weft between the threads of warp in weaving. [See LOOM.]

Sicillian. A mohair dress fabric. [See MOHAIR.]

Side Comb. A comb used in a woman's head-dress to retain a curl or lock of hair on the side of the head, usually in front of the ear; about 1850 such combs, generally of tortoise shell, were in common use. [See TORTOISE SHELL.]

Silesia. Formerly a thin linen fabric, or sleasy kind of holland, so called because made in *Silesia*, a province of Germany. At present the term describes a fine-twilled cotton fabric, highly dressed and calendered, used for linings. It is piece-dyed in all conceivable solid colors, tints and shades, and sometimes printed, though generally the patterns are produced in the loom.

Silk.

THE WORD SILK IN DIFFERENT LANGUAGES.

LANGUAGE.	WORD.	LANGUAGE.	WORD.
Corea,	Sir.	Icelandic,	Silke.
Chinese,	Se.	Anglo Saxon	Siolc.
Mongol,	Sirkek.	Danish,	Silcke.
Mandchou,	Sirghe.	English,	Silk.
Greek,	Ser,	Welsh,	Sirig.
Arabic and Syraic,	Seric.	Latin, Middle Ages,	Seda.
Latin,	Sericum.	Italian,	Seta.
Slavonian,	Chelk.	German,	Seide.
Gothic,	Silke.	French or English,	Satin.

More than three million human beings depend upon the industry of the petty silk worm for their daily bread; and all the world owes to him much of the splendor of its nightly gayety. "With patience and perseverence," says the Spanish proverb, "the mulberry leaf will become satin," and in the whole gamut of human vanities there is no contrast more strange and no lesson more significant than our dependence upon the patience of a despised worm, and the perseverence of the human toiler, adding thread to thread, for the richest and most splendid fabric known to man. Silk is to textile fabrics what gold is amongst the metals, and what the diamond is amongst the jewels.

The immediate offspring of our first parents having subdued the sheep and learned how to make use of its wool, and another branch of the primordial family, known as the Egyptians, having discovered and been the first to cultivate flax, which they used as a textile material on account of the blossom resembling the etherial blue of the heavens, it remained for the post-diluvian descendants of Noah, the Chinese people, to discover and develop the cultivation of the silk worm. It is in keeping with the eternal fitness of things that the discovery of the utility and excellence of the material derived from the silk worm should be traceable to female genius, in the person of Mistress See-ling-chi, wife of Hoang-ti, emperor of China 2,700 years before the Christian era. According to the written records of China, it was this empress who with her own royal hands first unraveled the cocoons and wove the glossy filaments into a web of glorious sheen. She is now throughout the Mongolian empire worshipped as the "goddess of silk worms," and at her annual festival the reigning empress performs the ceremony of feeding the worms. The Chinese guarded well the secret of their valuable art, and on account of their vigilant jealousy many centuries elapsed before the culture spread beyond the country of its origin. Not only for many ages did this people have a monopoly of the manufacture, but so far as can be learned, they successfully prevented the shipment of silk worms out of the empire, so that the material composing the fabrics imported from thence by the Romans was a matter of curiosity and conjecture; it being supposed that silk was made from fleeces growing upon trees, or from flowers, tales evidently founded on slender facts connected indiscriminately with cotton, wool, and flax. The word "silk" used twice in the Old Testament, is considered by many critics a mistranslation, and the first mention of the word in any historical writings, seems to be that by Aristotle, who credits Pamphilian, a lady of Cos, with the first weaving of a transparent silk gauze, so fine that it was called "woven wind." These tissues according to historians became very fashionable with the people of that early period, but were stigmatized by the moralists as anything but decent for women's wear. Seneca condemns them: "I behold," he says, "silken garments, if garments they can be called, which are a protection neither for the body nor for shame." An echo to the remarks of Seneca are the words of Solinus: "This is silk,

in which at first women, but now even men have been led by their craving after luxury, to *show* rather than clothe their bodies." It is evident from these statements that the importation of raw silk was first brought from China overland through India and Persia to this island of Cos, then under Greek domination. The Greeks knew the silk people as Seres*—there is much dispute as to the real origin of the name—and called the product *serikon*, whence through Latin *sericum*, and an intermediate form *selic*, comes our word *silk*.

Towards the beginning of the Christian era raw silk began to form an important and costly item among the prized products of the East which came to Rome, but as yet the Romans possessed no knowledge of how the raw material was produced. Fine silk at this time was worth its weight in gold. Notwithstanding its price and the restraints otherwise put on the use of silk, the trade grew. A monopoly of it was reserved by the Roman government under Justinian, who during a war with the Persians in the 6th century, A. D., endeavored to divert the trade from along the old established Persian overland route by which silk had always been brought to Rome. The result was that the entire supply of raw silk was cut off. Justinian then resorted to a ruse in order to get possession of the secret of producing raw silk. By paying them a larger sum of money, he induced two Nestorian monks who had long resided in China to return thither and learn the whole art and mystery of the business, and to make an attempt to bring back the materials necessary for the cultivation of silk. These intrepid monks traversed on foot the whole of Persia, India and China, and there, amidst their apparently pious occupations, they viewed with a curious eye the common dress of the Chinese, the manufactures of silk, and the myriads of silk worms, whose education, either on trees or in houses, had once been considered the occupation of queens. They soon discovered that it was impracticable to transplant the short-lived insect, but that in the eggs a numerous progeny might be preserved and multiplied in a distant climate. Accordingly they returned with several thousand silk worm eggs hidden in their hollow bamboo pilgrim staffs, and a thorough knowledge of the industry stored in their heads. From the precious contents of these two bamboo canes, brought from China in the year 550, were produced all the races and varieties which have stocked the Western world, and

*Silk was first described as coming from *Serica* or *Sereinda*, that part of India which lies beyond the Ganges. *Seres* is the designation given by the Greeks and Romans to the people who inhabited these remote regions, and Sereinda is, apparently, a compound of *Seres* and *india*. . The latter is a general term applied by the ancients to all distant nations, with as little precision as India is now used by modern Europeans. It is now so generally admitted that the Seres of the ancients are the Chinese of the moderns that it is unnecessary to enter into any discussion in proof of this belief. *Se* is the name for silk in the Chinese language; this, by a faulty pronunciation, not uncommon in their frontier provinces, acquired the final *r*, thus changing the word into *Ser*, the very name adopted by the Greeks. We can, therefore, hardly doubt that these obtained the name, as well as the material itself, first from China.

which have given trade, prosperity and untold wealth to great communities for more than thirteen hundred years. Justinian made silk culture an imperial monopoly, in charge of the monks; imported weavers from Tyre and Berytus, raised the selling price of silk 8-fold and that of royal purple 24-fold, and filled his depleted treasury with wealth. It was not until death disposed of him and his monopoly that the Byzantine and Grecian looms fairly began the industry afterward so famous. From Rome the silk culture spread into Greece. A little later conquest carried it into Sicily. From there to Italy it was but a step. On over the border it went into Spain and France, where soil, climate and people exactly suited it. In all these countries the industry took root, grew, throve, and continues to this day.

In the New World silk culture had been a plan of the Spaniards for Mexico, immediately after its discovery. Cortez, in his scheme of government for New Spain (1522), included officers to oversee silk growing; silkworm eggs were sent from Spain; some export of raw silk is recorded, and woven silk goods were made in and exported from Mexico; but the industry did not outlive the century. When King James' plan for silk-making in England was prominent in his mind, he began also to look to his colonies for a supply of silk, and most of the early schemes for developing Virginia included silk culture. Accordingly in 1622 one John Bonell was sent over to Virginia as instructor in silk culture, and with him went the most pre-emptory instructions for the compulsion of any person found "through negligence to omit the planting of *vines* and *mulberry-trees* in an orderly and husbandlike manner, as by the Big Booke is prescribed." Twenty pounds of tobacco was the penalty of neglect, and a premium of fifty pounds of tobacco was offered for every pound of reeled silk produced. During Cromwell's time many pious tracts were written to promote silk-culture in the colonies, one inspired fraud arguing that if the native Indians were led "to see this untaught worm spin out his *transparent bowels*," it might be possible to drive him to acknowledge the power of redemption; while another embellished his tract on "The Reformed Virginia Silk-Worm" with the following curious bit of doggerel:

'Where worms and Food doe naturally abound,
A Gallant Silken trade must there be found.
Virginia excels the World in both:
Envie nor malice can gainsay this troth--
Her worms are huge, whose cocoons dare
With lemons of the largest size compare----
Master William Wright of Nansemond
Found cocoons 'bove seven inches round."

Of course the poet exaggerated; no cocoons of such dimensions were ever grown. An act of parliament in 1749 declared that "Georgia and South Carolina should have the honor of being denominated 'silk colonies,' and King George ordered for Georgia a seal on which was the design of the genius of the colony offering a skein of silk to the king." A public gar-

den at Savannah was devoted to vines and mulberry trees, and a filature for reeling the silk was built. Georgia, in fact, made what seemed a fair start; in 1766, 20,000 pounds of cocoons were produced, and in 1768, 1,084 pounds of reeled silk were exported. But the industry was a forced one, the bounties being at one period two or three times the value of the cocoons, and it did not find commercial justification; consequently it languished and waned. Shortly before the Revolution there was a revival of the silk fever, chiefly in the northern colonies of Pennsylvania and Connecticut. A bounty of 10 shillings for every 100 trees kept thrifty was secured, and 3 pence per ounce for all raw silk made from them. But the war came, and the colonists had their hands full with fighting and raising breadstuff, and the silk industry was suspended. After the Revolution silk-making revived literally as a "household industry;" the women and children of Connecticut families raised from 5 to 130 pounds per annum. Sewing-silk was the bridge between silk growing and the present manufacture. The women reeled from the cocoon upon the clumsy hand-reels, spun on the spinning-wheels made for wool, dyed the precious skeins at home, and bartered them for various sorts of merchandise at the country store. In the lack of money skein silk took its place, and the Legislature provided for a fine of $7 against any one convicted of offering for sale "any sewing silk, unless each skein consist of 20 threads each of the length of 2 yards." Twenty-five skeins made a "bunch," and 4 bunches a "package."

About 1838 a speculative mania for the cultivation of silk developed itself with remarkable severity in the United States. It was caused principally through the representations of a man named Whitmarsh as to the capabilities of the South Sea Islands mulberry for feeding silk worms. So intense was the excitement that fruit trees and crops of all kinds were displaced to make room for the wonderful mulberry bushes. In Pennsylvania as much as $300,000 changed hands for the plants in one week, and frequently the young trees were sold three or four times over within a few days at ever-advancing prices. Plants of a single years' growth reached the ridiculous price of $1 each at the height of the fever, which, however, did not last long, for in 1839 the speculation collapsed; the famous mulberry was found to be no golden tree, and the costly plantations were uprooted. One of the most singular features in connection with the history of silk is the sporadic efforts which have been made by monarchs and governments to stimulate silk culture in their respective countries, efforts which continue down to the present time in the United States, England, India, and other British colonies. These efforts, to stimulate by bounties and other artificial means, have in no instance resulted in permanent success. In truth, raw silk can only be profitably brought to market in countries where there is very cheap labor and an abundance of it. This is made plain by the fact that China, Italy and Japan are and always have been the principal silk-producing countries of the world. These countries are inexhaustible storehouses of raw silk. They furnish nine-tenths of the world's

supply, and could easily double their annual production without materially increasing the price. The silk industry which has become so large an interest in this country is purely a manufacturing one, getting the raw material abroad, duty free. The manufacturers do not expect much result from silk-raising in America, chiefly because they think silk cannot be well reeled here at a satisfactory price. The only field for American silk growing seems to be restricted chiefly to that of a subsidiary industry for women and children, who would otherwise not be employed, and could therefore afford to work cheap, and then the industry would be under the disadvantage of "house-reeling." Whether the production of cocoons, not for reeling, but for the direct use of the "spun silk" manufacture, might be profitable, is very doubtful, in view of the low price paid for cocoons for this purpose—from 50 to 75 cents per pound.

There are two distinct departments of industry that go to making silk textiles: Seri-culture or silk raising, which consists in the raising of mulberry trees and the rearing of the silk worms; and silk manufacture proper, by which the silk fiber is worked into thread and fabric. These industries are seldom, and never necessarily, associated together, and the commercial interests of the grower and of the manufacturer sometimes seem to clash, yet most silk countries pursue both. The excellence of silk in its raw state depends upon the properties of the mulberry leaves, which often are considerably diversified. The white mulberry is regarded as being the best, though there are several varieties, each of which in some degree depends upon the locality and climate. Trees which are 3 years old yield about 7 pounds of leaves apiece. An ounce of silk worms (when born) will consume during their life about 1,500 pounds of leaves. The consumption at the beginning is very small, but becomes quite large toward the end of his existence. A very tiny object is the egg of a silk worm, not bigger than an ordinary pin's head, and yet an enormous trade is carried on in rearing them. Each moth lays from 200 to 300 eggs, and it takes about 34,000 eggs to weigh an ounce. Some years ago, when there was a disease in the European silk worm, it was deemed necessary to import fresh "grain" or "seed," as it is technically termed, from Japan. The importance of the trade may be estimated from the fact that there was introduced in the ten years ending with 1872 about 4,000,000 ounces of silk worms' eggs to Italy and France, the aggregate cost of which was $80,000,000. When the silk worm is fully mature it proceeds to spin its cocoon, in which operation it ejects from two little glands simultaneously a line of thread about 400 yards in length. The worm in forming the cocoon moves its head round and round in regular order for 3 days, at the end of which time it is completely enveloped. This forms the cocoon of commerce. They are dried for a few days and then immersed in boiling water to kill the worm within, after which they are ready to be sent to market to be reeled. To produce sufficient silk to make a dress pattern requires more time and capital than is generally supposed. If we take 1½ pounds

as the weight of *pure* silk required, this would equal 2 pounds of raw silk, because in extracting the gum from raw silk it loses 25 per cent. of its weight. To *produce* 2 pounds of raw silk requires the entire silk obtained from 7,000 to 8,000 worms, allowing a percentage for death by disease and other casualties. It may be interesting to state that these 7,000 or 8,000 worms when newly hatched would scarcely weigh one-quarter of an ounce, yet in the course of their life, which only lasts from 30 to 35 days, they will consume about 400 pounds of leaves and increase in weight 9,000 times. Purchasers of silk will not wonder at its high price when they consider that to raise two pounds of raw silk so much time and money is required. Besides the original cost of the eggs or young worms, they require feeding several times daily with leaves. This is a large item of expense if the cultivator does not grow and gather his own leaves, but is compelled to purchase them. Then follow the various processes of gathering the cocoons and reeling off the silk, throwing, scouring, dyeing and weaving.

The good cocoons are fuzzy oval balls, about the size of pigeon eggs, containing a long continuous thread of fiber, and the body of the dead worm. The fuzz or "floss" is a rough impure silk, which is taken off as "waste." This done the problem is to reel off the fiber without breaking it, and by combing a number of fibers together into a stronger thread, to make the "raw silk" of commerce. This makes the reeled silk goods. Here we must distinguish between the *reel silk* and the *spun silk* manufactures. The former embraces the operations peculiar to silk, dealing as they do with continuous fibers of great length; whereas in the *spun* silk industry the raw material is treated by methods similar to those of cotton and wool. It is only injured and unreelable cocoons, the husks of reeled cocoons, and other waste from reeling which are treated by the spun silk processes, and the silk produced in this manner loses much of its beauty and brilliance, qualities which are characteristic of reeled silk. Previous to the modern improvements in spinning machinery, the floss and all damaged and unreelable cocoons, were almost worthless. Now, however, all are carded and spun into yarn like wool and cotton, and made into "spun silk" fabrics, not so lustrous as reeled silk fabrics, but much cheaper. The waste from the manufacture of spun silk is, in turn, left as a rough furry yarn, called *noil*, which is woven into those fabrics sold by upholsterers for portieres and furniture coverings. Each of these classes of silk have their own usefulness, and now there is almost no waste in silk cocoons.

Reeling.—The object of reeling is to bring together the filaments of 2 or more (generally 4 or 5, but sometimes up to 20—according to the size of thread to be made) cocoons, and to form them into one continuous, uniform and regular strand, which constitutes the "raw silk" of commerce. In reeling the operative has before her—for this is mostly women's work—a vessel of water, kept so heated as to dissolve the gum with which the silk

worm has stuck the thread together to make the cocoon. A score or so of cocoons are thrown into the kettle, and as the gum softens, a whisk broom with which the woman gently stirs the cocoons, presently detaches the end of the silk worm's thread. She attaches together several ends, and fastens them to a reel, which consists of a light 6-armed wooden frame worked with a treadle. As the reel revolves the fiber from each cocoon is rapidly unwound. Five "ends" make the usual thickness of "raw silk." Reeling, though properly a process of manufacture, is done mostly in connection with silk-growing. Commerce makes a distinction in price between country silk and filature silk, which is reeled at factories; for professional work is always better than amateur, and poor reeling is costly to the weaver in the end. Manufacturers in this country use mostly silk of the best reeling, as our high-speed machines require the most even thread. Chinese and Japanese silk is mostly "country" reeled, and is consequently not so smooth and free from knots and bunches as the filature-reeled Italian silk. The raw silk from the two former countries is technically termed *re-reel* silk, and usually fetches from 20 to 50 cents per pound less than filature. Filatures are generally used for making warps, and re-reels for wefts. Italian raw silk runs one unvaried tint throughout the whole bale, every skein matching all others perfectly. In Japanese and Chinese hand-reeled silk the color is not uniform, having a streaky appearance caused by using multi-colored cocoons in the same kettle. Filature silk is also free from nibs and knots, while re-reels are full of small rough places. These interfere greatly when it comes to be *thrown*, and also in weaving. France takes the greater portion of Italy's filature silk, which in part accounts for the excellence of her fine fabrics. The average prices of these two classes of silk for 1890-91 are as follows:

French Filature, Cevennes	$4 50
Italian Filature, Extra classical	4 20
Italian Filature, Classical	4 00
Italian Filature, No. 1	3 90
Italian Filature, No. 2	3 80
China Filature, extra classical	4 00
China Filature, No. 1	3 80
China Filature, No. 2	3 60
Japan Filature, Extra classical	4 10
Japan Filature, No. 1	4 00
Japan Filature, No. 1½	3 80
Japan Filature, No. 2	3 60
Japan Re-reel, No. 1	3 90
Japan Re-reel, No. 1½	3 80
Japan Re-reel, No. 2	3 60
Japan Re-reel (Kakedas), No. 1	3 60
Japan Re-reel (Kakedas), No. 2	3 50
Japan Re-reel (Kakedas), No. 3	3 40
China Re-reel, No. 1	3 00
China Re-reel, No. 2	2 90
China Re-reel, No. 3	2 80
China Re-reel, Common	2 60
Canton Re-reel, No. 1	2 90
Canton Re-reel, No. 2	2 80
Canton Re-reel, No. 3	2 70

Raw silk pays a freight of 6½ cents per pound from Asiatic ports to New York City, over the Canadian Pacific Railroad. The freight *via* San

Francisco is 8 cents per pound. The ocean freight on raw silk from France and Italy to New York is 4 cents. The raw silk which is used in our factories is drawn wholly from foreign sources, the domestic output being too small to have any influence whatever. Italy, France, China and Japan are the principal sources of supply. Our imports of raw silk, in pounds, from 1886 to 1891, inclusive, with average price per pound for each year, were as follows:

	Total.	Value.
1886	4,754,626	$3 62
1887	4,599,574	4 96
1888	5,175,920	3 89
1889	5,329,646	3 48
1890	5,943,360	3 92
1891	5,240,841	3 67

The following table gives the average value per pound of the raw silk imported from four countries for five years:

	China.	France.	Italy.	Japan.
1886	$3 00	$4 38	$4 36	$3 66
1887	3 42	4 84	4 59	4 05
1888	3 10	4 33	4 33	3 74
1889	3 23	3 90	4 00	3 34
1890	3 29	4 69	4 82	3 84

Our receipts in pounds from the same countries for the years 1887 to 1890 were as under:

	Japan.	China.	Italy.	France.
1887	2,165,329	1,076,280	1,005,812	276,633
1888	2,800,402	1,016,945	958,816	— —
1889	2,738,423	1,118,807	1,091,871	— —
1890	3,459,569	1,130,491	911,175	279,488

Throwing.—Raw silk, being still too fine and delicate for ordinary use, undergoes a series of operations called *throwing*, the object of which is to twist and double it into more substantial yarn. According to the quality of raw silk used and the throwing operations undergone, the principal classes of *thrown* silk are: (1) *Tram* or weft thread, consisting of two or three strands of raw silk not twisted before doubling and only lightly spun (this is soft, flossy and comparatively weak); (2) *Organzine*, the thread used for warps, made from two twisted strands spun in the contrary direction to that in which they are separately twisted; (3) *Singles*, which consist of a single strand of hard-twisted raw silk, made up of the filaments of eight to ten cocoons (this is always quoted under the head of organzine). The average prices per pound paid for these two classes of thrown silk for the years 1890–91, are as follows:

French and Italian Organzine	$5 15
Japan Organzine	5 00
China Organzine	4 85
French and Italian Trams	4 75
Japan Trams	4 60
China Trams	4 70

Scouring.—Up to this time the silk fiber continues to be lustreless, stiff, and harsh, from the coating of gum on its surface. The removal of this gum is performed by the operation of boiling-off or scouring. To boil off, say 300 pounds of thrown silk, about 60 pounds of white soap is shred and dissolved in 200 gallons of pure water, at a heat of 195 degrees. In this the hanks of silk are immersed, being continually turned around so as to expose all portions equally to the solvent influence of the hot solution. For some purposes—making gauze, crape, etc.—the silk is not scoured; and for dyeing certain colors, half-scouring is practiced. The perfect scouring of French silks removes 25 per cent. of their weight, while China silks lose 30 per cent. Silks to be finished white are bleached by exposure in a closed room to the fumes of burning sulphur, and afterward washed in pure cold water to remove all traces of the sulphur.

Spun Silk.—Fabrics made of silk are of two kinds, according as they are made of *reeled* or *spun* silk. In working the latter there is no attempt made to use the continuous thread as spun by the silk worm within the cocoon, but the cocoon is treated as a bundle of fibers, and spun like wool or cotton. The cocoons for this purpose are imported in bales, largely from Lyons, the centre of the European silk commerce, and from China and India. The cocoons on arrival are picked over, freed from adhering dirt, and assorted with regard to color. They are then ready for the first process in the spun-silk industry—the freeing of the silk fiber from the gum with which the silk worm has glued it together to make its cocoon, and the loosening of the fiber itself. This is done by boiling in soap-water. They are then rinsed in clear water, dried by steam, and exposed to free air in great drying-rooms. They emerge no longer cocoons, but puffy little balls ready to be beaten out into sheets of fiber something like cotton batting. These sheets of silken batting, formed not only of pierced and inferior cocoons, but also of the "waste" from throwing processes and all other stages through which the *reeled* silk has passed, are next food for combing or carding machines. There are several patterns or varieties of these machines, all serving the same purpose of combing and cleaning the fiber, much as one combs out his hair. In the first combing the largest and strongest fibers, called the first "draft," left on the cards are used for the finest goods; the *waste* left on the cards becomes food for the next combing machine. The poorer fiber goes through 4 or 5 machines, until the possibilities of the material is exhausted. The last fiber that can be used is roughly spun into the irregular *noil* yarn, which is the material composing the lustreless "raw silk" goods, so called, of the upholsterer, a fabric which frequently defies an expert to determine whether of cotton or silk. The spun silk, after passing through 16 or 18 machines from its original shape in the cocoon, is now in a yarn, or thread, corresponding to the "reeled" silk as it is ready for the weaver. The finished yarn is often very lumpy and requires severe improving. A curious process sometimes used is the "gassing" or singeing, in which the yarn is run continuously through a gas

flame at a speed carefully regulated so that the flame shall burn off the loose filaments and clean up the fiber without burning the body of the thread itself. If the thread slackens, a clever device called a guide-wire instantly turns off the flames. The last machine, the "reeler," delivers the thread upon a reel, which permits the making of skeins, in which shape all the dyeing, except for piece-dyed or printed silks, is done. Printed silk is made in much the same fashion as calico. When the figure is white upon a dark ground the silk is bleached, then run between rollers that print the ground, leaving the figure blank. Colored figures on white or light grounds simply reverse the process. Complex patterns, employing many colors, have a separate roller and printing for each tint.

Dyeing, Adulterating and Tests for Silk.—Next to wool, silk is the easiest fiber to dye. In fact it runs riot in the whole gamut of color. The aniline dyes evolved by German chemists from coal tar give many of the most delightful tints. For the rest there is madder and Brazil wood, tumeric, and cochineal, saffron, indigo, logwood, fustic, Prussian blue, and many more. There is no shade, no tint, no cloud of color applied to any known fiber but may be caught and repeated upon silk. Dyeing is always a hand process, as the color of a dyer's hand suggests, and here machinery does not attempt to interfere. Long wooden troughs fill the sloppy and steamy room, into which the great skeins of silk yarn are dipped by parti-colored human beings, who move them to and fro to make sure all parts of the skein are touched by the dyeing fluid. There is good dyeing and bad dyeing, honest dyeing and false dyeing, and a silk maker inspired with intent to deceive can make his yarn take 300 per cent of extra weight by the use of heavy chemicals in the dye-trough. Silk, we have seen, loses about one-fourth of its weight in scouring. To make up for this loss, it has long been the practice to dye dark-colored silks "in the gum," the dye combining in these cases with the gum or gelatinous coating. Such silks are known as *souples*. Both in the gum and in the scoured state, silk has the peculiar property of absorbing heavy dye-matters, though remaining to outward appearances undiminished in strength and lustre, but much added to in weight and thickness. Silk in the gum, it is found, absorbs these heavy dyes more freely than the scoured; so to use it for weighting there are these great inducements—a saving of the costly and tedious scouring; a saving of the 25 per cent weight which would have been lost; and a surface on which much greater deception can be practiced. In dyeing silk black, a certain amount of weight must be added; and the common practice in former times was to make up on the silk the 25 per cent that was lost in scouring. Up to 1857, the utmost the dyer could add was "weight for weight," but an accidental discovery in that year put dyers in the way of using tin salts and nitrate of iron in "weighting," with the result that they can now add 40 ounces per pound to scoured silk, 120 ounces per pound to souples, and 150 ounces per pound to spun silks, and yet these compounds are called *silk*. The use of different chemicals enables dyers to weight all

colors the same as black. The apparent lustre of the fabrics is preserved because the silk fiber absorbs the heavy chemicals to a degree truly wonderful, and there is a semblance of silk with a good "body" that attracts customers. Very brief wear reveals the deception. It will crack and grow rusty in a night. The cohesiveness, the elasticity, and the real strength of the fiber are greatly reduced. As a further evidence the goods have become highly combustible, and, when burned with a match, fail to give the usual odor of animal matter by which good silk is so readily recognized. This manner of dyeing accounts for some of the cheapness as well as the bad wear of certain foreign fabrics which look as well at first sight as goods at a much higher price. Some of the foreign black dress silks are so highly "loaded" with nitrate of iron as to give color to the belief in "spontaneous combustion" of silk, which caused the steamship companies in 1879 to refuse to freight the heavier foreign silks. The carbon of the silk and the nitrate make a compound closely parallel to gunpowder, which is simply cotton fabric soaked with nitric acid. The silk mills of the United States manufacture the finest and most honest fabrics in the world, and challenge consumers to test the purity of their silks, which can be done by raveling out the threads. If heavily loaded, they will be sure to break easily, feel rough to the touch because of the particles of dye, taste inky to the tongue, and burn smoulderingly into a yellow, greasy ash, instead of crisply into almost nothing.

After dyeing, the huge skeins are washed and dried, and are now ready for the process of weaving. Like all fabrics, woven silk is composed of a series of continuous threads lengthwise in the piece, called the *warp*, and of cross-threads woven in and out of the warp according to the pattern of cloth, called the *weft*, or *filling*. As previously stated, warp yarn is first spun, then doubled, then *close-twisted*, and is called "organzine;" weft yarn is first doubled, then spun, is but *slightly twisted*, and is called "tram." The first process of the weaving must be to get the warp, and the weaver gives word that he wants a warp 250 yards long, and of 3,000 to 6,000 "ends" or threads, which last number would make a very wide piece of goods. The original bolts of silk as they come off the loom are usually about 200 to 225 yards in length. In a good gros grain dress silk there are about 4,800 warp threads lying side by side in the width of the fabric, being 240 to the inch. (In the best standard calico there are 64 to the inch.) The Jacquard loom, with its marvelous power of producing infinite detail of figure, is the machine upon which all American silks are woven. It will be found described under the head of JACQUARD. The invention of this simple improvement in the year 1800 won for Jacquard a bronze medal, the notice of Napoleon, and a pension of 1,000 crowns. Besides the varieties of pattern made by the arrangements of the harness-frames, which includes the difference between silk and satin, there are other means of varying goods. In satin the warp is thrown mostly to the upper surface, and as the silk warp is the most lustrous, the satiny effect is produced. Grenadine is produced by thread-

ing the warp only into alternate eyelets in the reed and harness, and by feeding the weft slowly, so that a mesh is formed. Stripes, if in the length are made by warp threads of different colors; if in the width, by feeding the weft from shuttles carrying different colors of thread, each of which, by an automatic device, is lifted into position to be thrown at the proper moment. Gros grain is made by plain weaving, the woof being of a thickness to correspond with the rib or grain. Bedford cords, Ottomans, and Faille are made in the same manner—a heavy thread of weft making the rib across the goods. Foulard is simply the general name for plain-woven silks not dyed in the yarn. After silk cloth is woven it is taken from the loom for finishing. This a is considerable business in itself. Two of the preliminary processes are *gassing* and *burling*. Gassing is a repetition of the process used for the yarn, viz., the passing quickly in contact with a light flame, which burns off any stray filaments without injury to the fabric. In burling, the fabric is unwound from one roller and wound at a short distance away upon another, the quick eye of a woman being on the alert to catch any knots or "burls" in the silk, which she removes with a pair of tweezers. The fabric is then calendered or "glossed" by being run between copper rollers, after which it is folded in 1¼ yard lengths and is ready for the packer. In some kinds of finishing the silk is subjected to a steam spray of gum and shellac, which improves its luster; and foreign silk is sometimes refinished in this way by American finishers. If, however, the material is not yarn-dyed, it must go from the loom to the dye shop, or to the printing-press. Silk, like calico, is printed on a stout upright press, having a roller for each color that is to be used. On this roller, which is of copper, is cut the portion of the pattern to be printed in this color, and when the silk carried around a great cylinder in the center, has been pressed in turn against each of these rollers, the pattern is complete. In either case it must be washed. dried and calendered before it is ready to sell.

Velvet is made in two ways, that of the finest grade being woven by looping the warp threads over fine wires, which give by their size any desired length of pile. When the weaver has made a few inches of web, requiring several hundred of these wires he stops the loom and with deft hand runs a keen knife along each of these wires, guided by a fine groove in its upper surface. The other system is that made possible by the power loom for the production of pile fabrics. In this two cloths are really woven together the pile binding the two, until a blade working like a knife or sickle cuts them apart. Velvets must be carefully looked over to obviate imperfections, and are then ironed, brushed, and if necessary, sheared to the finest possible degree of evenness. Watered silks and moire antiques are *now* made by the pressure of hot rollers upon the parts showing the "water lines"—a method which has superseded the old hand process of scraping down or hammering in the lines. Brocades are simply figured goods, the figure being produced by throwing the warp

or the weft thread to the top in the Jacquard weaving. The cost of putting a brocade figure to a plain background varies greatly with the material used for the brocade, the number of colors used in the figure, and the elaboration of the pattern. The simplest brocaded figure can be added to a piece of silk at a cost of about 15 cents a yard; and it may add ten times that sum to the cost of a yard if it be an elaborate all-over design.

Half-silk Goods.—By this term is meant fabrics which are made partly of silk and partly of cotton; sometimes the warp is of cotton and the weft of silk, or the reverse may be the case. It is obvious that these fabrics cannot have the same luster as whole silk fabrics, and the aim of finishers is to make them *appear as lustrous* as if made entirely of silk. After weaving, these goods are generally boiled off, and if required are then dyed and dried. In the condition this leaves them, the fibers of which they are composed are distinctly visible, the silk being lustrous, the cotton dull and heavy. The object of the finisher is to give the whole a similar appearance by imparting a gloss to the cotton, and in this silk-finishers have been successful, for they make half-silk goods look as if they were composed entirely of silk. Two kinds of finish are distinguished in the trade: one, known as "atlas," is finished or is bright on one side only; the other, called the "ottoman" finish, is bright on both sides. To obtain either of these results a finishing agent is first applied to the goods, and they are then dried and as a general thing calendered. The materials used for the finishing are gum tragacanth and glue, of the purest and palest quality. For the "atlas" finish the fabric is wound on a roller as free from creases and wrinkles as possible, and the face of the goods filled with the composition of glue and gum. This is applied by means of a roller. The fabric is then dried, and afterwards calendered just enough to give them the required gloss. It will now be stiff, especially if a large proportion of glue has been used on them. In order to soften them they are steamed by passing through a fan-steaming arrangement, which does not destroy the gloss, while it gives the fabric a softer and more pliable feel. For the "ottoman" finish the goods are treated on *both* sides as in the case of the atlas finish. The stiffness of the finished goods will depend upon the relative proportions of glue and gum tragacanth in the stiffening mixture, glue giving a hard feel and gum a softer. Zinc sulphate is always added to prevent the growth of mildew in the finished goods on keeping. The luster so produced will remain until fabric is washed. A large proportion of medium-priced silks are filled with cotton or with jute, more especially the cheap corded goods.

Some all-silk fabrics sell for $1 a yard, others sell for $5, on account of two things—the *quality* of the silk thread, and the *amount* of it. The raw silk, as it comes from the cocoons, is of very different kinds. Some of it is long and even and smooth, while inferior qualities are rough and brittle, and in short lengths. The poor qualities do not stand wear as well as the best ones do, and, not being worth so much money, are utilized for the

cheaper grades of silk fabrics. The long, glossy threads go into the best silks, and because in these beauty is sought before cheapness; a greater amount of silk is put into a yard—that is, the silk is heavier.

Although there is an abundance of durable, inexpensive silk in the markets of the United States, there is also, at the same time, plenty of shining cloth which, when purchased, turns out a reproach and a shame upon ordinary judgment in the investment of money. As a general rule, it may said that the softest silks are the best silks—that is, silks possessing a softness combined with weight, which feel as if they had no stiffening in them. By twisting a piece of silk around the finger a buyer can tell something about it. If it smoothes out without creases, it will wear well. By touching a match to a thread, it can be ascertained if there is cotton in it. If it is all silk, it will burn with difficulty; if there is cotton in it, it will light readily. Good silk is strong, and when it breaks it will fly into many little ends. Pure silk does not stiffen when wetted and dried; and, if black, the dye should have a slight tinge of green when the light is seen through it. Stiff silks do not wear well, as they cannot be pure. The inexperienced buyer of silk should be wary of the bargain that can "stand alone." The lower the price of a heavy silk the more likely it is to be of shimmered cotton, or to be weighted with dyestuffs; hence the only wonder is that it will bend at all. If silk be crushed together in the hand, and suddenly released, it should spring out quickly, leaving but little crease. This spring is caled the *verve*, of which poor silks have little or none; those adulterated with jute are also deficient in this characteristic. Buyers should look to it that the silk is not piece-dyed. However good the quality, the garment, upon very brief wear, soon collapses into matted limpness. The "dipped" silk may be easily detected by a brackish stiffness, and by a "flat-iron shine," that a careless inspector mistakes for a gloss. Cheap China and Japanese silks are filled with jute. Silk of any description can be identified in a mixture with any other fiber, animal or vegetable, by means of concentrated hydrochloric acid, which dissolves it immediately and completely, without appreciably affecting any woolen or vegetable fiber with which the silk may have been interwoven. Silk is also dissolved by cold nitric acid, which does not affect wool. A common test is to rub one corner of a piece of silk, as though washing it. After this operation, if the silk be good, it will, on being brushed out, look as smooth as ever; and if, on holding it up to the light and looking through it, no trace of the rubbing is discernible, be sure the silk is good. [See LINEN, FIBERS.]

Pure silk is practically indestructible, though wearers of silk dresses may not think so. The reason, however, is that even in garments made up of pure silk, the dyeing affects its wearing qualities. A prominent silk manufacturer is authority for the statement that if one would get a heavy, undyed silk dress, it would last forever. To prove this theory, a story is told to the effect that some years ago a silk mill was robbed of a large quantity of raw silk. The thieves set fire to the mill, in order to conceal

their work, but the fire was extinguished in time to reveal the robbery of several barrels of silk that had just been skeined. Search was made for the missing silk, but it was not found until eight years afterward, when, by accident, it was discovered buried some distance from the old mill. The barrels and the hoops had been completely rotted by this long burial, but the silk remained in such perfect condition that it was made into sewing silk. The silk remained smooth, even and strong, showing that even this harsh treatment had not injured its qualities. Pure silk of any description is an agreeable and healthy material. Used in dress, it retains the electricity of the body; in the drapery of rooms and furniture-covers it reflects the sunbeams, giving them a quicker brilliancy, and it heightens colors with a charming light. It possesses an element of cheerfulness, of which the dull surface of wool and linen are destitute. It also promotes cleanliness, will not readily gather dirt, and does not harbor vermin as kindly as wool does. Its continually growing use, accordingly, is beneficial in many ways. Grace and beauty, even, owe something to silk. The more silk ribbons, the more silk kerchiefs and robes are used—instead of linen and wool—the more graceful becomes the outward aspect of mankind. The fluttering of ribbon, the rustling and flowing skirts of silk, the kerchief knotted loosely around the neck, have materially contributed to make the prevailing customs more natural and pleasing to the eye.

Silk Manufacture in the United States.—Of all the manufacturing industries of which the United States is so justly proud, not one stands more conspicuous for its success than silk, though it came into the field with great tardiness and caution. The truth is, native capital rather trembled at the thought of putting itself in competition with the Old World factories whose looms had a skill derived from 1000 years' experience. And yet, at the present day, our industry in the 50th year of its factory life stands second among the nations of the earth in point of production. We have beaten the Orient, we have beaten Switzerland, Germany, England, every European nation, except France; and we are approaching her with rapid strides. Although the silk manufacture is comparatively a new industry, yet we are now able to compete with all foreign productions in the *medium grades* to completely control our home market. In the very high grades, the older nations have the advantage of skilled hand-loom weavers, schools of design, and long established methods of printing and dyeing, which enables them to dictate to the fashionable world new styles and fancies. In the lowest grade of silk fabrics China and Japan have the advantage of cheap labor. It has taken years to dispel the old-time prejudice against American silks. Their intrinsic merit, however, has forced the American public to recognize their superiority, particularly in the quality of durability, and as the great majority of buyers purchase such goods for service, and not for idle show, the American silks, after a protracted up-hill fight, have obtained their place among the standard staples of the United States. In 1891 the value of our manufactures of silk was

$60,000,000; the value of French manufactures was a trifle over $100,000,000. It is very probable that the next ten years will make the United States the equal of France in the production of silk fabrics. However, it cannot be denied that France must be for many years to come the leading silk manufacturing nation of the world, and the great producer of fine goods. With such a rival, it is certainly a matter of no little pride to Americans that we have been able so far to develop a home industry that can now supply the demand for all but the very finest and the very cheapest grades of goods. It is from advantages derived from improved machinery for increased productiveness that the present position of the American silk industry is largely due. It has enabled our manufacturers to take the entire home market for certain styles of silk fabrics from the Swiss, the French, and other foreign competitors who previously supplied us with staple goods. In European factories, the speed of spindles ranges from 2,500 to 4,000 revolutions per minute. In the mills of this country the spindles perform from 12,000 to 15,000 revolutions a minute. These spindles save labor on a vast scale by various deft and unique automatic contrivances and attachments. Another great labor-saver is the American belt-spinner, which obviates the necessity of many bands or small belts, the one large belt touching all the flanges of the spindles and turning them uniformly. So different, indeed, is the American machinery from the foreign, that when a weaver or spinner from over the seas enters an American mill he is dumbfounded, and does not know what this and that piece of splendid machinery with its lightning-like movement is. To enter nearly any silk mill in this country, even the inexperienced eye is at once struck by the economy of space, by the complete utilization of time, the perfect division of labor, and the consequent harmony of movement among machines and operatives. So great has been the improvement in machinery since the industry was started in this country that it is stated at the present time one operative will *spin* more silk and do it much better than 2,000 could half a century ago; the room occupied would be only one four-hundredth part as much, and the cost of the machinery about one-twentieth. In 1891 there were 584 establishments engaged in one branch or another of the silk industry, employing 55,000 hands, and producing $60,000,000 worth of goods. These establishments were distributed as follows: New Jersey, 157; New York, 263; Pennsylvania, 64; Connecticut, 43; Massachusetts, 24; Illinois, 10; California, 6; Rhode Island, 5; Maryland, 4; Virginia, 2, and 1 each in Louisiana, Maine, North Carolina and Tennessee. In the neighborhood of Paterson, N. J., alone, there are 82 factories manufacturing silks, 16 dye houses, 2 silk-finishing establishments, 5 making silk braid, 1 silk-spinning factory and 12 silk-throwing firms, while there are 23 firms engaged in making silk machinery for use in Paterson and other silk centers. These mills employ 25,000 hands and turn out annually about $39,000,000 worth of silken goods. The year 1882 showed the largest imports of silk into this country. The annexed table is interesting as showing the total consumption of silks in the United

States as well as the steady progress made by our domestic looms since 1882:

CONSUMPTION OF SILKS IN THE UNITED STATES.

	Domestic Silks.	Foreign Silks. Duty Added.
1882	$35,102,020	$57,951,051
1883	37,214,290	48,357,854
1884	34,444,770	46,786,392
1885	36,893,662	35,231,115
1886	54,941,026	41,732,395
1887	56,429,185	46,093,315
1888	57,288,422	47,906,137
1889	58,668,780	50,645,574
1890	42,631,105	57,773,245
1891	60,000,000	56,842,093

Silk Manufacture in France.—The total production of manufactured silk in the world per annum is estimated at a value of $325,000,000, and of this at least $100,000,000 is produced in France. About one-eighth of the raw silk is native grown, the remainder being imported from Italy and the East. Switzerland and Germany are serious rivals in point of yards manufactured, but in quality the taste and skill of the French will long maintain supremacy. France and Switzerland each import vast quantities of India and China light goods, known as pongees, corahs and tussahs. These goods are all imported in an unfinished state, and after being dyed and printed at Lyons, are reshipped, chiefly to the United States and England. Of the total quantity of silk manufactures produced in France, the city of Lyons contributes over one half. The industry was introduced into this city in 1466, by Louis, XI, and in order to give it fitting encouragement he decreed that the city should pay for the looms out of its treasury, and that the workmen should be exempt from the payment of duties and taxes for the space of twelve years. The experiment, however, did not meet with conspicuous success. In fact, it was a partial failure, notwithstanding the great demand for silken goods, and would probably have died a peaceful death but for the energetic measures taken for its preservation by Francis I immediately on his succession to the throne. This monarch was a friend to art in every form, and he was besides eminently patriotic. It seemed a monstrous thing to him that the French manufacture should waste away in its infancy; and recognizing that all that was wanted to make it thrive was good nourishment of a pecuniary and encouraging sort, he at once increased the privileges granted by Louis, and held out the most tempting baits in his power to the foreign silk-makers—such as would be sufficient to cause a never-ceasing tide of immigration into the country which should be bold enough to offer them even nowadays. By an edict of December 2, 1536, silk weavers were to pay no taxes, were to be allowed house-rent gratis, were to be non-amenable to imprisonment for debt, and were to be licensed to carry swords—the last a liberty allowed generally only to those who were of noble blood. Men

were not slow to avail themselves of these magnificent offers. First came two Genoa manufacturers, Steven Turqueti and Bart. Nariz, who brought with them workers from their native place, and who quickly amassed considerable fortunes. Others lured by the privileges and by the success of Turqueti and Nariz, followed in their wake, and soon a perfect stream of skilled Italians began to flow across the frontier, to acclimatize themselves, and, under the fostering care of successive kings and ministers, the French industry continued to advance to that pinnacle which, with one or two intervals, it has ever since occupied. The majority of the fine silks made at Lyons are woven by hand, and not by power looms, as many suppose. There are 100,000 of these hand looms at Lyons, all owned by individual workmen. There are factories using power looms but these are located in the surrounding country where water-power can be had and labor employed at the lowest possible rates. As a rule, however, the Lyons "manufacturer" has no factory. He has an office and a warehouse combined. He buys the raw silk, designs the patterns, and delivers materials and designs to the weavers, to be woven at the lowest price per meter he can get the work done for, all incidental expenses being paid by the weaver. The weaver delivers the woven fabrics to the warehouse or the finisher. The manufacturer, nine times out of ten, has sold them in advance, which he can do, as he knows the exact cost before the goods are made. It is absolutely necesto have a good light to make fine silk goods, hence the tenements which the weavers occupy are built on a hill or its sloping sides. Some of these immense tenement houses are occupied by as many as forty families. Three rooms are all that one family rent, and one of these is taken up with the ponderous wooden loom. Often the entire family assist in the work. The wages paid the hand weavers and factory operatives in and around Lyons are low as compared with those paid in some other countries for similar work, but the French workman can live more cheaply in many ways, is satisfied with lighter and less substantial clothing than the operative in a colder and less genial climate. Under exceptionably favorable circumstances, when employed on fine figured stuffs, and working long hours, a weaver can earn $20 a week. From this must be deducted incidental expenses, as he supplies his own loom and pays rent. The average weekly wages earned range from $7 to $10 a week, while the women earn from 60 to 75 cents a day.

The silk industry of England is not like that of France and the United States, confined within one or more districts which can rightfully be called the silk center of the country. Coventry and Spitalfields have lost to a certain extent, the predominance as silk manufacturing centers, although the industry still exists there in a feeble way. England which in 1860 imported $240,000,000 worth of raw silk, now imports but $22,000,000 worth, annually. With the exception of the manufacturers depending on spun silks, all the centers of trade have for many years been in a depressed condition. Thus in twelve years the number of looms was reduced from 150,000 to

65,000, of which 12,500 were power looms. Spitalfields, which in his best days kept 24,000 hand looms at works has now but 1100. The introduction of the factory system and extension of powers loom weaving in the United States, have assisted materially in crushing out the English domestic industry. China, Japan and India are the greatest cheap-silk producing countries in the world. The question is often asked how silks in such large quantities can be imported from these far-off countries and compete with our domestic manufacturers after paying heavy import duties. The reason is easily explained. In China, Japan and India silks are made by hand. This alone gives them great superiority over domestic power-woven goods. They are made by weavers who are content to work for from 15 to 25 cents a day as wages. Moreover, these silks are made from yarn while in the raw state (in the gum), the fabric being boiled after its manufacture. This imparts to it a fineness, a luster, and a delicacy of texture not possessed by silks of machine manufacture. All this *might* be done by this country, but in the first place it would be too expensive, as labor is high here, and in next place silk yarn cannot be manufactured into silk by power looms until it has been boiled. Power looms also require yarn for weaving of an exact and uniform size; and boiling previous to weaving necessitates the production of artificial luster by calendering, which is never so beautiful or durable as that possessed by the natural silk. Hence this country will always have to depend upon the East for those lustrous, light weight, hand-wrought fabrics known in trade under the general term of *China silks*. It is true we can imitate them as for weight, but that is as far as the resemblance extends. It is not difficult for the veriest tyro to distinguish between the imitation and the genuine. [See CHINA SILK, SEWING SILK, DESIGNING, SPONGE SILK, SATIN, FILATURE, HANK, TRAM, ORGANZINE, LOOM, JACQUARD, WEAVING].

Singeing. All fabrics when taken from the loom are covered with surface-hairs or fibrous down, which have been raised up during the process of weaving. Those fabrics which are to be printed with patterns, or whose surfaces are to be finished with a luster, are first submitted to the operation of *singeing* or *gassing*. The apparatus generally used for hot plate singeing consists of a furnace surmounted by a metal plate, which is sometimes ridged on its surfrce. The cloth is first brought in contact with brushes which raise the loose nap on the cloth; then it is passed over the heated metal plate at a rapid rate, and is again wound on a roller. This operation removes all the surplus nap without injuring the cloth. Gas singeing is accomplished by drawing the cloth through the brushes and over a horizontal pipe perforated with rows of small holes, so that the gas issuing therefrom burns as a narrow sheet of flame. Cotton goods are afterwards bleached and calendered; woolen goods being pressed, ironed and folded. [See GASSING.]

Sizing. Cotton is never woven in its natural state. It always receives

a dressing or coating of some kind of liquid size which is allowed to dry before the operation of weaving begins. The size usually consists of a preparation of wheat flour made into a thin paste. The early cotton weavers of this country found that the threads soon became injured and frayed by contact with the machinery; and the warps frail even at first, became so fragile by rubbing against reeds and shuttles that breakages became so frequent as to cause serious loss ef time, through stopping the loom to pick up and join anew the broken ends. This difficulty was in some measure remedied by rubbing the yarn with a mixture of paste and grease, the weaver leaving off now and again to dress a fresh length of yarn. After the establishment of the power-loom the inconvenience and loss were still felt, even to a greater degree, and several attempts were made to meet the difficulty, but without effect, until a dressing machine for preparing the whole length of warp before weaving was produced. The object of this machine is to apply the size in such quantity that it will diminish the roughness on the fibrous surface of the warp, and increase its strength, thereby facilitating the weaving. The yarns from several rollers are unwound and made to pass through the size and then between rollers which squeeze the glutinous composition into the very heart of the thread. Thence the yarn passes over drying cylinders, made of sheet iron and copper, heated within by steam. This quickly dries the size, and prepares the yarn to be wound upon the weaver's beam, a roller which receives uniform layers of warp from end to end.

Skein. A fixed length of any thread or yarn of silk, cotton, linen or wool, doubled again and again and knotted to prevent tangling.

Skirt. A woman's petticoat; that part of a woman's dress that hangs from the waist. A *divided skirt* is that style of dress recommended on hygenic grounds by the Jenness Millerites, in which the skirt resembles a pair of exceedingly loose trousers. [See PETTICOAT, BALMORAL.]

Smock. An under garment worn by women, corresponding to the shirt worn by men; a chemise; a shift.

Smock-frock. A garment of coarse linen, resembling a short shirt in shape, worn by field-laborers over their other clothes; similar to the French *blouse*. The yoke of this garment is at its best elaborately shirred or puckered.

Sock. [From L. *soccus*, a kind of low-heeled shoe or buskin.] The socks of the early Anglo-Saxons were worn over the stocking, and within the shoe differing in nothing but material from those made at the present time. At present, a knitted or woven covering for the foot shorter than the stocking. Known in trade as *half-hose*. [See HOSE, APPENDIX "A."]

Spatterdash. A cloth covering for the ankle and leg, spreading out at the bottom over the shoe; also called *spats* and *over gaiters*. Spatterdashes are worn by men to prevent their light trousers from being soiled

by the blackening on their shoes and sometimes they are affected for style. In England they are worn when the weather is wet and occasionally for the sake of warmth when men go upon long drives.

"Spick, span, new." A phrase first applied in England to cloth just taken off the *spikes* (hooks) and *spannus* (stretchers).

Spinning. The operation of drawing out raw fiber (after having been *carded* or *combed*) and twisting it into threads, either by the hand or machinery. Until about 250 years ago the rude method of spinning still employed in India and Egypt was the only one known in Europe or America. For 4,000 years the same simple instruments, worked in almost precisely the same manner, had been used without a thought of improvement. In 1620 an Englishman conceived the idea of the spinning wheel which then superseded distaff and spindle. The spinning wheel when first invented was the same in construction as it is to-day, consisting of a wheel, band and spindle, and driven either by hand or treadle. There were two kinds of spinning wheels in common use, the *large* wheel for spinning wool or cotton and the *small* wheel for spinning flax. By the spinning wheel only one thread could be produced at a time, and the most arduous toil could not reel off more than a pound in a day. After the introduction of cotton in England, and as the demand for cheap cotton fabrics increased, several efforts were made to facilitate the process of spinning yarns, and in 1767 James Hargreaves, a weaver of Blackburn, England, produced the spinning-jenny. The idea of the jenny first occurred to him from seeing a spinning wheel overturned upon the floor, where both the wheel and spindle continued to revolve. The spindle was thrown from a horizontal into an upright position, and the thought seems to have struck him that if a number of spindles were placed upright, and side by side, several threads might be spun at once. He contrived a frame with eight spindles, which would thus produce eight threads at one time. For a time he kept his invention a secret, and utilized it only for the production of yarn by himself and his family. But the fact soon being noised abroad, the shortsighted cry that *increased production would restrict employment* was raised. A mob broke into his house, destroyed his machine, and he suffered subsequently so much and such bitter persecution that he was compelled to leave the place. In 1770 a patent was procured for the jenny, but upon attempting afterwards to defend it against infringement it was found that Hargraves had, previous to this date, manufactured and openly sold similar machines, and in consequence the attorney engaged gave up the actions, despairing of procuring a verdict. Thus the invention was thrown open to the world, and became generally adopted without Hargraves deriving any material benefit from it; although he did not share the common lot of unfortunate inventors and die in poverty. The original jenny of eight spindles had been doubled in power by the time the patent was taken out; it quickly held from twenty to thirty spindles, and has even

been made with as many as 240. The spinning jenny was subsequently improved upon and largely superseded by Crompton's *mule jenny*. Probably no inventive contrivance has been offered to the *cotton* trade more important than the mule. Samuel Crompton of Bolton, England, completed in 1779 his invention of the mule jenny, in perfecting which he had been engaged several years. But this machine, possessing great merits and advantages, did not come into general use, nor was its value known, until after the expiration of Arkwright's patent for the *spinning-frame*. It is said Crompton's machine took its name from being a "cross" between the spinning jenny and the spinning frame, the *mule jenny* being in fact a compound of the spinning-frame and Hargraves spinning-jenny both in its structure and operation. Arkwright's spinning-frame was patented in 1769.

At the present time there are two kinds of machines in use for spinning wool and cotton—throstles and mules. The throstle, which is an extension of Arkwright's original spinning-frame, is employed for spinning warps and sewing thread. It produces a yarn with a closer fiber and harder twist than that spun upon the mule, and also stronger and more even than mule yarn. Mule yarn is softer and more wooly in texture than throstle yarn, and can be spun much finer, because the tension is not so great. The mule-frame is also employed for spinning "woolen" yarns on the same principle of spinning fine counts of cotton yarn, while the throstle is used for spinning "worsted" yarns. Mule yarn is used for weaving muslins and the finest kinds of cotton goods. As it requires much less power to run the same number of mule spindles than throstles, the manufacturer spins every kind of yarn he possibly can upon the mule; but it will only produce the softest kind of thread. The yarn spun upon the throstle has its fiber closer twisted than that spun upon the mule, and is more esteeemd for certain purposes, especially for making thread and "worsteds," than the latter. Throstle yarn is stronger and more even than mule yarn, and better adapted for warps; but the range is limited, the counts seldom exceeding No. 40's, though throstles are made capable of spinning yarns up to 80's and 100's. The reason is that the fine thread has not the strength to stand the "drag" or tension required in the hard-twisting of the yarn on the bobbin. The mule on the other hand, will spin both warp and weft, and as high as No. 100's, or more, while still finer numbers can be spun by hand mules. [See YARN, HANK.]

Sponge Silk. A knitted fabric made from the waste or sweepings of silk. It is made out of the husks, the butts, and the odds and ends of everything left around the floor of a silk mill by way of wastes or shoddies. The knitted fabric or article looks very much like a rough crash or low grade of cotton toweling, only it is knitted and of very light weight. It is used for draperies and underwear, and also to wipe silverware and machinery.

Spool Cotton. See THREAD.

Sprig. An ornament or pattern in the form of a sprig, or spray, or leaf, used to decorate plain-woven fabrics; as *sprigged* muslin.

Stockinette. A knitted woolen fabric, usually ornamented with a fine ribbed pattern, similar in character to that seen in common knit goods. Stockinette is generally napped on one side, and handles soft, full and elastic, but lacks those valuable characteristics of strength and firmness of texture which obtain in a woven cloth. [See EIDERDOWN.]

Stockings. A close-fitting covering for the foot and lower leg. Stockings were formerly made of cloth or felt, and sewed together with seams. Queen Elizabeth was the first English sovereign to wear genuine knitted stockings, and as soon as the fashion had been inaugarated by royalty the ladies went wild over it. It is stated with evident surprise by historians of the time that the ladies "were not ashamed to wear hose of all kinds of changeable colors, as green, red, white, russet, tawny and else what not; commonly knit, and curiously indented in every point with quirks, clocks, open seams, and everything else accordingly." The early knitted stockings were of yarn, the fashion of knitting them of cotton not being introduced until 1730. Ribbed stockings were patented in 1759. Silk stockings were first made in England in 1575, knitted by Queen Elizabeth's silk woman, Mistress Montague, who presented Her Majesty with a pair of silk ones, which she liked so well that she kept the donor knitting silk stockings as long as she lived. Before the end of her reign "stockings were knitted of silk, yarnsey, worsted, crewel, and the finest yarn that could be had." Silk stockings were formerly regarded as extravagant and reprehensible, and so worn by men were regarded as an indication of luxurious habits; hence people who indulged these costly foot-coverings were termed the "silk stocking gentry," and a "silk stocking" was a person who belonged to the wealthy and luxurious class of society. In the year 1500, a literary society called *de la calza* (of the stocking), was formed in Venice, which lasted ninety years, and the members of which were distinguished by the color of their stockings, the prevailing tint of which was *blue*. Afterwards the term came to be applied to a literary lady, or woman who delves in literature. Until about 1860 black or dark cotton hosiery were worn only by orphan-house children, or by servants, and black silk stockings by ladies in mourning. For ordinary wear white stockings were universally worn, even to some extent as late as 1878, and white stockings are still worn by English women of all classes to-day, the cost and trouble of washing notwithstanding. A "size" in hosiery is one-half inch in length of the foot. Ladies' stockings are sized 8, 8½, 9, 9½, 10; children's sizes range from 2½ to 7½. The price of the latter usually varies with the size, unless sold "by the round." A "round" of hosiery signifies an equal quantity of each size, from the smallest to the largest. [See HOSE, HOSIERY, PANTELLA, APPENDIX "A."]

Stocking Yarn. Coarse, loosely spun yarn, used exclusively for knit-

ting socks and stockings by country people, or by others whose occupation requires them to be out of doors in the winter time.

Stuff. A term applied in England, and to some extent in the United States, to any woven textile, whether cotton, hair, silk, linen or wool; but more especially denoting those fabrics made of *worsted*, or long, combing wool, such as merinos, camlets, shalloons, and tammies. *Stuffs* are distinguished from *woolen* cloths by the absence of any nap or pile, and having little or no tendency to shrink when damp, nor to felt in the process of weaving. Stuffs are woven either plain or twilled, with spots and designs of various kinds, but in all the thread is laid bare, the superfluous fibers of wool being singed off by means of a red-hot iron. After the operations of weaving and singeing, they are tightly rolled, soaked in hot water and boiled, fulled or milled, and the moisture pressed out between rollers.

Sueda (su-da'). A term applied to gloves made of leather tanned on the wrong or flesh side; or if finished on the *right* side having the thin, glossy outer grain shaved or peeled off, leaving an undressed surface. Sueda gloves are usually made of mocho or lambskin. [See GLOVES.]

Sumac. A product of the dried and ground leaves of the sumac bush. The liquid is extensiyely used for tanning light colored leather, and to some extent for dyeing fabrics. [See LEATHER.]

Sunshade. A parasol, in particular a variety fashionable about 1850 and later, the handle of which was hinged so that the opened top could be held in a vertical position between the face and the sun. [See PARASOL, UMBRELLA.]

Surah Silk (soo-rah). A variety of soft, fine-twilled dress goods, woven with a flat twill similar to serge in woolen goods. It bears a Hindoo name and is probably of Hindoo origin.

Surplice. A variety of heavy, plain-woven, bleached linen, used in various portions of the dress of nuns and priests. [See PELISSE.]

Surtout. [From Fr. *sur.* over and *tout*, all—over-all.] A man's over coat. In recent usage a coat cut like a frock coat with full skirts; a New Market.

Suspenders. Several hundred years ago, the methods of keeping the trousers in place were exceedingly vexatious. Strings were attached to the coat aad similar ones to the tops of the breeches, and then tied together to unite the most important parts of the attire. The nobles and aristocrats wore ribbons in place of strings, and in the reign of Charles I of England, a beau was almost a mass of silk ribbons. In the United States up to 1848 the masculine element were in the habit of keeping their trousers in position by means of strings made of muslin or ticking by the poor, and knitted galluses by the better-to-do. In 1848 suspenders of rubber webbing were first manufactured, since which time thev have entirely superseded the strings and ribbons of our forefathers.

Sweater. A very thick cardigan jacket, made of extremely coarse yarn, and felted so much as to make it very warm, thick and comfortable for the coldest climate.

Swiss. A variety of fine muslin, manufactured at Zurich and St. Gall, Switzerland for a long period before being made elsewhere in Europe, or in the United States. It is a thin transparent fabric, woven rather open and but slightly calendered, with simple patterns of dots, stripes or sprigs produced in the loom. It is chiefly employed for summer dresses, quillings, flounces of petticoats, and for infants' wear.

Swiss Embroidery. A variety of needlework in white on white, in washable materials, originated in Switzerland during the early part of this century. An imitation of this made by machinery, called *Swiss flat stitch* embroidery has to a great extent superseded the real hand and needle work. [See EMBROIDERY.]

Swivel. A minute shuttle, used in weaving small figures in silks and ribbons, and moved to and fro across the warps by slides, or by hand. These little swivels carry threads of various tints, used to obtain special effects in the shading of figures or flowers which are produced in the pattern of the fabric. *Swivel silks* are any of the ordinary weaves, such as faille, grenadine, satin, etc., in which are woven small figures by the swivel process. [See LOOM.]

T

Tabaret (tab'-a-ret.) A medium heavy silk fabric used for upholstery, distinguished by alternate stripes of watered and satin surface, generally in different colors. It resembles tabbinet, except that it is superior to it.

Tabbinet (tab'-i-net). A fabric woven of silk and wool, like a poplin, with a watered or *tabbied* surface; chiefly used for upholstery.

Tabby [From At-tabi-ya, a quarter in Bagdad, where it was first manufactured.] A style of weaving which causes a watered or wavy appearance. The term is sometimes used in the sense of *moire*; formerly its use was restricted exclusively to woolen goods, while *moire* signified the watered appearance of silk goods. The tabbying of woolen fabrics is accomplished by the calender, without the use of water. The term "tabby cat" is derived from this fabric, the waved marking of the cat's fur being similar to the wavy appearance of the cloth. [See MOIRE, WATERING.]

Table Linen. Table cloths, table napkins, tray napkins, damask slips, damask doylies, tea cloths, etc., are all included in the general term of "table linen." *Table cloths* may be had of various dimensions, and in either single or double damask. They are made from 2 yards square, to 2x2½, 2½x3, 3½x4, 4½, 5, 5½ up to 8 yards in length, so as to dine from 6 to 20 persons; also in due proportions up to 10 yards in length, and in square

and oval shape. *Damask slips* to spread over the ends of a table, to match any of the table cloths named, are made 22 inches in width, up to 27 inches. *Tea cloths*, with doylies to match them, are usually woven with colored borders, or else piece-dyed in light colors. *Dinner* napkins are made three-quarters of a yard square, by seven-eighths; also seven-eights by one yard square. *Damask doylies* are manufactured in round, oval or square form. *Tray cloths* are 1½ yards square, and 1x1¼ yards square. [See DAMASK.]

Taffeta (taf'-e-ta). [From Persian *taftah*, to spin.] A term of somewhat general application in the silk trade. It was formerly applied to all plain silks simply woven by regular alternations of the warp and weft, and is supposed to be the first kind of silk weaving known, even to those ancient people, the Chinese. For many hundreds of years, taffeta was a sort of generic title for all *plain silks*, regardless of weight or color, but in more recent times has come to signify a thin, glossy silk fabric of plain texture or woven in cords so fine as to appear plain woven, being thus distinguished from gros-grain, which is corded, and surah, which is twilled; it is usually dyed black. The city of Lyons, France, which has long been the most important center in the world for fine silk-weaving, was once the largest producer of taffeties in Europe, but the fabrics which she produced were not always as lustrous as the article made nowadays. Chamber's *Encyclopedia* of 1741 gives a valuable and interesting account of their manufacture at that date, with a narrative of a change in their fabrication: —"There are taffeties of various colours, some plain, others checquered and flowered; with various others, to which the mode, or the caprice of the workmen give such whimsical names, that it would be as difficult as it is useless to rehearse them; besides that they seldom hold beyond the year wherein they first arose. The chief consumption of *taffeties* is in summer dresses for women, and linings, in scarves, coifs, window curtains, etc. There are three things which contribute chiefly to the perfection of *taffeties*, viz., the silk, the water and the fire. The silk, must not only be the finest kind, but it must be worked a long time, and very much, before it be used. The watering, besides that it is only to be given very lightly, seems only intended to that fine luster, by a peculiar property not to be found in all waters. Lastly, the fire, which is passed under it to dry the water, has its particular manner of application, whereon the perfection of the stuff depends very much. Octavio May, of Lyons, is held to be the first author of the manufacture of glassy *taffeties*, and tradition tells us the occasion of it. Octavio, it seems, was going backward in the world, and being unable to retrieve himself by the manufacture of *taffeties*, such as were then made, was one day musing on his misfortunes, and, in musing, chanced to chew a few threads of silk which he had in his mouth. His reverie being over, the silk he ejected from his mouth seemed to shine with more then ordinary luster, and on that account engaged his attention. He was led to reflect on the reason, and after a good deal of thought, concluded that the luster

of that silk must come, 1st, From having pressed it between his teeth; 2dly, From having wet it with his saliva, which had something glutinous in it; and 3dly, From its having been heated with the natural warmth of his mouth. All this he executed upon the next *taffeties* he made; and immediately acquired immense riches to himself, and to the city of Lyons the reputation it still maintains, of giving the gloss to *taffeties* better than any any city in the world." [See GLOVES.]

Tailor (Formerly also *taylor*, *tailer*, *tayler*). [From French *tailler*. cutter, hence our word *retail*, to cut.] One who makes the outer garments of men, especially one who makes such garments to order, as distinguished from a clothier, who sells such garments ready made. *Tailor's twist*, is a stout silk thread made of two strands; it is put up in skeins and sold by the ounce. [See CLOTHIER, MERCHANT TAILOR.]

Talma (tal'-ma). A kind of cloak for women in fashion during the first half of this century. A loose wrap with a hood, falling to the waist or a little below; also a somewhat similar garment, made of heavier cloth. and worn by men usually as an overcoat.

Tambour Work. A species of embroidery worked upon muslin stretched tightly by means of hoops or a frame similar to that encircling a tambourine, whence the name. The work is of Eastern origin, and was made in China, Persia, India and Turkey long before it became known in England or America. Previous to the 1750, tambour work was not known in Europe, except in Turkey. At that time it was worked upon muslin with white thread, and was used to ornament dresses, curtains, caps, borders and all varieties of white trimmings. In England the work of tambouring upon white materials with white thread became an article of manufacture about 1830, and gave employment to the poorer classes in Middlesex, Nottingham, and also in Ireland, but since the introduction of machinery, and the facility with which the stitch is executed by the embroidering machines, to make it by hand is no longer profitable. The *tambour stitch* produces a pattern of straight ridges crossing each other in every direction at right angles or acute angles. In Switzerland the stitch is sometimes used in the manufacture of window curtains. In America the the work is usually applied in the manufacture of fancy articles for household use, such as throws, scarfs, tidies and pillow shams.

Tamin (tam'-in). A thin woolen or worsted dress goods, plain woven, with a high gloss.

Tamise (tam'-is). A trade name given to various thin woolen fabrics; specifically a fine, plain-woven woolen dress fabric, the warp and weft of which are of the same size and woven in equal proportions. It is of a closer and firmer weave than nun's veiling, and much finer and more delicate than bunting. *Taffeta tamise* is a term applied to a tamise cloth woven with a fine, cross-ribbed surface. [See ESTAMINE.]

Tammy. Same as TAMIN.

Tam O' Shanter. A style of cap borrowed from the Scotch, and named after the hero of a famous poem by Robert Burns. The cap is without a peak, the crown large and flat, and extending straight out from the head-band from 2 to 4 inches.

Tapestry. A fabric resembling textile fabrics in that it consists of a warp upon which colored threads of wool, cotton or silk are fixed to produce a pattern, but differing from it in the fact that these threads are not thrown with the shuttle, but are put in one by one with a needle, and do not extend across the web, but only for a few inches. It is a sort of link between regular wovenwork and embroidery, from which it differs in having its stitches applied not to the finished web, but to the stretched warp-threads only, the weft stitches being put in loosely and carefully pressed home, so that the warp strings are almost completely hidden. Pieces of tapestry in the past have been used generally for covering the walls of rooms, for which purpose they were employed in the later middle ages down to the 18th century. Upon these tapesteies were represented as clearly as in any painting, scenes from the bible and mythology, romances and historical subjects, decorative work in which trees and foliage formed the main design, and the battles and victories of kings and princes. From the 11th to the 18th century these hangings of tapestry were made in all the countries of Europe, but it was in France that the art reached its greatest development. The designs which have been produced in French tapestry exhibit all that certainty of hand, and exuberant fancy which characterize the artistic family of France—the Gobelins. *Gobelin tapestry* receives its name from a family of dyers and weavers who settled in Paris in 1476. The head of the family was Giles Gobelin. It was he who discovered a peculiar kind of scarlet dye, and who expended so much money on his dyeing establishment that it was named *la follie Gobelin.* To the dye works there was added in the 16th century a manufactury of tapestry. So rapidly did the wealth of the family (descended from the original founder of the factory—Giles Gobelin) increase, that some of them forsook the trade and purchased titles of nobility. In 1662 the entire works were purchased by the French government, by which it has been managed from that year to this. This establishment the government founded like that of Sevres for the making of China, to raise the level of art-manufactures by setting the example of good design, fine coloring, and perfect workmanship. That they have done much there can be no doubt, but probably most of all in the matter of color. In this laborious and artistic work it is estimated that not less than 14,000 differently tinted silks and wools are in use. The French people have always been admirable chemists and dyers, and for exquisite brilliancy and general harmony of color the French tapestries are certainly unexcelled. The productions of the Gobelin governmental factories were chiefly for royal use and presentation, and even at this day few

specimens are found outside the palaces of kings and princes. A single specimen owned in New York, measuring 54 x 27 inches is valued at $800. Real Gobelin tapestry is consequently hard to find in the market of the United States, though much is sold as Gobelin that is not genuine. The name of Giles Gobelin, who was the original discoverer of the new process for dyeing a beautiful and peculiar scarlet, was the means of adding a new word to our vocabulary. Everybody at that time looked on him as a crank for spending so much money on his factory, and it was called "Gobelin's folly," but the old dyer was shrewd and made a success ot his business—a success so great that the superstitious people of that time believed he was aided and abetted by the devil. The devil was supposed to have taught him the art of dyeing the beautiful scarlet on condition that at a certain time the devil was to *have* him, body and soul. When the time was up, according to the superstition, the devil came after him and caught him going through a yard at night with a little piece of lighted candle in his hand. Gobelin begged for time but the devil refused to let him have it. At last Gobelin requested his Satanic Majesty to wait until the bit of candle in his hand burned out, and the devil consented. The wiley old Gobelin, as soon as he got this concession, threw the candle into a well and pitched the devil in after it. The devil was very angry, but before he could get out, Gobelin gathered a guard around him and secured himself from further attacks. From this story came the word *goblin*, or *hobgoblin*, a ghost or spectre, and it has become one of the words of the English language, but it had its origin in the silly story told about the man whose family first made these tapestries. The weaving of tapestry in the Gobelin factory is still done by hand, the designs being chiefly copies of foreign masterpieces of painting; consequently the work requires more artistic than mechanical ability for its execution, and is both costly and slow. A square yard is considered a fair average year's work and the value is about $800. In admiring the beautiful work of the Gobelins, the uninitiated would be likely to think the loom which produces it was a remarkable piece of mechanism, and the weaver who aided in its manufacture was skillful above his kind. In point of fact, the looms are quite similar to those in use thousands of years ago, and the worker of to-day, with all our discoveries and inventions to help him does not excel those who wrought the cunning work of by-gone ages. The high warp loom of the ancient Egyptians, as represented in pictures 3,000 years old, bears a singular resemblance to that now in use in the leading tapestry works of the world: there are the cross-rods, the vertical warp, the comb or reed which keeps the texture even—in fact, there is not one really essential difference. The weft alone appears on both the right and wrong side of the fabric, and entirely covers the warp. It is composed of short lengths of worsted, cotton, or silk threads, and when finished is perfectly smooth. In the outline of his figures, and in passing from one shade to another, the workman is guided by a slight tracing on the warp, which is done by means of transparent paper, on which a sketch of the picture

which is to be copied by the weaver is countertraced. This tracing of the picture on the warp, having to be done in sections as the work advances, would inevitably mislead the workman in the general affect if he were not careful to indicate certain leading points or guiding lines on the copy, and to mark them on the warp. But all these precautions and niceties would be of little use if the workman were not specially educated so as to be able to supply the insufficiency of the outline by his own intelligence and by the resources of his art. *Neuilly* or *Jacquard tapestry* is made on the Jacquard loom, in imitation of that of the Gobelins. In these goods the design is brought out entirely by means of the weft, the warp-threads being used only as binders to hold the threads of the weft together. In the tapestry loom, with the Jacquard attachment, there are sometimes used 24 or more colors of weft—each in a different shuttle. These shuttles are passed to and fro through the warp by the hand of the weaver as the proper warps are raised by the the Jacquard machine, which at the same time indicates the particular shade of weft to be used by the workman. *Cluny tapestry* is a strong thick cloth, made of wool and silk, especially for hangings and curtains, the manufacture of which was introduced into England in 1875. *Tapestry cloth* is a corded linen cloth prepared by tapestry painting.

Tariff. A term derived from *Tarifa*, Spain. This town received its name from Tarifa Malek, a Saracen chief, who landed at that point on the coast in 710, and during the Moorish domination all vessels which passed through the Straits of Gibralter were at Tarifa compelled to pay duties or tribute to the savage chief; whence the word "tariff." As used at present, the word indicates a list of goods, with the specified duties or customs to be paid for the same, either on importation or exportation. In the United States there can be no duties imposed on exports; our tariff duties must all be laid on imports. *Ad valorem* is the duty, or tariff, on the net value of an invoice of goods. *Ad valorem* duties are levied according to the market value or worth of goods at the original place of shipment, as sworn to by the owner and verified by the custom appraisers. *Specific duty* is the duty, or tariff, on the number or quantity, as dozens, gross, or tons. [See IMPORTS, APPENDIX "C."]

Tarlatan (tarl'-tan). [From Italian *tarlantanna*, linsey woolsey.] A thin, gauze-like fabric made of cotton, so open in texture as to be transparent, and often of a rather coarse quality, used formerly for ball dresses, but at present for children's wear and fancy work. It is of an open texture like plain-woven swiss but is more heavily "sized." Tarlatan is piece-dyed in tints of blue, pink, green and drab, and is put up in 12-yard lengths.

Tartan. A woolen or worsted cloth woven of different colors crossing each other at right angels, so as to form a definite pattern. This variegated cloth was formerly the distinctive dress of the Scottish Highlanders, the different clans having each its peculiar tartan, or plaid. More recently fancy tartans of various sorts of fabrics and with great variety in the pat-

terns have been largely manufactured, especially for women's dresses. A *clan tartan* signifies the specific variety of tartan dress worn by a Highland clan. *Shepard's tartan* is a woolen cloth made into small checkers of black and white; also called *Shepard's plaid*. *Silk tartan* is a silk material for women's dresses and men's fancy vests, woven in the style of the Scottish clan tartans. *Tartan velvet* is the term sometimes applied to velvet with a short nap, woven in patterns resembling Scottish tartans. This material has been fashioned for waistcoats and other wearing apparel at different times. [See CLAN TARTAN.]

Tassel (tas'-l). A pendent ornament, consisting generally of a roundish mold, covered with twisted threads of silk, wool, etc., which hang down in a thick fringe. *Tassel fringe* is a name given to a fringe composed of separate bundles of threads or cords tied to a braiding or gimp.

Teasling. The operation of raising a nap on the surface of woven cloth; also called *napping* and *gigging*. Teasling is an operation applied with but few exceptions to woolen cloths, and usually is preceded by that step in the process of finishing called *fulling* or *milling*. The objects sought in the raising of naps are various. It may be for the procurement of warmth, as in the case of blankets and those varieties of flannels intended for garments to be worn next the body; or for the sake of appearance, as in chinchilla overcoating, and cotton drapery; or for the purpose of increasing the wearing qualities of a fabric, as in the case of cheviot and broad cloth. Woolen cloth intended to be teasled is first taken from the fulling-machine and stretched uniformly in all directions by hook on a frame, so that it may dry evenly without wrinkle or curl. When the cloth is nearly dry it is in proper condition to be teasled. The raising of the nap is effected by the agency of a thistle-like plant called the *teasle*. These oval teasle-heads are about 3 inches long by 2 inches in diameter, clothed with strong, sharp recurved hooks. They are an important article of commerce, being grown principally in Holland, France and Virginia. The scales or hooks which cover the teasle closely are possessed of high elasticity, combined with just sufficient stiffness for the work they have to do. The use of these is to scratch the surface of the cloth, and getting entangled with the minute surface fibers break these or pull out their ends, and so raise up over the whole surface a fine but unequal nap. Formerly the teasles were set together in a flat frame, like a large sized curry-comb, and by hand the workman brushed it over the whole surface of the tightly stretched cloth. But this laborious process has long been superseded by the use of the *gig-mill* or *teasling-machine*. This machine consists of a cylinder made to rotate at a high rate of speed. The teasle heads are fixed between slats over the whole surface of the cylinder, which is made to revolve against the surface of the cloth, just close enough so that the sharp hooks may scratch the surface and become slightly entangled with the minute surface-fibers of the cloth, and so break or pull out their ends. A self-acting arrangement regulates the lightness and closeness of contact

of cloth and teasles. As already observed, there are many varieties of naps raised on the surfaces of woolen goods, and a nap may be raised in a certain class of fabrics for a purpose quite the opposite of that for which other naps are formed. Thus for instance, for one sort of fabric the object may be to get a nap which quite covers and conceals the underlying structure, while tweeds, cassimeres, and similar goods are teasled with the view of later on removing the nap from the surface and leaving the pattern of the cloth well defined and free from all hairiness. Fabrics upon which the nap is intended to lie smooth, flat, and level in one direction, as broadcloth or kersey, are dressed by the wet method, that is, the cloth is kept very damp during the entire process. Cloth raised dry, on the other hand, throws its fiber ends straight out and up from the warp and weft. In either case the cloth is next submitted to the operation of cropping or shearing, in order to leave the nap of a perfectly uniform length. The direction in which the nap lies, always indicates the warp of the fabric. Cropping was also formerly a handicraft, the worker using a huge pair of shears, and the employment demanded much dexterity and skill to a produce a smooth level nap. It is now done with equal rapidity and certainty by a machine which in principle is the same as the lawn-mower, used for cutting grass. It consists of a cylinder armed with a set of curved knives or cutters, revolving with great velocity against the stretched surface of the cloth, cutting away and breaking off the projecting fibers which come within range of its blades. Cloths upon which a nap of sufficient thickness has been raised may be finished with any fancy ridged, tufted, or waved-line surface desired, by simply having the blades of the shearing machine so notched as to cut away the undesired portions; or the nap may be pressed into various patterns by "stamping" between heavy iron rollers.

Much inventive talent has been expended in endeavors to provide some sort of metal or wire "teeth" to supersede the teasle for the purpose of napping goods, but a variety of experiments, extending over many years, and ending in dissapointment, have led to the conviction that no artificial substitute for the teasle can ever be found. This conviction has become so ingrained into the natures of nappers of woolen cloths that of late years they are extremely wary of new inventions. It is quite in the line of possibilities, however, that American inventive genius may eventually furnish an acceptable metal substitute, although up to the present time their productions have resulted in successive signal failures. Some classes of cotton goods, however, are now napped with wire, a description of which operation may be found under OUTING CLOTH. The value of the natural teasle for napping woolen goods lies in the fact that, unlike any metal "teeth," while sufficiently strong to scratch up the entire surface of the cloth, disengaging and opening the short fibers, and thus covering the whole with a nap, will at the same time *break* in contact with a knot or other obstacle, without injuring the cloth, while the metal teeth from the nature of their construction are too liable to break and tear the threads.

T-cloth. A plain-woven cotton fabric manufactured in this country and England for the Chinese and East India markets. T-cloths are always 24 yards in length, of heavily sized yarns and weigh about 4 ounces to the square yard. [See MADAPOLAM.]

Teasle Cloth. See OUTING FLANNEL, FLANNELLETTE, DOMET.

Terry-Cloth. [Supposed to have been derived from Fr. *terre*, high, from the elevation of the loops above the foundation of warp and weft.] A cotton fabric with a looped pile surface, used as cloaking for children and in the manufacture of Turkish towels. The first terry-cloth was made of silk, in France, in 1841. In 1845 John Bright, the great statesman of England, began to make worsted terry-cloth at his mills at Rochdale. The fabric proved to be a great success, and many a manufacturer endeavored to solve the problem of producing the article in cotton. All of them failed, however, until Samuel Holt of England succeeded in making the first cotton terry-cloth, in 1848. He patented the process both in England and the United States. In 1864 Holt left London and came to Paterson, New Jersey, where he formed a company and erected a plant for the manufacture of terry-cloth. Two years afterward the company disposed of Holt's patents for $250,000. This, according to Holt's claim, violated their contract and caused a lawsuit, in which Holt lost a large amount of money. Terry-cloth is composed of two warps and one weft, the extra warp producing the loops. The operation of weaving is accomplished by winding each warp on a separate beam, one for the loop pile and the other for the foundation warp, the latter being always kept tight. After two wefts have been inserted and tightly beaten up, the reed is allowed to fly loose by a peculiar arrangement, and both warps being kept tight, two wefts are put in *without* being beat up. Then the reed is fastened and the loop warp made quite slack, and on the next weft being beaten up, the two previous are also driven home, and with them the loop warp which was made slack between the fell and the two neglected warps, thus forming loops on both sides of the fabric. This weave is not confined exclusively to the making of fabrics with an unbroken pile surface, but is adopted in stripes for both towels and wraps, in checks and even figures for quilts, combined with color in other effects. *Terry velvet* is simply *uncut* velvet, being entirely of silk, and having fine ribs or cords on the best side. Inferior kinds are also made with a cotton back. It is chiefly used for trimmings, particularly for children's garments. Although called velvet, it has not the nap or pile that is the distinguishing characteristic of such a textile. [See VELVET, TURKISH TOWELS.]

Textile. [From Latin *textilis*, *texo*, *textum*, to weave, anything woven, or suitable for weaving.] Woven or capable of being woven, formed by or pertaining to weaving; also, a woven fabric.

Texture. The peculiar disposition of the threads, strands, or the like which make up a textile fabric.

Thibet cloth. A tailor's fabric, occupying a place midway between a melton and a cheviot. It is more elastic and softer than a melton and not so nappy as a cheviot, the nap, in fact, being very slight and laying close to the surface of the cloth, causing the goods to assume a rough, unfinished appearance. The name *thibet* has also been applied to a kind of camlet, formerly made of goat's hair, but now of wool, being of shaggy appearance and used for ladies' dresses.

Thimble. A covering for the protection of the finger in the operation of sewing, of various forms, has been in use since the time when needlework first began to develop into an art. In very early times this protection consisted of stiff, heavily-sized linen wrapped around the finger, and was called a "fingerlinge." The Dutch have always claimed the credit of having invented metal thimbles, and by tacit consent their claim was allowed up to a few years ago, when unfortunately for the credit of the Holland tailors, antiquarians about 1850, while delving in the ruins of the buried Roman city, Herculaneum, uncovered a jeweler's shop and found several thimbles of the most approved modern pattern. Since then thimbles have been discovered in the Egyptian Catacombs in mummy cases antedating the Christian era fifteen to eighteen centuries. Consequently how old is the thimble, or by whom was it invented, are questions that can never be answered. Authentic records exist showing that thimbles were made in Nurnburg, Germany in the last quarter of the 14th century, and that in a a hundred years from the time they were invented there were twenty-four metal thimble makers in that city alone. The art was without a doubt carried from Nurnberg to Holland. The first thimble ever seen in England was made in 1695 by a Dutch metal worker named Lofting, who "by hand fashioned thimbles of brass, iron, and steel, with indentions in their surface to prevent the needle from slipping." The usefulness of the article commended it at once to all who used the needle, and Lofting acquired a large property. The implement was then called the "thumb-bell," it being worn on the thumb when in use, and its shape suggesting the rest of the name. This clumsy mode of utilizing it was soon changed, however, but the name, softened into *thimble* still remains. Another origin of the word is also given, it being suggested that *thimble* might have been derived from *thymel*, a leather thumb-stall which English sail-makers formerly used to protect the thumb. In the ordinary manufacture of thimbles at the present day, thin metal plates are placed in a die and punched into the proper shape. Dies of different sizes are used. The thin plates of sheet iron are first cut into pieces about two inches in diameter. These are heated red-hot and struck with a punch into a number of holes, gradually increasing in depth to give them the correct shape. The thimble is then polished, trimmed and indented around its outer surface with a number of holes by means of a small wheel. It is then changed into steel by the cementation process, lined, scoured, tempered and brought to a blue color. Silver thimbles are usually made of solid silver, though cheap qualities are some-

times plated or washed. Celluloid and rubber thimbles are moulded. The best gold thimbles are made at Paris. These are made of a thin foundation of steel and lined with gold, which is introduced and attached to the steel by means of a mandrel. Gold leaf is then attached to the outside by great pressure, the edges of the leaf being fitted in and held by small grooves at the base of the thimble. The article is then ready for use. The gold will last for years, while the steel never wears out. A *sail-makers thimble* is a kind of leather ring worn on the thumb, and provided with a metal disc, with small depressions for pushing the needle through the stiff cloth or canvas.

Thread. A twisted filament of a fibrous substance, as cotton, flax silk or wool, spun out to considerable length. In a specific sense thread is a minute cord consisting of two or more yarns firmly united together by twisting. Thread is used in some species of weaving, but its principle use is for sewing. The word was used formerly to signify linen, as distinguished from sewing silk and sewing cotton, as is seen in the phrases *thread-lace* and *thread-glove*, but this distinction is not at present maintained. Thread is technically a compound cord of more than one strand; single strands are known as *yarn*. Hence we have the six cord thread ordinarily sold, and other varieties known and made for various manufacturers. The first sewing thread ever made of cotton was produced at Pawtucket, Rhode Island, in 1794. Prior to this time linen had been the material used for making thread, and in the early days a spinning wheel for its manufacture was as common in every household as the modern sewing machine at the present time. Each family in the early days spun their own thread from flax of their own raising. The idea of using cotton is said to have been suggested by the wife of Samuel Slater. Samuel Slater is generally regarded as the father of cotton manufacturing in this country, and the man to whom the world is indebted for the discovery of cotton thread. In 1794, while spinning a quantity of Sea Island cotton, the beauty and evenness of the yarn attracted the attention of Mrs. Slater. The question arose, if this is doubled and twisted, why will it not make good sewing thread ? The experiment was made, and, in order to be fully satisfied of the result, a *sheet* was made with one-half linen thread and the other half of cotton. It was immediately put into use, and the first thread that gave way was the linen. From this period Slater commenced the manufacture of cotton thread and it soon spread to England, France, Scotland and other European countries, where it is generally supposed to be of English origin. This erroneous supposition was produced and strengthened from the fact that with the invention of the spinning jenny and other improved machinery for the spinning of cotton and other fibers, the early development of the industry was most extensive in Europe. The manufacture of sewing thread was one of the first branches of industry to which the new spinning machinery was applied. These machines were all patented and for many years exclusively owned in England and Scotland, hence the thread makers of those countries

secured advantages which required in America not only heavy protective import duties but fifty long years of manufacturing experience to overcome. Spool cotton thread for more than the first half of the present century was imported from Paisley, Scotland, but during the past thirty years, influenced by new tariff duties, a great stimulus has been given to the business here, resulting in the erection of several magnificent mills which are supplied with the most improved and perfect machinery that modern science can construct; and by importing skilled labor to spin the yarn and spool it we have succeeded in making the best spool thread in the world and at relatively the lowest price. While spool cotton is now made of a higher order and superior quality than ever, it is a notable fact that it has been selling at steadily declining prices since 1860.

	SELLING PRICE
1860	$1 40 to $1 75
1865	80 to 1 10
1870	72 to 80
1875	55 to 72
1880	55
1885	55
1890	45

Nominally, the jobbing price for first-class six-cord spool thread is 45c per dozen, of 200 yards to the spool; but for large purchases from first hands there is a trade discount which reduces the price to about 38.7 cents net cash per dozen spools. The six-cord thread now made is far superior in every way to that which was formerly sold. The fiber in the yarn is much finer, and hence the yarn is smoother and stronger, and in most of the leading makes nothing but Sea Island cotton is used. But few people including even those who use the thread, have any conception what Sea Island cotton is worth [See COTTON], for it is never sold or quoted at the Cotton Exchanges. The small crop that is grown of this variety in this country is bought always as soon as raised by the spool-thread manufacturers of Europe and the United States, and they work up the entire annual product into thread. In the manufacture of thread the first step that is taken with the raw cotton is to subject it to the "picker" process, by which the cotton from several bales is mixed, to secure uniformity. During this operation much waste, in the form of dust, dirt and short fibers, is separated from the good cotton by the picker. Next the cotton is wound on a machine, in sheets or laps, into a roll. Then comes the carding, by which these sheets are combed out into long, parallel fibers, and drawn into a single fluffy sliver. Then comes the fast "roving" process, which consists in winding and twisting these threads into minute strands or cords, numbered from 1 to 300. [See SPINNING.] Two of the cords thus produced are wound together on a spindle, and then twisted from that spindle to another, and then three threads of two cords each are twisted together, forming a six-cord thread. Each particular number of thread has its own *twist*—that is, the number of turns it gets to the inch. The six-cord thread,

is at last taken from the bobbins, and reeled into a skein, in which form it is bleached or dyed. From the skeins the thread is wound back on little white birch spools, and is ready for the market. The machine that regulates the last winding measures the number of yards on each spool, and the paper labels which decorate the ends are cut and pasted on by machinery with great rapidity. Not many persons understand clearly why thread is numbered 8, 10, 12, 16, etc., up to 200, although the reason is very simple: When cotton yarn first began to be made 840 yards of it weighed one pound. This was called No. 1, and if a pound contained twice this number of yards it was called No. 2, and so on. This system of numbering, or "sizing," has been continued by all cotton spinners down to the present time.

When 1 hank of cotton yarn	(840 yds.)	weigh 1 lb.	it is sized No. 1
When 2 hanks of cotton yarn	(1,680 yds.)	weigh 1 lb.	it is sized No. 2
When 10 hanks of cotton yarn	(8,400 yds.)	weigh 1 lb.	it is sized No. 10
When 50 hanks of cotton yarn	(42,000 yds.)	weigh 1 lb.	it is sized No. 50
When 100 hanks of cotton yarn	(84,000 yds.)	weigh 1 lb.	it is sized No. 100
When 150 hanks of cotton yarn	(126,000 yds.)	weigh 1 lb.	it is sized No. 150
When 200 hanks of cotton yarn	(168,000 yds.)	weigh 1 lb.	it is sized No. 200

The spool thread of to-day, however, is not of the grade made before sewing machines became a modern factor. The early manufactured thread was but three-cord, and *took its number* from the size of the yarn from which it was made; for instance three strands of No. 60 yarn made No. 60 thread—though in point of fact, the actual calibre of No. 60 thread would equal No. 20 yarn—being three No. 60 strands combined. When the sewing machine came into market as the great consumer of thread, the thread had to be made a smoother product than formerly was required for mere hand needles. This was accomplished by making the thread of six cords instead of three. As thread numbers were already established, they were not altered for the new article, and consequently at the present time No. 60 six-cord and No. 60 three-cord are identical in size as well as number. To effect this, of course, the six-cord thread had to be made of strands just twice as fine as that demanded by the three-cord; hence No. 60 six-cord is made of six strands of 120 yarn, No. 50 being made of six strands of No. 100 yarn, etc. All sizes of six-cord thread are made of six strands each twice as fine as the number designated by the label, while three-cord thread is made of three strands of same size yarn as is designated by the number on the label. This is the whole of the thread measurement.

The state of Maine turns out nearly all of the spools on which the thread of this country is wound; in Oxford County alone hundreds of thousands of feet of logs being cut and sawed into spool timber annually. These strips are sent to the spool factories where they are quickly worked into spools by the most ingenious labor-saving machinery. Almost all the spools now made are produced from birchwood, and the machinery used in their manufacture has been brought to such a degree of perfection as to reduce their cost to the lowest possible figure. The wood is first sawed into sticks four or five feet long and seven-eighths of an inch to three

inches square, according to the intended size of the spool. These sticks are thoroughly seasoned, sawed into short blocks, and dried in a hot-air kiln at the time they are sawed, holes being bored perpendicularly through each block, which is set on end under a rapldly revolving long-shaped auger. At this stage one whirl of each little block against some small knives that are turning at lightning speed fashions it into a spool after the manner of the pattern provided, and this, too, at the rate of one a second for each set of knives. A row of small boys feed the spool-making machines by simply placing the blocks in a spout, selecting the best, and throwing out the knotty and defective stock. The machine is automatic, excepting the operation performed by the boys. The strips of white birch as fed into the machine are hardly seen again until the spools, all finished for market except polishing, drop out by the bushel from another machine rods away from where the strips started in. The spools get their gloss by being rapidly revolved in barrels by machinery, the polish resulting from the contact of the spools in the barrel. A peculiar name, either of a locality or a product, always attracts public curiosity, but investigation generally reveals a simple and distinctive origin. No better illustration of this fact can be cited than that of the famous Clark "Mile-End" spool cotton, respecting which many amusing surmises have been made as to the meaning or intent of the word "Mile-End." The name Mile-End was taken from the town near Glasgow, Scotland, where the original spool cotton mills were established, and from which exportations to the United States began in 1820. It was the first thread introduced to the American public on spools, all thread having been previously sold in skeins or hanks. It grew so great in popularity that in 1870 it was deemed advisable to establish a mill in this country, at Newark, N. J., though the name Mile-End has still been maintained.

Throstle. A spinning frame, a modification of Arkwright's water frame, said to derive its name from a low musical hum, due to the high speed which it attains, which is supposed to resemble the note of the "throstle" or wild thrush. It was introduced in 1815, but has since been greatly improved upon. The throstle frame is now used exclusively for the production of warps. In the most approved machines of this kind the spindles make 5,500 revolutions a minute, each spindle producing 27 hanks per week of 56 hours, when spinning No. 32 yarn. As each throstle contains from 200 to 300 spindles the weekly production of warp per throstle amounts to about 5,670,000 yards. [See SPINNING, FACTORY.]

Tick. [From Fr. *ticquette*, ticket, a bill stuck up; a marked card; a token of any right or debt.] Tick, the current slang for credit, is an abbreviation of ticket, the old name for a tradesman's bill.

Ticking. [Formerly spelled *ticken.*] A strong cotton cloth, used chiefly for making beds, covering mattresses, pillows and the like, of various widths, weights, and patterns, although the latter is generally con-

fined to longitudinal stripes. The quality is usually denoted by the number of ounces per square yard.

Tile. A tall stiff hat; a silk hat; so called from its fancied resemblance to a section of polished tiling.

Tinsel. An ornamental fabric or cord overlaid with glittering metallic sparkles or threads. The name was formerly given to cloth of silk, interwoven with gold or silver threads, but is now always applied to cheap finery, glistening like gold and silver, but at the same time pretending a value and richness which it does not really possess. There lay no such insinuation of pretentious splendor in its earlier uses. In the 13th, 14th and 15th centuries, in Europe, by "tinsel" was commonly meant a *silver* or *gold* texture of great value and magnificence, and no man was permitted to wear such textures under the rank of a duke.

Tippet. A covering for the shoulders, so named from its forming the tip or cape of a garment, or from being worn on the tip or top. The term has not only been applied to a kind of enlarged collar, as it is known now, but also to the long tail of a hood, to the cape of a hood, and even to streamers pendent from the arms. Tippets have varied in size as well as in shape, being sometimes so wide as to almost form a mantle, and at other times so narrow as to be little more than a collar. The tippet in vogue now is simply a long roll of fur or plush, which when accompanied by a muff, forms a set of furs. [See BOA.]

Tissue. [From Fr. *tissure,* to weave.] A woven fabric. In former times a very fine fabric, richly colored or ornamented, and often shot with gold threads; now, any light, gauzy material, such as is used for veils, or, more indefinitely, any woven fabric of fine quality. The cloth is frequently mentioned by the old historians as being used in pageants, tournaments, and the like, as though the fabric was designed for display rather than for personal service. The very thin smooth paper which still goes by the name of *tissue-paper* was originally made to be put between the folds of this rich stuff to prevent fraying or tarnishing when laid by.

Toga (to'-ga). The principal outer garment worn by the ancient Romans. It was a loose and flowing mantle or wrap of irregular form, without sleeves, usually made of wool, sometimes with a purple border at the bottom, and sometimes embroidered. Persons accused of any crime allowed their togas to become soiled as a sign of dejection; candidates for public offices whitened their togas artificially with chalk, presumably as an index to the spotless character of the wearer; while mourners wore a toga of black natural wool. [See PURPLE.]

Toile (two-la' or twol). A plain-woven, bleached fabric generally of linen, though occasionally woven of fine-spun cotton.

Toilet. [From Fr. *toile* cloth.] The dress and make-up of a person; also the operation of dressing.

Toilinette (toil-i-net'). See VALENTIA.

Toque (toke). [From Welch *toc*, hat.] A style of head covering worn in the 16th century by both men and women. At present a small form of ladies' bonnet in the shape of a round, close-fitting crown without any brim.

Tortoise-shell (tortis-shell). The scales on the outer shell of certain sea-turtles. These horny scales or plates are naturally of a beautiful mottled or clouded color, and are extensively used in the manufacture of combs, brushes, card-cases, hair pins, and trinkets. The shells are sometimes of enormous size, measuring a yard across. The value lies in the color more than in size, though large and small are sold together by weight. A clear, amber-colored shell is considered most valuable, and this, in its rough state, is worth $10 per pound; red-brown is next in point of value, at $6 per pound, then dark brown at $4 per pound. The shells are principally worked up in Naples and Messina, Italy, where they undergo a great deal of polishing and cleaning before being put into use. Olive oil and a composition called tripolo are used for polishing, and these produce a smoothness and luster which bring out all the beauty of the shell. A great deal of time and labor is devoted to this, for the Italian does not know the good service of machinery, but works slowly and well with small tools. With the aid of minute knives and files, he takes a piece of shell and patiently goes to work. He seems to do it lazily, rather indifferently, but his eye is exact from long practice and what is done is well done, and will bear critical inspection. There are no rough edges, no unpolished portions. The same care is taken in every detail, and laziness and slowness must needs be forgiven in view of the result. The scales become very plastic when heated; and when allowed to cool retain with sharpness any form they may be molded to in the heated state. Pieces can also be welded together under the pressure of hot irons. The best tortoise shell is obtained from the Indian Ocean. It is in this country largely imitated in horn, and in artificial compounds of much less cost, none of which are so clear or flexible as the genuine shell.

Tow. The coarse and broken part of flax or hemp separated from the finer part by heckling or swingling. [See FLAX.]

Towel. A linen or cotton cloth used for drying the face and hands, and for other purposes. Towels, both in their use and title, have remained unchanged for a long period, even if they have ever known change. [See CRASH, LINEN, TURKISH TOWELS.]

Town-made. A term referring to that class of fabric gloves or hosiery made by cutting out the various portions from a pattern and sewing them together with seams, in contradistinction to *frame-made* and *full regular made*. [See GLOVES, HOSIERY.]

Trade-mark. A distinguishing mark or device adopted by a manufacturer or jobber and impressed on his goods and labels to indicate their

origin. In the United States the protection of trade-marks is provided for by statute. The earliest trade-marks were those used in the manufacture of paper, and which are known as *water-marks* These date as far back as 1351, that is, shortly after the invention of making paper from rags.

Tram. Silk thread employed for wefts. [See SILK.]

Tricot (tre'-ko). A French term signifying stocking net; *tricotage* means knitting, and *tricoteur*, knitter, hence the particular weave known as tricot, often found in flannel and other woolen cloths, is so called on account of its intended resemblance to a knitted web. *Tricot cloth* is a fine woolen material, of the weave above referred to, it is usually dyed black or dark navy blue, and used for men's clothing. *Tricot flannel* is a double width dress fabric, of coarse texture.

Trousers. [From Fr. *trousses*, corresponding with the old English word *breeches*.] In the United States the original word trousers is almost laid aside, the term being only applied to the loose garments of sailors or laborers, while pantaloons colloquially *pants* is used in all other cases. The English, on the contrary still adhere to the old term in respect equally to the dress of gentlemen and all others, confining *pantaloons* to its historical sense. *Breeches* are properly short trousers, reaching just below the knee; the use of the word for trousers is erroneous and vulgar. Tight fitting drawers for men are in trade termed trousers.

Trunks. See BATHING TRUNKS.

Trust. Specifically, a trust in modern commercial usage, is an organization for the control of several corporations under one set of directors, by the device of a transfer by the stockholders in each of the separate corporations of *at least* a majority of all the stock to a central committee or board of trustees, who issue in return to such stockholders, certificates showing in effect that, although they have parted with their stock and the consequent *voting power*, they are still entitled to dividends and to share in the profits —the object being to enable the trustees to elect directors in all the corporations, to control and suspend at pleasure the work of any; and thus to economize expenses, regulate the production or output, and defeat competition.

Tulle (tull). [Properly *point de tulle*, a fine net, so called from the town of that name, capital of the department of Correz, France.] Silk bobbinet; a plain, fine silk net, used for women's veils and bonnets, sometimes ornamented with dots like blonde lace, but more commonly without pattern. Machinery for the manufacture of tulle was invented about the year 1800, and was copied after the bobbinet invention. At first it was termed *tulle simple et double;* in 1825, *tulle bobine grenadine;* next it was known as *zephyr*, and finally as *illusion*. The Jacquard system has been very successfuly adapted to the manufacture of tulle. *Blonde* is a narrow tulle adapted for quillings. [See BOBBINET.]

Tunic. A garment of high antiquity, now only worn by women and boys, but amongst the Romans and Greeks common to both sexes. Generally speaking, the tunic of the Romans and Saxons was a close-fitting garment reaching below the knees, enveloping the whole body, and fitted with sleeves. The Romans, who did not begin the wearing of tunics until a late period, soon wore them in duplicate, the under tunic being called by them the *subercula*, and the upper, distingushed by bands denoting the rank of the wearer, the *indusium*. Through them it was introduced into England, and soon became the ordinary wear of the natives, continuing in use under a wide variety of lengths and forms until the 15th century, after which time it is, as an upper garment, lost sight of.

Turkey Red. Cochineal, which is so suitable a coloring matter for wool and silk, does not dye a fast color upon cotton or linen, but from very remote times the Hindoos have possessed a process for dyeing a brilliant and extremely permanent red upon cotton fabrics by means of madder. [See MADDER.] This process traveled westward through the Levant into Turkey, the date of its introduction into Western Europe going no further back than the middle of the 18th century, at which period dyers from Smyrna and Adrianople first introduced the process into France, and, up to the end of the last century they were at the head of the French government dye works; but it was naturally difficult for a handful of foreigners to preserve their secrets for a length of time from the workmen employed, and in course of ten years from their introduction their methods of dyeing were no longer a secret. The name *Turkey red* was applied to calico dyed with madder at the time that such goods could be obtained only from Turkey, and it still retains the name. Turkey red is is essentially a madder red with a chemical basis, but differs from a common madder red by containing oil, and it is the fixing and combining of the oil with cotton and the madder which constitues its peculiar durability. Divested of details, the process of producing Turkey red may be divided into four stages:—(1) The oiling of the cloth; (2) mordanting with a salt of aluminum; (3) dyeing with madder, or its equivalent, alizarin; and (4) the brightening of the dyed color. The preparation of the cloth with oil is a process used in no other kind of dyeing. A low quantity of olive oil is most generally used, though cotton-seed oil is sometimes substituted. The cloth to be dyed is steeped in a large vessel of the oil, wrung out, and dried in a warm stove; this process is repeated six or eight times, the cloth being fianally washed to remove the surplus of oil not intimately united with the fiber. The cloth in this state is ready for mordanting, which is done by passing it through a bath of alum; the excess of mordant is then carefully washed away from the cloth, and it is ready for dyeing. The dyeing is accomplished in the ordinary way, by keeping the cloth in continual motion in a vessel containing heated water and the dyestuff, which may be madder or alizarin. It is a very general practice to add a quantity of ox-blood to the water used in dyeing Turkey red. What purpose this fulfills is not known, as its coloring

matter cannot be supposed to be of any use. Probably its addition is quite superfluous, and is retained from the custom of older times, when dyeing was less understood than at present. When the dyeing is completed, the color is a deep but dull red, which requires brightening. To give it a more brilliant color, the goods are boiled for several hours in a closed copper boiler, with a mixture of salt of tin with the soap used in the last boiling. No allusion has been made to the number of excrementitious and other animal matters, which the old dyers used in the oiling process, such as sheep-dung, cow-dung, stale urine, ox-bile, etc. They are at the present day dispensed with, and were employed anciently probably from caprice or ignorance. Besides being largely used in its plain-red state, Turkey red calico is figured by ordinary calico printing machines, by which the different colors of a pattern or a figure are printed in portions of the calico where the red color is discharged by chloride of lime, as in the case of Indigo blue prints and Bandanna handkerchiefs (which see). [See MORDANTING, MADDER, ALIZARINE.]

Turkish Towel. A cotton hand towel, distinguished by the surface being covered with a looped pile, produced by the same process of weaving as terry cloth. From the invention of terry cloth to the manufacture of Turkish towels was but a single step, and when the first towel was presented to Queen Victoria, she was so pleased with it, that she awarded the inventor, Samuel Holt, a medal, and the favor thus shown by royalty for the new product, was soon adopted by her loyal subjects. Why these towels should be called "Turkish" is difficult to understand, considering that the article was invented and first manufactured in England. The only explanation that will hold good is that soon after the invention was made, large quantities of the new towels were shipped to Turkey, where they were, and are still held in high estimation by the Orientals. [See TERRY CLOTH.]

Turk's Satin. A soft brocaded silk material, with a twilled back. It is used for men's vests and women's evening shoes, and for lining fur garments.

Tussah Silk. Silk made from the cocoons of wild silk worms in India. It is inferior to the product of the domesticated worm.

Tweed. A woolen cloth manufactured solely for men's clothing. It is a twilled fabric, two or more colors being generally combined in one yarn, and of soft, open and flexible structure. On leaving the loom, tweeds are slightly fulled, teasled, and the fibrous nap so raised sheared down smooth, and then pressed. The object of these operations is to make the pattern appear more prominent and clearly defined. When first manufactured the patterns of tweeds were confined to shepherd checks of three or four sizes. After the original style of tweed had enjoyed popularity for several years, it happened that an English manufacturer had made up a quantity of these checks in which the whites were so impure and dirty

looking, from being mixed with inferior wool, that they would not sell. The happy idea struck him that if the pieces were dipped in a brown dye it would cover the white and convert the checks into brown and black. This was managed so successfully that upon these "new styles" being sent to London they not only sold rapidly, but large orders flowed in for more in all the different sizes of checks. To this circumstance is attributed the beginning of the manufacture of "fancy tweed." At present the fabric is woven in all descriptions of checks and stripes, as well as plain styles. Tweeds were for many years called "twills." The Scotch people pronounce the word twill as "tweel." It was the word "tweels" having been blotted or imperfectly written in an invoice which gave rise to the now familiar name of these goods. In a certain lawsuit the word was read "tweeds" by the late James Lock, of London, and it was so appropriate from the fact of the goods being almost exclusively made on the banks of River Tweed, Scotland, that it was at once adopted, and has been continued ever since.

Twill. [From German *twillen*, to separate into two parts.] An appearance of diagonal lines or ribs produced in textile fabrics by causing the weft threads to pass over two and under one, or over three (or more) warp threads, instead of over one and under the next in regular succession, as in plain weaving. The object of twill weaving is to increase the weight or bulk of a fabric and to ornament it. The disposition of the threads permits the introduction of more material into the fabric, and hence makes it more bulky and closer in construction than in plain weaving. Many different patterns or surfaces can be produced by twilling that is by changing the order of passing the weft over the warp threads; as a satin twill, plain twill, 3-leaf and 4-leaf twills and a damask twill. The regularity of the twilled lines is broken in various ways in what is termed *fancy twilling*; as in herringbone and zig-zag weaving. The effect of each variety of twilling is to form a distinct pattern upon the fabric. [See WEAVING, SATIN, DAMASK.]

Twines and Strings. See CORDAGE.

Twine cloth. A fine bléached cotton cloth, used as a substitute for linen.

U

Ulster. A style of long, loose overcoat, worn by both men and women, originally made of frieze cloth at *Ulster*, Ireland. The peculiarity of this coat is that it is cut almost straight for both sexes, reaching very nearly to the feet, and is sometimes girded with a belt; it frequently has a hood or cape. Also called a *great coat.*

Umbrella. [From It. *ombrello* "a little shade."] The umbrella lays claim to a pedigree of the highest antiquity, having had its origin in

very remote times in the far East, and in some Asiatic countries it was, and still, is regarded as an emblem of royalty, or a mark of distinction. In ancient Greece its use was familar among women for protection from the sun, and is frequently represented in paintings and sculptures. As a defense from rain or snow it was not used in Europe till early in the eighteenth century. The innovation in England was harshly met at first. The bearers of umbrellas were hooted and jeered at as "Frenchmen," the mode having been directly brought from Paris, and it is a matter of history that a woman was mobbed in the streets of Bristol for displaying such extreme effeminacy, although it could not well be considered a sign of weakness to carry so cumbrous an article as the early umbrella. In the first days of the manufacture, the elaborate structures of gingham or oiled silk, whalebone or cane, were very heavy, sometimes weighing as much as five pounds. Each successive improvement has been primarily devoted to securing lightness, and after that to improve materials and mechanism. For a hundred years after their introduction into Europe there was little or no improvement until alpaca came to be substituted as a covering instead of oiled cotton. In those days the ribs were made of whalebone or cane. If distended when wet, and if permitted to remain until dry, this substance would permanently assume a bent shape, rivaling the renowned Sairey Gamp's gingham. Steel ribs came into use about 1852, and in 1860 the concave Paragon rib was introduced. To describe the process of umbrella making is simply to explain how the component parts are put together. The sticks come from all parts of the earth. They are usually in two pieces, for the ornamental handles are generally parts of rough knotty shrubs, while the main stem requires to be straight, smooth and strong. As they arrive at the factory in a comparatively unfinished state, the first thing to be done is to cut them to the required length, then to fix in the springs which are required to hold the umbrella when open or closed. This operation is performed by a small circular saw, against which the workman presses the stick, and by intuition apparently the slot is made to the exact depth required. The springs are then riveted, and the next process is the adjustment of the frame-work. The frame-work of silk umbrellas consists (usually) of ten ribs and ten stretchers, while cotton umbrellas range from eight rib to sixteen rib. Each have a runner which slides over the stick, and a ferrule which secures the ribs to the stick. The ferrule and runner are slipped over the stick, while each rib and each stretcher have an eye through which wire is passed and drawn up to the runner and fastened. The ribs are secured in the same way to the ferrule, the latter is riveted to the stick and the frame-work is complete. The frames are then handed over to girls, who cover the joints with small bits of cloth. In preparing the covers the first thing is to hem the silk; afterward the portions of the cover are cut and sent to the machine room to be stitched together. When complete the cover is slipped over the frame-work and sewed fast to the ribs, the cap or metal top piece is affixed, and the umbrella is finished. Umbrella silk is of

special make and is usually sold by the inch of width for every yard length. All-silk covering sells from 2½ to 5 cents per inch. Piece-dyed cotton and silk covering is made in this country, but yarn-dyed mixtures are imported. Umbrellas range in size from 26 to 36 inch. A "size of an umbrella is one inch in the length of the rib.

Underwear. Underclothing; under linen; a general term which includes every article worn beneath the external or outer garments, by day or by night, both of men and women. Underwear is made of every conceivable sort of material, as silk, cotton, wool, linen, stockinette, spun silk, lace, cambric, merino, flannel, nainsook, elastic, jean, muslin, etc. There has been much dispute among the advocates of the various fibers as to which was the most suitable for underwear. Wool has been recommended by eminent medical authorities for both hot and cold countries on account of its property of promoting insensible perspiration, which being absorbed by the spongy material is immediately distributed *equally* throughout the whole thickness of the fabric; and thus being exposed over a large surface is carried off by the atmosphere, keeping the body at the same time at an equal temperature. Wool, relatively to linen and cotton (it is claimed) is a non-conductor of heat and electricity, and therefore tends to preserve to the body its normal measure of these vital energies. It is the function of the skin through its 7,000,000 pores to throw off from 28 to 32 ounces of exhalations (refuse matter) which is generated in the body during every 24 hours. All kinds of animal wool and hair readily absorb the excretions of the skin, but does not retain them, but transmit, and disperse them at their outer surfaces by a repulsive energy to which the self-cleansing properties of hair and wool are properly due. The value of this feature of the woolen system is very apparent. Silk is also recommended for underwear, and possesses several advantages over other fibers. The fiber of silk is perfectly smooth, symmetrical and solid, not hollow like cotton and linen fibers, and without the minute scales peculiar to wool. Silk is a great absorbent because its fibers are so glassy fine —a sort of spidery catgut—and fluids, water or perspiration creep between the fibers and are held, yet will pass out quickly, evaporating and drying, or will wash out readily. It is like glass, in that nothing clings to it. In its natural color silk accumulates no germs of disease and moths and bugs find no home in it. For these reasons when made up into underwear, it is necessarily hygienic and salutary. Linen is advocated as a superior material for underwear on account of its absorbent qualities. The majority of the peasants of Russia wear linen next to the skin and claim that it is as warm as wool, and in addition that it wears longer, is more easily washed, does not shrink, and sheds dust and dirt much more readily. [See KNEIPP LINEN.]

It may be laid down as a rule that during a greater portion of the year in northern climates undergarments of heavy material should be worn by persons exposed to the weather. However, it is unnecessary

and unwise for individuals following indoor occupations to wear the heavier varieties of underwear. The person who changes his gauze for the heaviest flannel on September 15, and continues these heavy garments until May 15, regardless of the varions changes in the weather, may be as much in error as he who wears gauze only the year around. A clerk who is in a warm room the greater part of the day is not expected to wear the same weight of underwear as a teamster or street car driver, who is out of doors and much exposed. In short, one's underwear should depend upon the degree of his exposure, and should be of a weight that will insure the greatest comfort during that part of the day when he is at his particular occupation; and if more warmth is required when not at work it should come from additional outer clothing.

Union Cassimere. A mixed material confined exclusively to the manufacture of clothing. It is made with cotton warp and wool weft, the pattern of the cloth being produced in the loom.

Union Underwear. A style of underwear in which the drawers and vest are combined together as one garment.

Upholstery. A term by which every description of textile fabrics employed in the making and covering of furniture is designated. Varieties of silk, velvet, horsehair, rep, leather cloth, moreen, Utrecht velvet, cretonne, dimity, etc., are all included under the name of *upholstery stuffs*.

Utrecht Velvet. Mohair furniture plush. Formerly this fabric was manufactured exclusively at Utrecht, Holland, hence the name; but more recently the trade has centered at Amiens, France, and in Connecticut. The latter state supplies over one-half the amount required for domestic use by this country. It is used chiefly for upholstering railway cars and office furniture. It has a mohair pile woven into a linen foundation and is an exceedingly durable material. [See MOHAIR, PLUSH, VELVET, WEAVING.]

V.

Valentia. A mixed material having a cotton warp, or a cotton-and-silk warp for the silk portion, and a worsted weft of fine British lustre wool. Valentias are produced in large quantities in Spitalfields, London, and the patterns are quite variegated and showy in appearance. They are manufactured exclusively for men's fancy vests, being similar to the fabric termed *toilinette*, which is composed of silk and cotton and "woolen" yarn, hence is of somewhat softer texture than valentia.

Vegetable Flannel. A material made from pine leaves. When spun and woven the thread resembles hemp, and is made into articles of underclothing; the latter keep the body comfortably warm and are very solid. Blankets are also made of this material, and are exclusively employed in the hospitals, barracks, and prisons of Germany. One of their principal

advantages is that they harbor no vermin. The fabric is woven in no other city except Breslau, Germany, where there are two establishments devoted to their manufacture.

Vegetable Leather. A name given to a cloth woven of flax and hemp coated with a composition which gives it the appearance of leather.

Vegetable Ivory. See BUTTONS.

Vegetable Fibers. See FIBER.

Vegetable Silk. A variety of brown colored down gathered from a kind of fern, imported from the Sandwich Islands, which is used in this country to a limited extent by upholsterers for stuffing mattresses, beds and cushions.

Veil. In modern use the veil is a piece of gauze, barege, net, or similar fabric, used to cover the face, either for concealment or as a screen against sunlight, dust, insects, etc. It is one of the most ancient articles of female attire, and for centuries has been a necessary constituent in the costume of a nun. Thin veils of gauze, or of some transparent substance of the like kind, were in use among the Jewish ladies as early as the time of Solomon: to this ornament apparently he alludes in the Canticles, where, speaking of the bride, he says, "Thine eyes are like those of doves behind thy veil." It is a well known fact that every woman of rank or character in the eastern part of the world from time immemorial down to the present hour, appears veiled before the eyes of men. With them the veil is considered a protection to the female sex; and therefore the removing or turning it forcibly aside is conceived to be the highest insult that a man could be guilty of toward a woman, an affront of this character on the part of a stranger being often punished by death. Veils, although generally considered a portion of female dress, were at one time worn by men. St. Ambrose (A. D. 374) speaks of the "silken garments and veils interwoven with gold, with which the body of rich men were encompassed." Their use is now so extended that they are found in every part of the civilized world, but almost exclusively confined to women. The custom for a bride to wear a veil at her marriage originated in the Anglo-Saxon manner of performing the wedding ceremony under a large veil, or square piece of cloth held at each corner by a tall man over the head of the bride, to conceal her virgin blushes; but if the bride was a widow the veil was esteemed useless. [See GAUZE.]

Vellum. Parchment; the skin of calves prepared for writing or printing by long exposure in a bath of lime and by repeated rubbings with a burnisher; also, the skin of goats or kids prepared in a similar manner.

Velour. A French term signifying velvet, being derived from Latin *villosus*, shaggy. Among old English writers, and in the entries made in the lists of the royal wardrobes of England, the terms *velure* and *velures* are found, as well as *vallonettes*, mentioned by Chaucer. At this time the

fabric was a species of linen plush. At present, velour denotes a cotton curtain fabric, woven with a coarse stiff pile on the terry cloth principle, alike on both sides, and dyed in solid colors.

Velure. A cotton fabric woven with a thick and soft pile, used for curtains. [See VELOUR.]

Velvet. [From Italian *velluto*, shaggy.] A silken fabric having a short dense piled surface. It is the type of the numerous forms of piled fabrics now made, the methods employed in the manufacture of which are noticed under WEAVING. Of the country whence it first came, or the people who were the earliest to hit upon the happy way of weaving it, nothing is known. We are probably indebted to Central Asia, or perhaps China for velvet as well as satin. It is not until the 14th century that any historical mention is made of this fabric, although fustian, which differs from velvet only in material, is mentioned as early as the middle of the 13th century. The peculiar properties of velvet, the splendid yet softened depth of dye-color it exhibited, at once marked it out as a fit material for ecclesiastical vestments, royal and state robes, and sumptuous hangings; and among the most magnificent fabrics of mediæval times were Italian velvets. These were in many ways most effectively treated for ornamentation, such as by varying the color of the pile, by producing pile of different lengths (pile upon pile, or *double* pile), by brocading with plain silk, with uncut pile, or with a ground of gold tissue. The most expensive velvets at this period were made at Genoa, Florence and Venice, and to the present day Genoa continues to produce rich velvet textures in vast quantities. Crefeld and Lyons are also centers of velvet manufacture. The first velvet mill in America was built in 1865, but as the stockholders failed to give it their personal attention, its existence was brief, the machinery being sold in a few years to different manufacturers of spun silk. Hence until quite recently velvets in the United States have been an exclusive foreign fabric. At present, however, there are several factories in active operation, having been brought into existence by the increased duties on velvet under the late tariff act, which enables them to produce velvets in this country at a profit. The processes employed in the weaving of velvets are the same as in making plush, fustian, beaverteen, velvet and Wilton carpets. Its peculiar character is produced by the insertion of what seems to be short pieces of silk thread, secured under the weft thread, their ends standing upright and so close together as to completely conceal the foundation beneath. In weaving velvet, in addition to the ordinary warp and weft, there is an extra warp thread, called pile threads, arranged in the loom parallel to the regular warp, and much longer, which in the progress of weaving are passed over a fine brass wires laid across the width of the fabric. The working of a treadle carries the pile threads down over the wire, forming a loop, in which position the whole row is fastened by the next throw of the weft. Another wire is placed in the same position for the next row of

loops across the fabric, and these are produced the same as the above. When the weaver has made a few inches of fabric the wires are removed. Each of them has a fine grove along its top surface, in which is run a sharp-pointed knife, thus cutting the loops, and leaving two ends of each one projecting above the fabric. The velvet is now trimmed evenly, brushed up, and dressed to produce a perfectly uniform and velvety pile. Fine qualities contain from 40 to 50 loops to an inch length of fabric, hence their production is exceedingly slow and laborious. In silk velvets the pile thread is organzine silk, which is the strongest and most lustrous used in weaving. There are two kinds of velvet which have the effect of being stamped or embossed. The *real stamped velvet* is comparatively of inferior quality, woven with a silk face and cotton back. The patterns are produced by means of stamping-irons which are applied to the face of the velvet under pressure. The effect is to cause the ground portions between the raised pattern to appear as if of satin make. *Velvet broche* is a superior fabric, with a design in the silk pile woven into the web, and not stamped. *Ponson velvets* are the fine, heavy grades used in cloak-making. *Terry velvet* is uncut velvet, woven entirely of silk, the loops presenting an appearance of fine ribs or cords running across the surface from side to side. *Rubber velvet* is not velvet, but is made by sprinkling powdered felt of any color over rubber cloth while the latter is hot and soft. The product looks like felt cloth, but is elastic, waterproof and exceedingly light. [See EMBOSSED VELVET.]

Velveteen. Cotton velvet. Velveteen is always of greater width than velvet proper, although woven in exactly the same manner. The making of these goods, for the most part, is in the hands of British manufacturers. All efforts to make them in the United States prior to 1890 were unsuccessful, although a few mills were established upon the passage of the late tariff act. However, large quantities of the raw grey cloth is imported and dyed here, such as the varieties known as "Vulcan," "H," and "Elberon." Dyers assert that the most difficult branch of black-dying upon cotton goods, is that employed for cotton velvets or velveteens, upon which it is desired to produce a rich, lustrous color. The process is long, tedious and uncertain, consisting of successive applications of sumac, acetate of iron, logwood and fustic, the end aimed at being the production of a black with a blush or violet bloom. The English dyers formerly held a monoply of this blue-black upon velvet as it is called, but of late years American dyers have developed into very formidable competitors. *English Fast Pile Velveteen* is a variety made in England after a new and superior method, insuring the fixity and firm adhesion of the pile, which sometimes wears out of the web when manufactured according to the original plan. The names given to it vary according to the fancy of the several manufacturers who produce it. Among them it is known as "Imperal," "Louis," "Brunswick finish," "Mancunium," and "Peacock." *Velveteen Ribbons* are cut in strips from fine grades of piece goods, and the edges having no selvage, are sized to prevent raveling.

They are made in lengths of twelve yards, the numbers running from one to forty. They are produced in a variety of colors, beside black, and the widths range from one, one and one-half, two up to ten, and then in even numbers up to twenty, and then to twenty-four, thirty and forty.

Vest. [From *vestment,* clothing.] A waistcoat; also a lady's knit undershirt. [See APPENDIX "A."]

Victorine (vic-tor-ene'). A lady's tippet made of feathers or fur.

Vicuna (vi-cu'-na). A delicate all-wool dress fabric, produced in black and neutral colors. The commoner varieties are of the armure weave. Vicuna is the French name for the wool of an animal similar to the llama or mountain goat. Also called *vigogne cloth.*

W

Waban Netting. A netting of large mesh, especially adapted for draping pictures, easels, mantels and portieres. It is a thread net, 72 inches in width, and is put up in 12 and 24-yard pieces.

Wadding. A lap or fleece of cotton prepared by the carding engine, to the surface of which is applied a gelatinous coating.

Waist. A garment covering the waist or trunk; one worn especially by children to which petticoats or drawers are attached; the body or bodice of a dress, whether separate from the skirt or joined to it; a corsage; a basque; a blouse.

Wale. A ridge or rib rising above the surface of woven cloth, and extending the entire length or width of the piece. The word has a similar origin with wale or "whale," a mark raised upon the skin by a blow.

Warmus (pron. wawm'-mus). A heavy flannel jacket, worn in winter by farmers and other out-door laborers for the procurement of warmth. [See JUMPER, APPENDIX "A."]

Warp. The threads which are extended lengthwise in the loom, into which the weft is woven; also called *chain* and *twist.* Warp yarn is generally stronger than weft, the hardness being obtained by extra twisting of the thread. Owing to this peculiarity, it is sometimes called "twist." [See SPINNING.]

Wash-Blonde. A name given to a species of narrow bobbinet or Brussels net, suitable for quillings. It was formerly produced from unbleached cotton and was termed *Nankin* and *blonde net,* from its yellow or blonde color. At present the material is dyed in several tints and distinguished by its narrow width. The quality of wash blonde, as well as of Brussels net, depends upon the smallness of the meshes, their equality in size, fineness of yarn, and the regularity of the hexagons. [See BOBBINET.]

Watered. An effect produced upon gros grain silk by which the surface assumes a variety of shades, as if the cloth were covered with a multitude of waving lines, the transition from bright to dull effects giving beauty to the fabric. There are two methods of watering silk. It is known that if a silk tissue be pressed with a hot metal roller engraved with a vapory design, that the design on the roller is reproduced on the tissue, which takes, on the portions affected, a distinct appearance without changing color. These, which might be termed grained or marbled effects, can be produced on goods of any width, ribbons or dress fabrics, rollers of the proper width being all that is necessary. The watered effect may also be produced by wetting the silk and expelling the air and moisture under great pressure. The air in trying to effect its escape, drives before it the moisture, and hence causes the appearance of the curiously tortuous lines, resembling waves. [See MOIRE.]

Watteau Pleat (wat-tu'). An arrangement of the back of a woman's dress in which broad folds or pleats hang from the neck to the bottom of the skirt without interruption. A *Watteau bodice* is a style of woman's dress having a square opening at the neck, and presenting some resemblance to the costumes in the paintings by the artist Watteau, at the beginning of the 18th century.

Weaving. [From Anglo-Saxon *weafan*, to weave or fold about.] The art of forming cloth by the interlacing of yarn in a loom. Pliny gives the honor of the invention to the Egyptians, but its origin is really unknown, and was certainly long prior to that of authentic history. Homer, the Greek poet, who lived 600 B. C., gives an account of the heroine Penelope weaving at the loom. Penelope was the wife of the Greek hero Ulysses. Soon after his marriage he was unfortunately summoned to the Trojan war. Unwilling to go, he feigned madness—yoked an ox and a horse together, and resorted to other ruses to prove his lunacy, but the commander discovered his deceit by means of his affectionate care for his only child, Telemachus. Obliged to go he distinguished himself as a warrior, and was not released until 20 years had passed. Having tarried so long, many chieftains of Ithaca and the islands round about wooed the fair Penelope to marry; they behaved wantonly, wasting the substance of Ulysses, insulting his son, and corrupting the maidservants. But the faithful and tender Penelope yearned for the god-like Ulysses and bade her impatient suitors again and again to wait, before hastening her nuptials, until she had woven a winding sheet for old Icarius, the father of Ulysses, that her threads might not be lost. But every night the artful Penelope undid the piece which she had woven by day, so that the web was always unfinished. This she did for three years, till her maids revealed the secret to her wooers. Robbed at last of her pretext for delay she was in sore straits, till she was relieved by the arrival of Ulysses after an absence of twenty years. He slew the wooers, and the long-parted husband and wife were united

once more. Joy! Wassail! Finis! This Homeric story is the first historical mention made by any writer of the art of weaving, and Penelope was worshipped by the Greeks and Romans as the goddess of the loom.

The Egyptians undoubtedly attained wonderful excellence in weaving, the antiquity of which is fully attested by the existence of the fine linens with which the mummies taken from the pyramids were enwrapped. Many Biblical references prove the Hebrews to have been equally facile; and Persia, Babylon, and other ancient nations likewise earned fame in this particular. The Mexicans spun and wove cotton, and the Peruvians both cotton and wool, into fabrics which the Spaniards found in every way equal to anything they had known at home. The Peruvians, in particular, were adepts at weaving. When Pizarro made the conquest of their country in 1533, he found in the empire of the Incas four species of animals little different from each other, which he called the sheep of their country, because of their general resemblance to the Spanish (merino) sheep, and the similar utilization of its fiber. Two of the species, the llama and alpaca, had been in a state of domestication from time immemorial, the remaining varieties, the vicuna and the guanaca, living in a wild state in the fastnesses of the Andes. Specimens of this Peruvian cloth, still preserved, reveals a fineness of texture and an exquisite finish which modern ingenuity rarely equals. Both sides of these cloths were woven alike. The delicacy of the texture gave it the luster of silk, while the brilliancy of the dyes employed excited the envy and admiration of European artisans. The North American Indians, when first discovered, possessed no knowledge whatever of the art of spinning or weaving, their garments being confined entirely to the skins of animals. The Navajos were not acquainted with weaving processes until after their contact with the early Spanish missionaries.

According to Pliny, the Assyrians believed Queen Semiramis to have been the inventress of weaving. Minerva, in many pieces of ancient statuary, is represented with a distaff, evidently for the purpose of conveying the impression that it was *she* who first taught men the art of spinning; and this honor is given by the Egyptians to Isis; by the Mohammedans to a son of Japeth; by the Chinese to the consort of their emperor Yas; and by the Peruvians to Mamcella, wife of Manco-Capac, their first sovereign. These traditions serve only to carry the invaluable art of spinning and weaving back to an extremely remote period—thousands of years, no doubt, prior to the writing of the first book. According to Melik Cassam Mirza, of Tebriz, Persia, the weaving of silk was first practiced in China, in the province of Kiang Nau, about the year of the world 1743, or 2257 years B. C. From other authentic sources we learn that cotton had its origin in India, and that shawls and carpets were first made in Persia.

In Great Britian the early inhabitants were thoroughly acquainted with the making of cloth, and the weavers of London form probably the most ancient guild in Europe. Their occupation gave rise to many surnames,

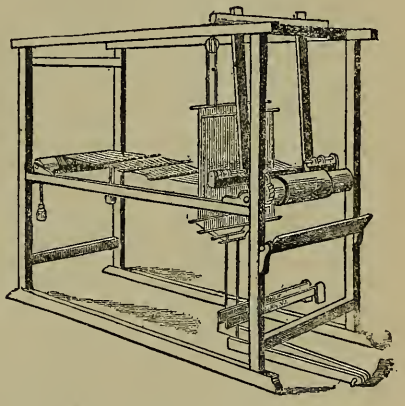
which are easily recognized in the United States at the present time. For ages wool was the staple of England, and thousands of busy operatives were employed in the various processes of spinning and weaving necessary before the wool could be transferred from the back of the sheep to the back of the man. At every step, proper names indicative of the calling of those who bore them sprang up, so that, were we ignorant of the fact that our ancestors, the Saxons, dealt in wool and made cloth, we might draw perfectly correct and legitimate conclusions as to the business, its extent and various departments, from the family names still surviving. In the first place, the sheep were cared for by the Shepard or Sheepherd, a family name which, with variations of spelling, is extremely common both in this country and England. Shearing was the first operation requiring either delicacy or skill, and Shearer, Shearman, Shurman and similar names bespeak their own ancestry. The wool was then placed in bags, made by the sackers or canvassers, and was ready for the merchant, an individual often known as Stapler, Wool, Wooler, Woolman or Woolsey, or in French as Lanier or Lanyer. He consigned it to the care of persons who transported it from place to place on the backs of pack horses or in vehicles, and were thus known as the Packers, the Carters or the Carriers. The wool was then handed over to the Carders and Combers, or Kempers and Kemsters, as they were variously called, and passed from their hands to those of the Spinners, who used implements made by the Spindlers and Slayers, afterwards going to the Weavers, Weevers, Webbs, Webbers or feminine Websters. The cloth was next "teased" to bring out the nap, a process done by the Teasers, Tosers, Teazelers, or Taylors, when the woolen cloth was finished and ready for the Dyer, Litter, or Lister. The Fullers, Fullertons, Fullersons and Fullmans undertook the process of shrinking the cloth, in which they were assisted by the Walkers, who trod it with their feet, accompanied by the Beaters, Beatermans, Bates, Batts and Battsman, who used sticks, bats and mallets instead of their heels and toes. The designation of the process is seen to give a name to all engaged in a special work, just as at present, and further to be adopted as a family name by some who perhaps attained notable excellence over their fellows, or were led by chance or caprice to adopt the title of their calling as their own surname.

It will doubtless interest many to learn that the domestic title "wife" is derived from "to weave," as she was distinguished so much from the balance of her family in the olden time by her labors at the loom. The Saxon word for weave was *wefan*, and was also applied to a woman who worked at the loom and made a web. The adoption of the name "wife" from the art of weaving is a natural sequence to that of giving the name of "spinster" to an unmarried woman—for the girl was supposed to *spin* the yarn, which when woven into clothing, she was to wear in the future as the garments of a wife. For untold centuries preceding Cartwright's invention of the power loom, each household was to a large degree the manufac-

turers of their own cloth and the makers of their own clothing. It was the common practice of the husband and sons to tend the sheep and cultivate the flax; of the "spinsters" to prepare the yarns, by the aid of distaff and spinning wheel; and of the wife, on account of her greater experience, to weave the web.

Although the hand-loom has latterly been very largely superseded by the power-loom, yet it still holds an important place in the weaving of some kinds of textiles, for the reason that it is simple and can be readily altered to suit the requirements of any particular branch of woven fabrics The wooden loom of the ancient Egyptians, as represented in pictures and sculptures 3,000 years old, bears a singular resemblance to those now in use. The upright loom of Penelope differed but slightly from the hand looms of the Gobelin factory in France, where some of the finest textures in the world are wrought. In Palestine. also, the weaver had an upright loom, but beginning at the bottom and working upwards, he was obliged to stand. During the mediæval period the loom in England was horizontal, as is shown in the accompanying illustration.

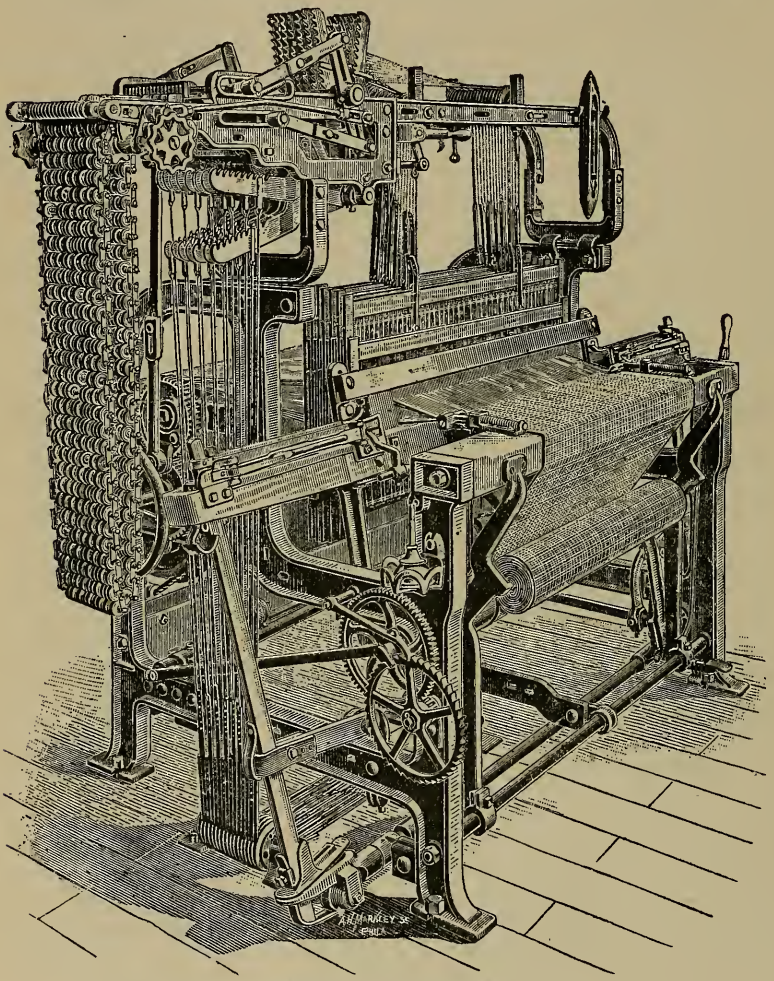
A LOOM OF THE 11TH CENTURY.



HAND LOOM OF THE 18TH CENTURY

For figured goods, where irregular and complicated order of weft threads of several colors are used, the hand-loom is the best adapted, simply because the weaver can more easily control its motions so as to make them accord with the required method of coloring the design. Plush fabrics and various classes of tapestry cloths, carpets, and figured shawls are also, to some extent, woven on the hand-loom, but its special *role* is certainly pattern production. It seems almost incredible that so many varieties could be made in the material and design of fabrics by the aid of so simple apparatus. We have only to remember, however, how many melodious combinations can be made on a scale of seven notes, and what

an illimitable literature has been made on an alphabet of twenty-six letters. Keeping this in mind we can see how innumerable combinations may be made by interchanging warp and weft. Each year there are new surfaces in

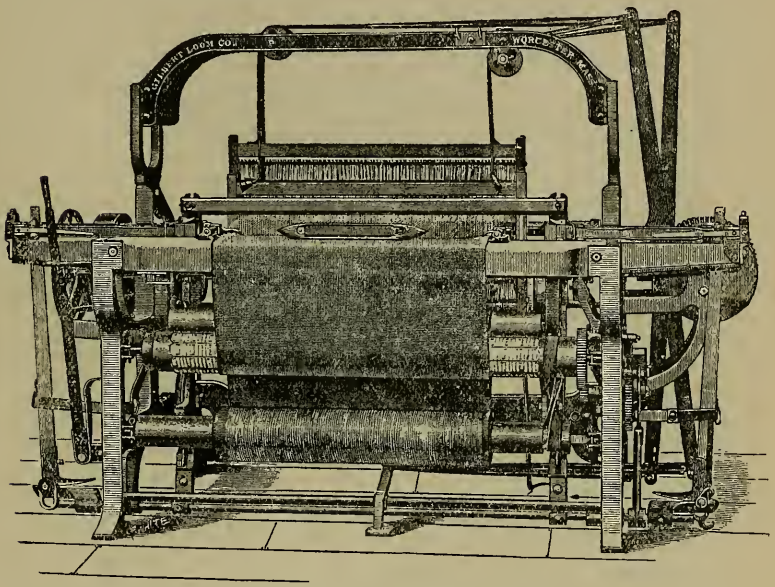


FANCY COTTON LOOM.

variety. All, though, resolve themselves into the original elementary combinations possible to the hand-loom. Methods and motive power grow with the ages, but the fundamental principle of *forming* textiles has re-

mained unchanged since the day of that forgotten patriarch who first passed crossway threads between two sheets of long ones, and combed them into place with the primitive reed.

In weaving, two sets of yarn are used — the warp and the weft. The warp consists of the yarn (or threads) which extends in parallel lines from end to end, the whole length of the web. The weft yarn crosses and intersects the warp at right angles and fills up the breadth of the web. Weaving is thus distinct from knitting, netting, plaiting or felting. Apparently the varieties of woven cloth are endless, but these differences are due only in

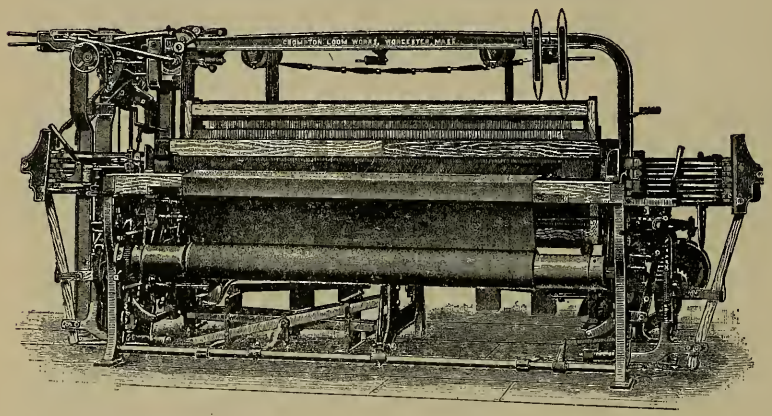


FLANNEL AND JEANS LOOM.

part to the method of weaving. The textile materials employed, the methods of spinning and preparing the yarns, the dye colors resorted to, and the finishing processes may vary indefinitely, and so contribute to give variety of character to the resultant product. The complexities of the art of weaving, in itself, are reducible to a few fundamental operations, which do not *of necessity* demand intricate machinery. For producing the India muslins of the present day with their marvelous delicacy of texture, and also for the elaborate and sumptous shawls of Cashmere the native weavers have only rude and simple looms. With all our boasted civilization and modern appliances we have been as yet unable to rival the Hindoo and other "heathen" nations in the production of textile fabrics. But patient

and tedious hand-work, in these instances, is devoted to produce effects which modern machinery can imitate with almost as great rapidity as in the case of the plainest fabric. The series of inventions which have led up to the ingenious looms of the present day, began with the invention of the fly-shuttle in 1733, and culminated with the Jacquard appliance in 1802; the principle of which has never since been improved upon. Woven fabrics may be divided into five main classes: Plain, figured, gauze, double, and pile weaving. Laces being formed on an entirely different structure, are disregarded. [See LACE.]

Plain Weaving.—This class, which includes calico, muslin, linen and like fabrics, will on examination be found to consist of two sets of threads, the one intersecting the other at right angles, with each single thread passing alternately *over* one and *under* one in regular order.

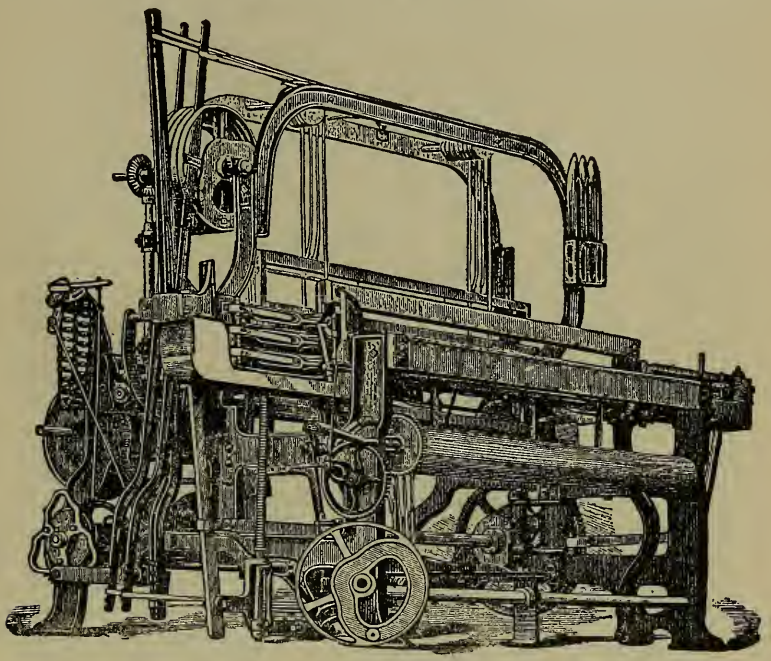


FANCY WORSTED LOOM FOR WEAVING DOUBLE-WIDTH, HIGH-GRADE WORSTEDS.

Figure Weaving.—This is a very comprehensive group, consisting of the twills, sateens, damasks, brocades, counterpanes, cords, and almost all fancy cloths. To produce a complicated and irregular pattern, a large number of different sheds of warps must be provided, and to secure with promptitude and certainty such manifold and complicated sheddings, many of the most elegant and ingenious devices ever applied to mechanism have been invented. [See LOOM, JACQUARD, DAMASK, TWILL, BROCADE, HOME WEAVING.]

Double Weaving.—By either of the methods above described there are but two ways of producing a heavy fabric—either the use of thick, bulky threads, or the use of an increased number of fine ones. If bulky threads are used, the fabric must present an appearance of coarseness, no matter

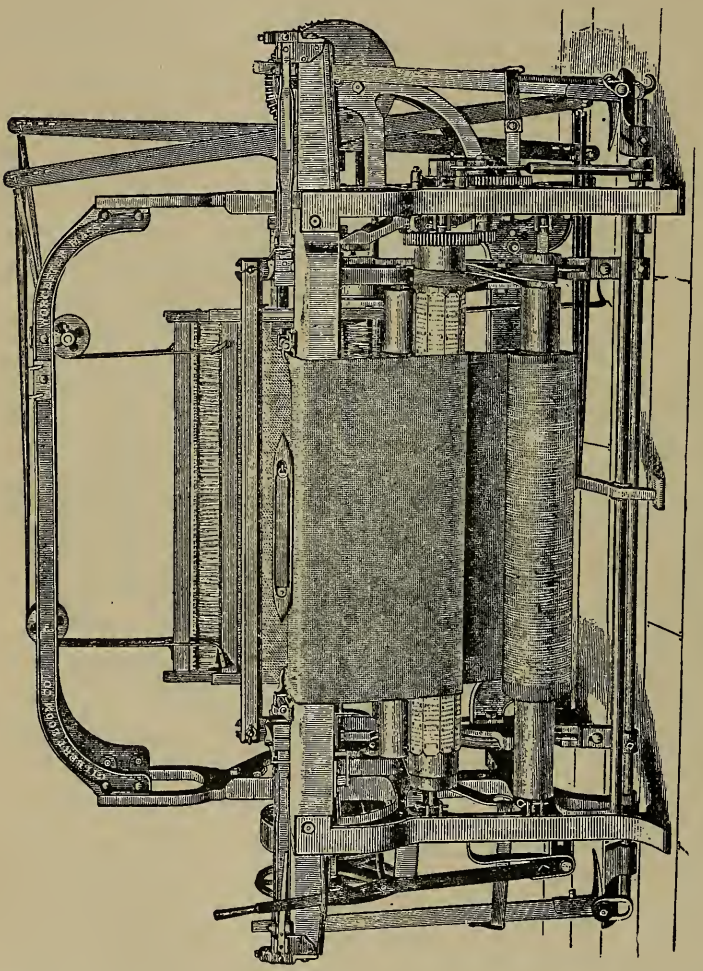
what may be the order of interweaving. If fine threads are used, the order of interweaving prevents the production of anything but a light weight cloth, hence for many purposes the weaving of *double* cloth is important. It permits the formation of a background of cotton or other material, with a surface of finest texture; and it affords great scope for the formation of colored patterns, allowing also the production of double-faced textures, which may or may not correspond in pattern on both sides, according to pleasure. It, moreover, increases the weight of woven fabrics, and is the basis of tubular weaving, such as is practiced in making hose, tubes, seam-



CARPET LOOM.

less bags, etc. There are three classes of double weaving: The first consists of double warp surfaces, with the weft in the center; in the second it is the reverse—a warp center and two weft surfaces; in the third case the cloth may consist of two distinct sets of warp and weft throughout, and practically be two separate cloths. These, if the weaver binds them together at the selvages, become woven tubes; or, if at regular intervals over the surface a warp or a weft thread passes from one side into the other, they are united as one solid cloth. Whenever double cloths are resorted to there is a destined object in view—to produce weight alone, or at a small

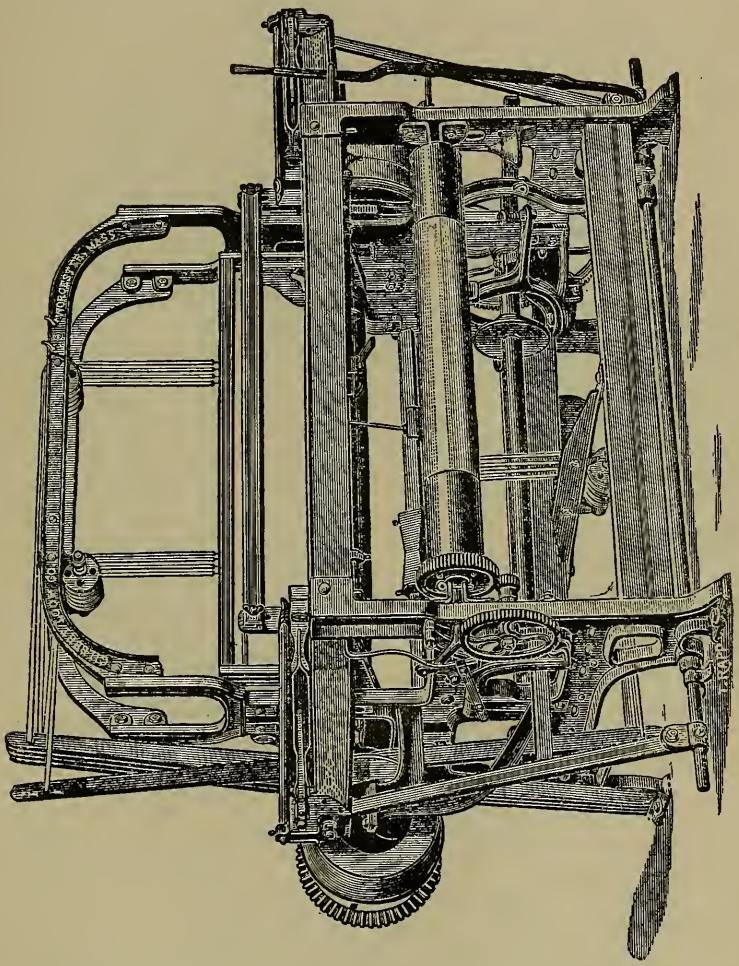
cost, to make a fine surface on a fabric of a given weight, to secure additional strength, warmth and wearing powers, or sometimes for the purpose of ornamentation solely, by causing the threads to exchange places and so form figures. In addition to double cloths pure and simple there are many



DOESKIN AND BROADCLOTH LOOM.

others known as "three-ply," "four-ply," etc., implying that the cloth is not merely a double, but a three or four-fold cloth. It does not always follow, though, that a three or four-ply cloth means that there are three or four

distinct fabrics woven together, though that may be so; there may be two perfect and complete cloths and filling between them, which is not in itself, strictly speaking, a complete cloth; or it may be that two double-faced cloths are combined, as is the case with some very thick, bulky cloths which are used for covering rollers and other purposes.

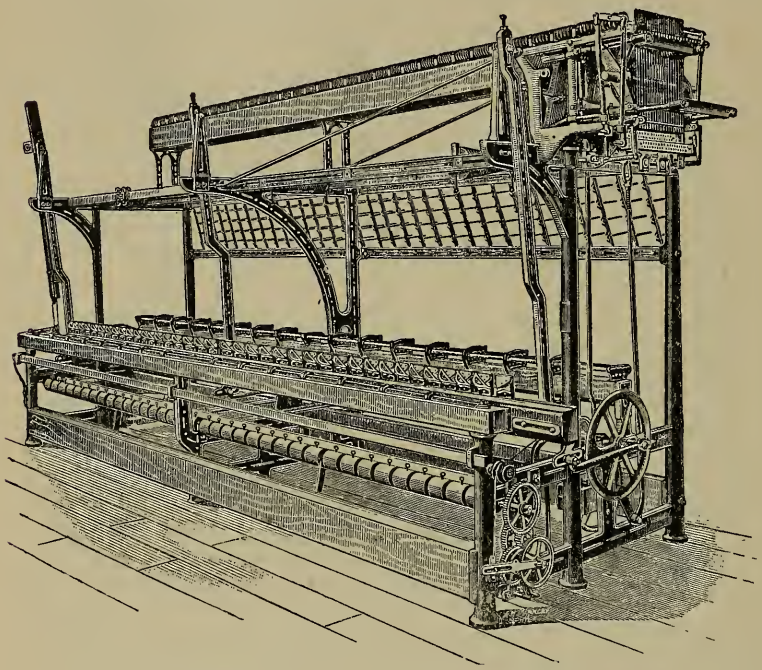


SATINETT AND FLANNEL LOOM.

Gauze Weaving.—Hitherto weaving methods have been dealt with in which the warp threads run parallel with each other, and are intersected at right angles by the weft. In gauze weaving, effects midway between

lace and plain cloth are produced, the warp threads being made to *intertwist* more or less among themselves, producing a light, elastic, open texture. Plain gauze is simply a plain, open weave, in which two contiguous threads of warp make a half twist around each other at every insertion of a weft, the fabric being in appearance similar to a knitted fabric.

Pile Weaving.—Pile fabrics are woven with a looped or otherwise raised surface—a class of cloth not frequently met with in cotton, but generally in the silk and carpet trades. "Looped" pile is descriptive of any fabric in which the woven loops remain uncut, as in Brussels and



RIBBON LOOM, 36 PIECE CAPACITY.

tapestry carpet, and in terry velvet and cloaking. When these loops are cut in the finished texture, then the material is a "cut" pile, such as ordinary velvet, plush, fustian, wilton and velvet carpet, etc. For weaving ordinary pile fabrics, two sets of warp threads are required, the regular beam warp and the pile warp. The foundation, or back, may be woven plain or twilled. In weaving the foundation, at every third pick a small round wire is partially woven into the cloth, the pile warp being brought *over* and around this wire, thus forming a row of loops across the web. If

a *looped* pile is desired it only remains to pull the wires out from behind and weave them in again in front, as the work proceeds. But if a *cut* pile is being made, then the loops must be cut along the top of the wires before slipping them out of the cloth. In some cases the wires are furnished with a knife-edge on the top side, and the loops are thus cut as the wires are withdrawn. The pile thus produced is afterward made uniform and level by shearing with a machine which in principle is very similar to a common lawn mower. This shearing operation was formerly accomplished by hand, with the use of narrow, pointed scissors, usually about two feet in length. By long practice the workmen became so skillful in wielding these that there is no perceptible difference in the appearance of the old hand work and the present machine sheared product. [See TERRY CLOTH, PILE FABRICS, VELVET, CARPET.]

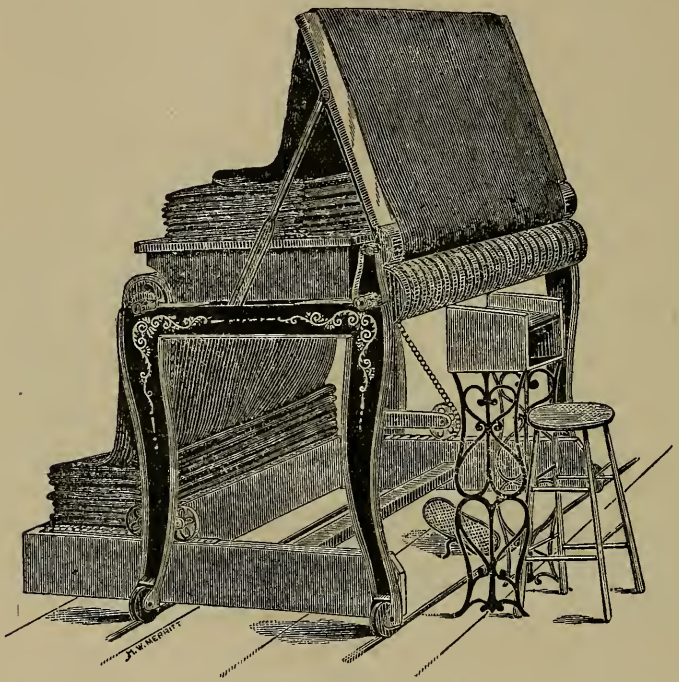
Cloth does not, as many imagine come from the loom in a finished state. If it is woolen cloth it has a bare, rough, fuzzy look, and is at this stage termed the *raw thread.* After leaving the loom it requires to be scoured and washed; burled—to remove any knots, burrs or imperfections; fulled; teasled and sheared; and boiled and scalded to impart a luster to it, and also to prevent spotting from rain. After this it is dyed (if not previously done in the yarn), and finally pressed between polished iron plates in a powerful hydraulic press, after which it is folded or rolled and is ready for shipment. When cotton cloth is taken from the loom, it has a surface covering of minute hairs or fuzz, which if allowed to remain would interfere with the uniform application of the printed colors, or dull the distinct appearance of the woven pattern. This surface fuzz is gotten rid of by the operation of singeing, by which the cloth is drawn over a red hot iron or copper bar, or through a series of gas jets. To accomplish this, the cloth is first brought into contact with roller brushes, which *raise* the fuzz on the surfaces, then it passes lightly over the white hot metal bar or through the gas jets, and is wound on to a roller. This process is repeated twice on the face of the cloth to be printed, and once on the back. When well singed, cotton cloth undergoes the operation of bleaching, and is thereafter calendered. [See TEASLING CALENDERING, BLEACHING, FULLING.]

The weaving of fabrics in our day of magic machinery is comparatively easy and inexpensive*, and an article well woven is already half sold; but under the present commercial system of placing mill products upon the market, the worst handicap on manufacturing enterprise is the heavy charge of commissions. The most studied economy at the mill is often defeated by the most elaborate extravagance outside. The cost of *selling* goods bears an enormous disproportion to the cost of *making* them.

*The bulk of the matters required for dyeing fabrics are also comparatively inexpensive. As is well known, aniline or coal tar colors are extracted from common soft coal. One pound of the latter will yield sufficient magenta to color 500 yards of flannel, enough vermillion for 2500 yards, aurine for 120 yards, and alizarin sufficient for 155 yards of Turkey red calico. [See ANILINE, ALIZARIN.]

There is a larger aggregation of capital engaged in the production of textile fabrics *than in any other* manufacturing industry in the United States. Of carpets we are the largest producers in the world, and in design, colors and quality, our goods are quite equal to anything made in Europe of competing grades. Of silk, we exceed in amount the product of England and Germany combined, and are second only to France.

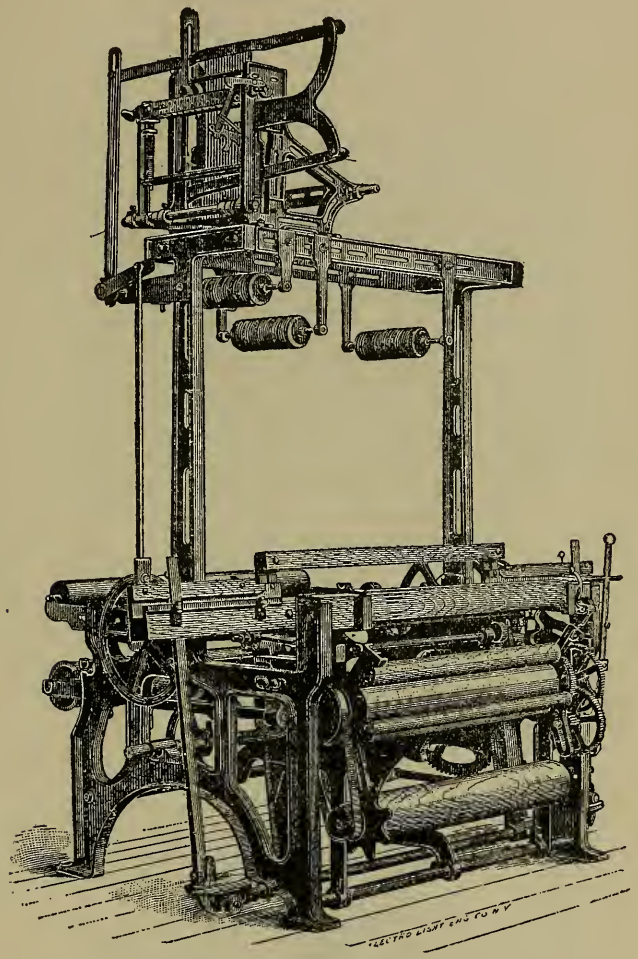
The erection of a modern cotton mill or woolen factory is on a far more comprehensive scale than in the early days of manufacturing. The



BURLING AND SPECKING MACHINE, FOR REMOVING BURRS, KNOTS AND SPECKS FROM THE FACE OF FABRICS.

new factories, covering large areas and constructed on the principle of good light, temperature and ventilation, are as widely different from the old style as the modern residence is from the homely cabin of the frontiersman. The old mills were almost wholly of a narrow type, while many of the textile establishments now erected vary from 100 to 125 feet in width, being necessary in many cases for the high stories characteristic of the present building age. Perhaps the most notable difference in the modern mill structure, is the unusual facilities for natural light. Light from com-

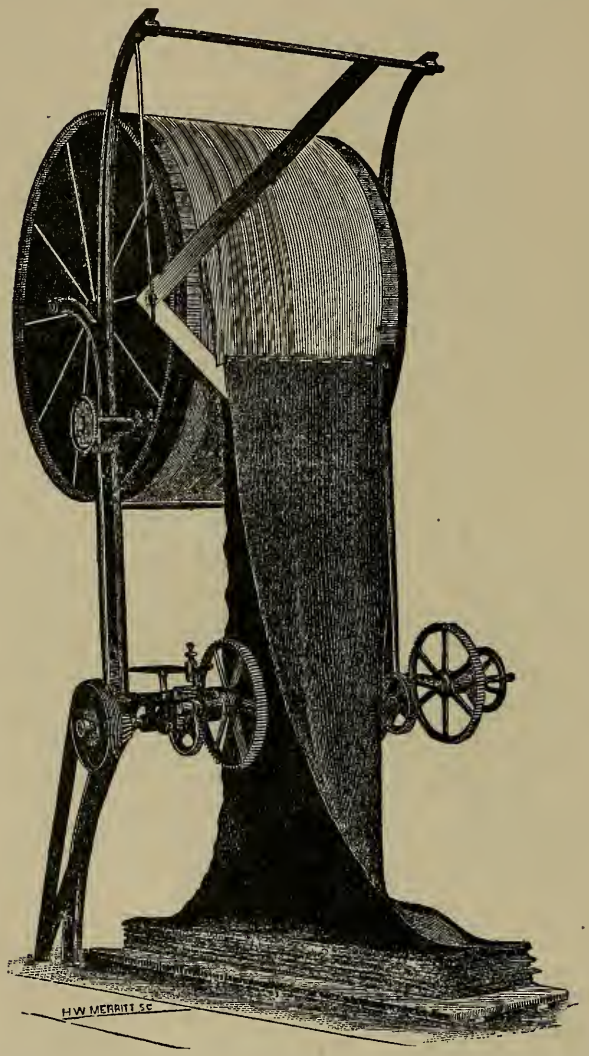
bustion is comparatively poor and costly. In many of the weaving departments of mills built years ago and poorly windowed, the constant use of gas or oil for lighting purposes so overheats the air that the ordinary oper-



LIGHT RUNNING SILK LOOM.

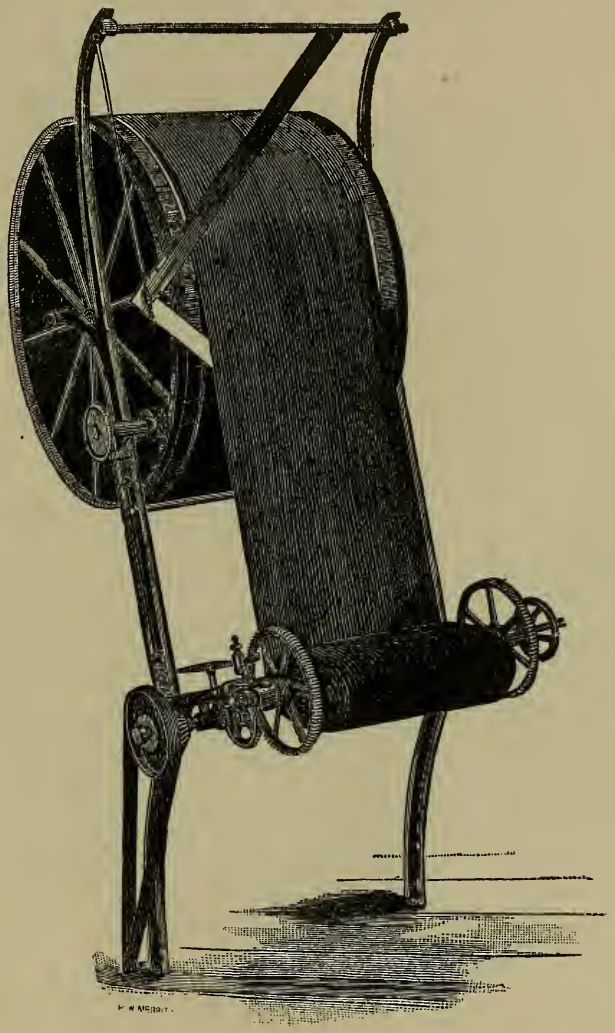
ator loses physical vigor. In a wide mill, with high stories, the windows must necessarily be large in order to secure good natural light, occupying at least 40 per cent. of the side walls, and leaving but little width of the

brick work between them. Added to the advantage obtained by high walls, mills nowadays are especially designed with the purpose of securing good sanitary conditions, entire mills being heated by means of a fan,



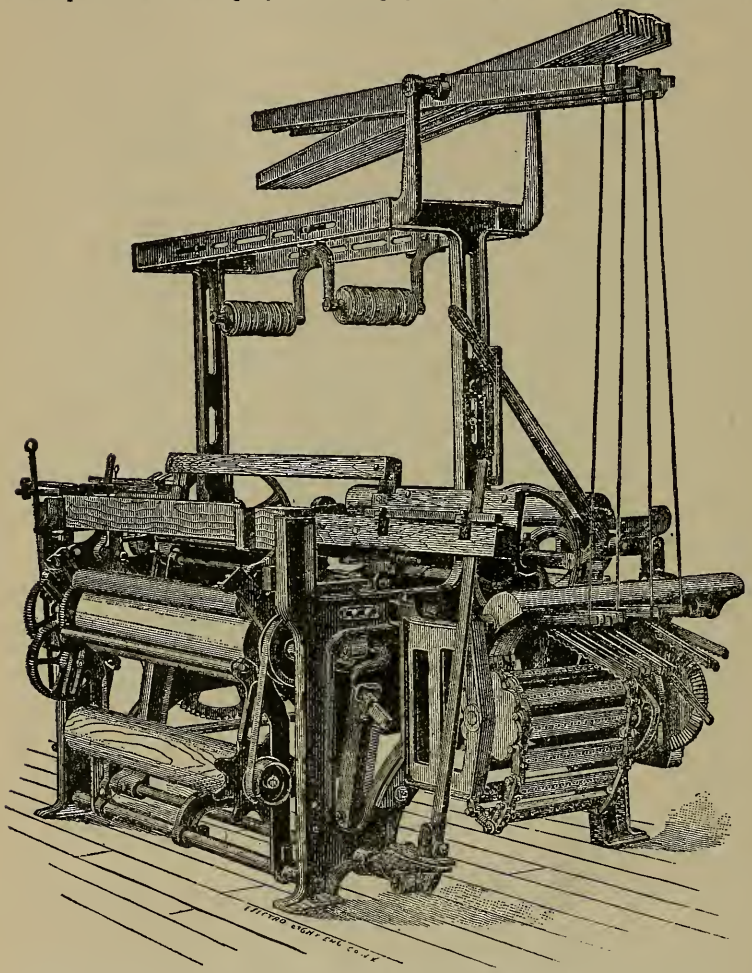
CREASING AND FOLDING MACHINE, CAPACITY, 600 YARDS OF 6-4 GOODS PER HOUR.

which sucks in fresh air that, passing through steam pipes, is blown through flues and distributed in all parts of the building. This system from a health standpoint is far superior to the old methods. The "Pacific"



WINDING MACHINE, CAPACITY, 600 YARDS OF 6-4 GOODS PER HOUR.

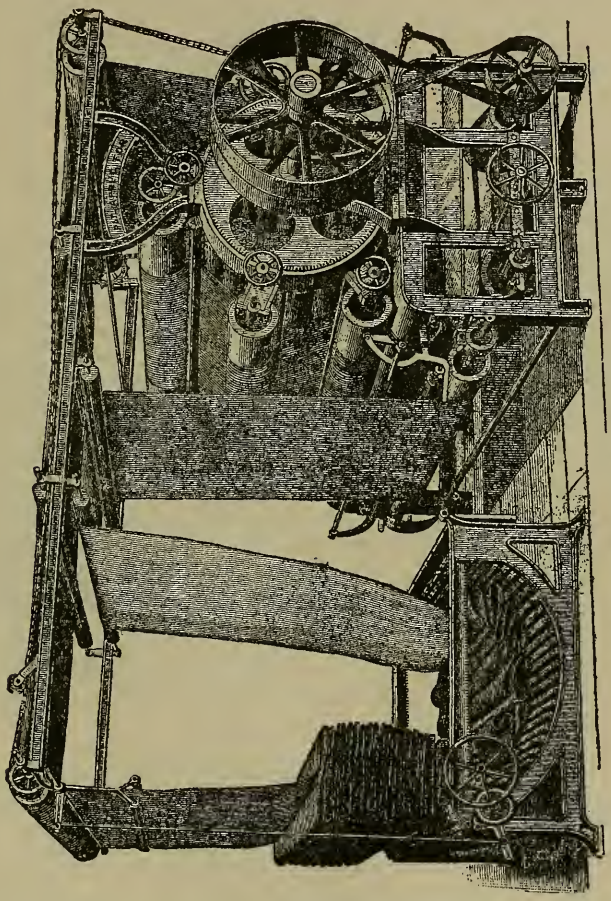
Mills, at Lawrence, Mass., cover with its walls fifty-four acres of flooring devoted to machinery—180,000 spindles for cotton and 25,000 for wool; 6,800 looms for weaving cottons and worsteds, and thirty printing machines; 6,000 operatives are employed, with a pay roll of $2,000,000 per anumn.



HIGH SPEED SILK LOOM, WITH CAPACITY FOR WEAVING GOODS IN WIDTHS OF 20 TO 60 INCHES.

The weaving industry of the United States offers perhaps as striking an illustration as any of the actual displacement of hand labor by machinery.

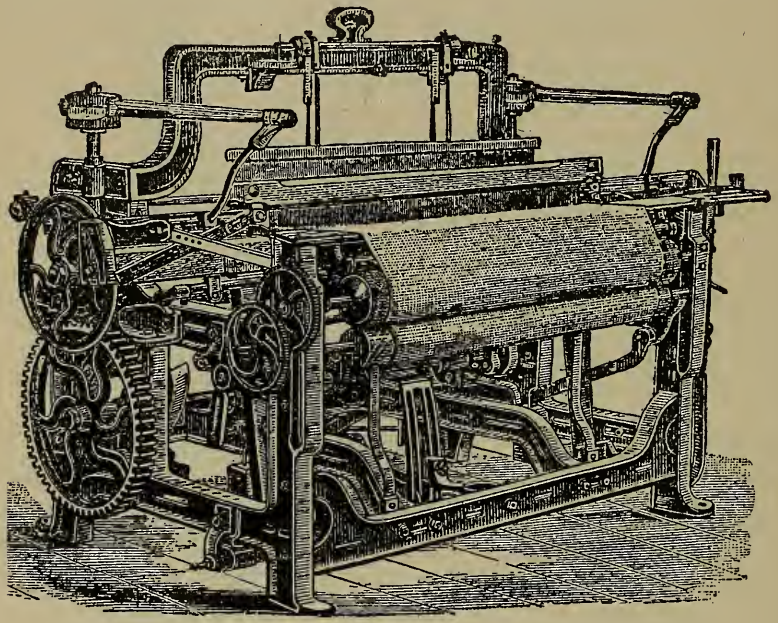
With a hand-loom, a weaver used to weave from sixty to eighty picks per minute in weaving muslin of good quality, with twenty threads of warp to each one-quarter square inch. A power-loom now weaves 180 picks per minute of the same kind of cloth. Formerly a weaver tended but one loom, now one weaver minds all the way from four to twelve power looms, ac-



A NAPPING MACHINE FOR WOOLEN GOODS.

cording to the grade of goods. While the cost of labor is somewhat higher now than it was formerly, yet the expense of weaving has been reduced by the greater productive power of the machinery. The weaving of print-cloth twenty-eight inches wide and seven yards to the pound, now costs less than one cent per yard. The cost of weaving muslins and sheetings thirty to

thirty-six inches wide and weighing three to four yards to the pound is from one and one-half to two cents per yard. The cost of weaving heavy muslin thirty-six inches wide, and the heavy drill thirty inches wide, each weighing from two and three-fourths to three yards to the pound is about one and one-fourth cents per yard. To weave the finest sheeting and muslins the cost is two to three cents per yard. This is the cost of the mill labor in weaving these fabrics, including wages and salaries of every one employed, but does not include the cost of the raw material, nor the processes of bleaching, printing or dyeing. [See FACTORY, SILK.]



FANCY COTTON LOOM.

Weft. The woof or filling of cloth. The threads that cross the warp from selvage to selvage.

Whalebone. The inaccurate term applied to the horny blades which take the place of teeth in the mouths of balæna whales. These blades are from three to twelve and fifteen feet long, and serve the purpose of retaining the small fishes which compose its food. It is said from 250 to 300 of these plates or bones are found in the mouth of a full-grown whale, and that they weigh nearly a ton. Whalebone is not *bone*, but bears a strong resemblance to the horns of cattle and the nails and hair of other animals. In preparing the raw blades for commercial purposes, they are first boiled

in water for several hours, until soft enough to cut easily with a knife. The workmen then cuts them into different lengths and thicknesses, after which they are dyed black. Whales furnishing the right quality of whalebone have become very scarce of late years, owing to the steady annual slaughter which has been kept up since 1854. The catch of whalebone by our whaling vessels for the year 1854 was 3,445,200 lbs; 1860, 1,337,650 lbs; 1870, 708,000 lbs; 1880, 454,028 lbs; 1891, 309,710 lbs. The average price of whalebone in the raw state for the year 1854 was 34 cents per pound; 1860, 55 cents per pound; 1870, 85 cents per pound; 1880, $2 per pound; 1890, $4.22 per pound; 1892, $5.50 per pound. These figures show that the supply is rapidly diminishing, and that the use of whalebone for the many purposes where it is now considered indispensable must soon be a thing of the past. The entire product could be consumed many times over, for any one of the uses for which it is particularly adapted. Prices being out of all reason, the corset and dressmaking trades have been obliged to cast around for substitutes which would answer the purpose as a stiffener for dress waists and corsets. French horn has been utilized to a moderate degree, but its high cost has limited its general use. Coraline is another article which is largely used. Watchspring steel for dress stays has probably received as general recognition as anything, and is to-day doubtless the leader for such uses. The material known as featherbone is also used to a large extent. It is conceded, however, that nothing has yet been produced which answers all purposes as well as the old reliable whalebone.

Whipcord. A style of weaving in which large rounded cords extending the full length of the fabric, form the pattern; found only in men's suitings and dress fabrics. The whipcord weave originally was used exclusively in riding-breeches, being an imitation of corduroy; subsequently it was used for riding-trousers, and when the regulation trouserings became so trite in design as to be virtually a repetition of what had been frequently seen among the staples, some New York swell ordered a suit of whipcord. It found immediate favor as a suiting fabric, and very shortly came to be copied in ladies' woolen dress fabrics.

Widow's Weeds. "Weeds" signifies a garment, or a dress. The term is now almost obsolete, save in its retention to describe the mourning dress of a widow. The custom for widows to wear a peculiar style of cap is of Roman origin, and the wearing of some sort of weeds was compulsory for ten months. The term "weeds" first began to be used during the middle ages to signify an entire dress.

Wigan. A very coarse and heavy sized cotton cloth, used for lining the bottom of ladies' dresses, in order to make them keep the shape desired. Wigan was the cloth upon which was formerly fixed the hair of a wig, or periwig, being stiffened so that it would fit the head in a comfortable and proper manner.

Woad. A plant formerly cultivated for the blue coloring matter de-

rived from its leaves, but is now used only with indigo as a ferment in the vat. It is inferior to the coloring matter derived from indigo, the latter having entirely superseded it for dyeing purposes.

Wool. A form of hair distinguished by its soft and wavy or curly structure, and by its highly serrated or scaly surface. It would be idle to attempt to determine the vexed question of precedence between wool and flax, or to attempt to determine whether the honor of first manufacturing wool belongs to the Greeks or Egyptians, for both of which nations it has been claimed. It is sufficient to know that wool has been in use for clothing from a prehistoric period, for wherever traces of man are found, there we are almost sure to find the remains of sheep. Among the interesting relics of the lake-dwellers have been found fragments of woven woolen cloth, and the barrows of the early Britons have likewise contained bodies wrapped in woolen cloths, the cloth frequently not being woven but simply plaited. Throughout the history of Greece and Rome the culture of sheep was second to no other occupation in importance, and was mixed up with their religion, their commerce, and indeed with all the relations of their life. From this time downwards until the rise of the cotton manufacture, wool formed the principal staple in the commerce of the world, and contributed prosperity and splendor to unnumbered nations and cities. Next to cotton, wool is the most important of textile fibers, and from the earliest dawn of human history has formed a striking feature in the condition of mankind. Owing to the ease with which it may be made into thread, and to the comfort derived from clothing of woolen texture, it would naturally be one of the very first textiles used by man as a covering to shield him from the elements. The testimony of all ancient records goes to prove the high antiquity of woolen textures and the early importance of sheep. While sheep are by far the most important producers of wool, they are, however, not the only animals which yield wool employed for industrial purposes. The alpaca, the llama, the Angora goat, and the camel are all wool-producers; while the Cashmere goat of the Himalayan mountains yields the most costly wool in the world. At what point it can be said that an animal fiber ceases to be hair and becomes wool, it is impossible to determine, because in every characteristic the one class by imperceptible gradations merges into the other, so that a continuous chain can be formed from the finest and softest merino to the rigid bristles of the wild boar.

As has already been indicated, the distinction between wool and hair lies chiefly in the great fineness, softness and waved delicacy of woolen fiber, combined with a highly serrated surface. Upon these minute points of difference the value of wool in a great measure depends, especially with regard to the variety of its applications. If each fiber were straight and smooth, as in the case of hair, it would not retain the twisted state given to it by spinning, but would rapidly *untwist* when relieved from the force of the spinning-wheel; but the *wavy* condition causes the fibers to become entangled with each other, and the little projecting points of the scales hook

into each other and hold the fibers in close contact. Moreover, the deeper these scales fit into one another the closer becomes the structure of the thread, and consequently of the cloth made of it. This peculiarity also gives to wool the quality of *felting*. [See FELTING, BROADCLOTH.] These scales or serrations are most numerous, acute and pointed in fine wools, as many as 2,800 per inch having been counted in specimens of the finest Saxony wool. In Leicester wool, which is long and bright, the scales are fewer in number, counting about 1800, and are also less pronounced in character, the fiber presenting a smoother and less wavy appearance. In inferior wools the serrations fall as low as 500 per inch. A similar difference may be noted in the *fineness* of the fibers: Saxony lamb's wool has a diameter of from 1–1500 to 1–1800 of an inch, while Texas "coarse" may rise to a diameter of 1–275 of an inch. In length of staple wool also varies greatly, attaining in "combing" wools a length of 15 to 20 inches. As a rule the fine felting wools are short in staple, these constituting the "carding" or "woolen" yarn wools. The longer are lustrous and comparatively straight, thus being more suitable for "combing" or "worsted" wools. The latter approach mohair and alpaca in their characters, being spun and prepared by the same machinery.

It becomes necessary here to indicate the specific difference between *worsted* and *woolen* yarns and cloths. In a general way it may be said that woolen yarns are those made from short wools possessed of high felting qualities, which are prepared by a process of carding, in which the fibers are as far as possible crossed and interlaced with each other, forming a sort of light, fluffy yarn, which suits the material when woven into cloth for being brought into the semi-felted condition, by fulling, which is the distinguishing characteristic of woolen cloth. On the other hand, worsted yarns are generally made from the long and lustrous varieties of wool, the fibers, instead of being carded, are so *combed* as to bring them as far as possilbe to lie parallel to each other, the yarn being spun into a compact, smooth, and level thread, which when woven into cloth is not fulled or felted. Worsted yarn requires to be harder twisted, because the fibers have not the felting qualities of the woolen, and hence would be liable to untwist and not wear well. The surface of a woolen fabric is soft, oily, and pleasant to the touch, but a worsted surface is hard and slippery, and is therefore unpleasant in feeling. Each has its merits and defects. The felting quality of woolens causes the fabric to to draw together or shrink when wet, a defect which can only be overcome by special care in washing, which is seldom possible to command. A worsted fabric is much less affected by water, because the structure of its fibers precludes much drawing together. At all points, however, woolen and worsted yarns as thus defined cut into each other to some extent—some woolens being made from longer wool than some worsteds and vice versa; while fulling or felting is a process done in all degrees, from a very little to a great deal, woolens sometimes not being at all

fulled, while to some worsteds a felted finish is given. The fundamental distinction between the two rests in the crossing and interlacing of the fibers in preparing woolen yarn while for worsted yarn the fibers are treated by processes designed to bring them into a smooth, parallel relationship to each other. Broadcloth, doeskin, cassimere, kersey, cheviot, frieze, etc., are representatives of the woolen class; while corkscrew, diagonal, serge, rep, etc., represent a few of the worsted class. Hosiery forms a class apart, as do also the wools used in the manufacture of carpets, shawls, alpaca and mohair textures. The range of woolen and worsted manufacture is very wide, the raw material for one class not being at all suitable or fitted for the other. Much more than in the case of any other textile industry, we have in the wool trade practically a series of separate and distinct industries, each with a different class of raw wool. The main distinctions are (1) *carding wools*, in which felting qualities are desirable; (2) *combing wools*, requiring length of staple and brightness of fiber, for making hard-spun, non-felting worsteds; and (3) *carpet and knitting* wools, in which a long and strong and somewhat coarse staple is the essential quality. The wool market is supplied from almost every quarter of the globe, the qualities and varieties being numerous. The world's production for the year 1891 is given as follows:

	POUNDS.
Europe:	
Russia	291,500,000
Great Britain and Ireland	147,475,000
France	124,803,000
Spain	66,138,000
Germany	54,894,000
Hungary	43,146,000
Italy	21,385,000
Austria	11,155,000
Portugal	10,362,000
Belgium	4,409,000
Sweden	3,307,000
All other Europe	8,818,000
Total Europe	787,392,000
North America:	
United States	307,100,000
British North American Provinces	12,000,000
South America:	
Argentine Republic	376,700,000
Brazil	1,875,000
Peru	6,700,000
Uruguay	42,000,000
Australasia	550,000,000
Asia:	
British East Indies	72,000,000
Russia	66,000,000
Afghanistan, Beluchistan and Thibet exports to India	12,200,000
Sivas } Asiatic Turkey Syria }	8,300,000

	POUNDS.
Asia:	
Mesopotamia	31,555,000
Persia (exports to India)	3,470,000
Africa:	
Cape Colony } Natal }	128,681,600
Egypt	2,800,000
All other countries	48,000,000
Total production of the world	2,456,733,600

The consumption of wool in Europe and North America for 1891 is estimated at 1,944,000,000 pounds. Of this stupendous amount, England used 487,000,000 pounds and North America 456,000,000 pounds. In 1880 the capital invested in the wool manufacture in the United States was $159,000,000; in 1890 it was $320,000,000. During the ten years the cost of wool, etc., used, rose from $164,000,000 to $203,000,000, and the value of the products from $267,000,000 to $338,000,000. The greatest wool market in the United States is Boston, with Philadelphia a good second. The centers of the manufacturing industry are New England, Pennsylvania, New York and New Jersey. In the value of products Pennsylvania leads all the states, its figures for 1890 being $89,000,000; Massachusetts comes next with $72,000,000, and then New York with $53,000,000.

Wool comes into the mill dirty, greasy, burry, sometimes washed by the farmer, but generally just as it is sheared from the sheep, a filthy and unwholesome thing, giving little sign of the beautiful, flossy substance into which it is soon converted. It must be first sorted, each fleece containing from six to eight qualities, which the careful manufacturer separates, devoting each quality for the purpose to which it is best suited. This operation of sorting is one of the most important about a woolen mill. No skill in carding, spinning, weaving, or finishing can possibly produce a soft or fine piece of goods from coarse, hard fiber. When woolen thread is to be spun to the length of 15,360 yards to the pound, or in the case of worsted thread to twice that number of yards to a pound, everything depends upon care in the selection of the fleece and in the sorting. The operation is very far removed from being a mere mechanical process of selecting and separating the wool from certain regions of the fleece, because in each individual fleece qualities and proportions differ, and it is only by long years of experience that a sorter is enabled, almost as it were by instinct, rightly to divide up his lots by minute gradations, in order to produce even qualities of raw material. These sorts are impregnated with a greasy substance called the yolk or suint, caused by the animal secretions and the perspiration of the skin, which must be completely eradicated. The elimination of the yolk, dirt and foreign substances common to all wool results in a shrinkage of from 50 to 70 per cent. After scouring, the wool has to be burred and oiled before it is in a condition to be carded. *Woolen yarns* are exclusively made by the process of carding. The object of this operation is to separate and equally distribute a mass of wool into a long, continuous, uniform lap. To prepare

it for spinning, this lap must now be divided into a series of equal strips, and these in turn condensed sufficiently compact to bear winding on a bobbin. The mule-frame is employed for spinning woolen yarns, being the same in principle as the spinning-mule used for fine counts of cotton yarn. [See SPINNING.] Yarn as delivered from the mule in woolen spinning (or from the throstle in case of worsteds), is in the condition known as singles. For twisting the singles into yarn of two or more ply it is wound from two or three bobbins onto one. The twist is given in the reverse direction from that in which the singles are spun, and thereby the single is to some extent untwisted. Yarn of two, three, and five-ply, and upwards, are made. Sometimes different sizes of yarn are twisted together; and yet again, as is often the case, yarns may be made of different fibers, such as wool and cotton, or wool and silk, etc. Numerous variations of the method of twisting are employed to produce loops, knots, and other irregularities in yarn, for convenience in weaving fancy textures.

Worsted yarn, as has been explained, is made from long wool fibers brought as far as possible into a level parallel condition. The first operation consists in forming a long uniform sliver, somewhat similar to the lap of carded cotton, except that the fibers lie more nearly parallel and not crossed and mixed as in the latter. The sliver as delivered from the combing machine, is then subjected to the operation of drawing, the purpose of which is still further to equalize the strand of fiber, and to bring it into a sufficiently attenuated form for spinning. The principle of the drawing consists in running the sliver to a pair of rollers, which pass it on to a pair which revolve somewhat faster than the first, and to that extent draw out the sliver to smaller and finer proportions. Supposing the wool to pass through 6 such drawing frames, 6 slivers may be fed into the first and drawn out to to the dimensions of 1; the same may be repeated in the second; 5 slivers may be reduced to 1 in the third, 4 to 1 in the fourth and fifth frames; and in the roving frame, in which a little twist is given to the sliver before it is wound on the bobbin 2 slivers may be elongated into 1. Thus we have any length of sliver drawn out $6\times6\times5\times4\times4\times2=5{,}760$ times its original length. Treating the slivers in 9 drawing frames, we may have $8\times6\times5\times5\times5\times4\times3\times2\times2=288{,}000$ of extension. The bobbins of elongated and slightly twisted yarn is now ready for spinning on the throstle spinning frame, on which it is simultaneously drawn out to its ultimate length, twisted and wound on a bobbin. The doubling and subsequent treatment of worsted singles are the same as in the case of woolen yarn singles from the mule frame. [See SPINNING.]

The bleaching of wool fiber by "sulphuring" is applied to yarns and woolen goods only when they are intended to be finished white or light bright colors. The method of "sulphuring" is to expose the goods in a closed room to the vapor of burning sulphur. The goods are hung on poles and when the room is full, a quantity of sulphur placed in very flat and broad dishes is allowed to burn away gradually on the floor of the room, every

aperture by which the vapor can escape being closed tight, so that it may permeate into every crevice of the goods. After exposure to this sulphurous acid vapor from six to twenty-four hours the goods are removed; and if to be finished a clear white, they are run through a bath containing some indigo carmine, which increases the brilliancy of the white. When they are to be dyed, they are treated with dilute sulphuric acid, thoroughly washed and dried.

The bleaching of wool is not so complete as the bleaching of cotton or linen, by chlorine. In the case of cottons and linens the color is completely *destroyed*, but in wool the sulphur merely combines with the coloring matter of the fiber, and produces a colorless compound, from which the original color can again be revived, either by soaking the goods in a dilute acid or a dilute alkali, such as soda. Hence it is that new woolen cloth or garments, such as flannel, blankets and underclothing, though almost colorless when bought, yet after being washed several times, return to their natural yellow; for the washing soda used, or the soap which contains potash or soda, destroys the colorless compound produced by the sulphuring process and revives again the original color.

It is roughly estimated that the world contains at least 600,000,000 sheep, producing about 2,000,000,000 pounds of wool annually and contributing in wool to the wealth of mankind every year about $300,000,000. More than a hundred million sheep roam the vast plains of Australia. As many more are in the Argentine Republic and Uruguay. Sheep were first introduced into this country at Jamestown, Virginia in 1609, and in 1638 the animals were first brought to Boston. Ten years later a fulling mill was erected at Rowler, close by Boston, where first was begun cloth-making in the Western world. These first importations soon increased into considerable flocks, and America was well provided with sheep in 1801, the year in which the first Merinos were brought to this country. Merino sheep were for a time highly popular, and were imported in large numbers, more than 15,000 being brought over in 1810–11. [See Merino.] The principal breeds of sheep now raised in the United States, are the (so-called) Natives, the Spanish and the Saxon Merinos, the New Leicester, the Southdown, the Cotswold, the Cheviot and the Lincoln. Taken altogether there are in the neighborhood of 50,000,000 sheep within the confines of the United States. What are known as the Saxon Merinos originated from a flock of 200 Spanish sheep imported to Saxony in 1765. They were bred with great care, and improved over the original quality of wool. The celebrated Ercildoune sheep, whose wool has taken the gold medal at all the international European exhibitions for thirty years, are descendants from the Saxon Merinos which were transplanted to Tasmania in the early part of this century. By skillful crossing and selecting, and the rich pasturage afforded on the island of Tasmania, a large improvement has been made in the size of these sheep and in the quantity and quality of the fleece. The wool is clean, soft, elastic and carries a beauti-

ful luster. It is bought by silk manufacturers to mix with silk and as a combing wool for the best fancy dress goods is unsurpassed. It can be used for pure white goods or dyed the most delicate shades, and is unequalled for the finest billiard or broadcloth. Ewes of the Ercildoune stock are valued at $1,000 to $1,200 each. The finest and most valuable wool used in worsted manufactures is English luster wool, produced in Nottingham, Lincoln and Shropshire counties in England. [See MOHAIR.] This lustrous wool is not only of very fine grades, but of very light shrinkage, only about twenty per cent. It costs the American manufacturer under the present duty rates, thirty-seven cents per pound. *Pulled wool* is the name that is given to the wool that is pulled from the skin of a slaughtered animal. Factories are almost entirely dependent for wools of this description on our own production, as the importation is very small. Formerly the major part of pulled wool was produced in the East, but since sheep began to be slaughtered in the West, instead of being shipped alive, the industry has rapidly declined in all eastern cities. Armour and Swift, of Chicago, pull about 8,000 skins a day, the wool from which is nearly entirely consumed by the factories of the Middle States.

Wool is distinguished from cotton, flax, and hemp by dipping the sample in a boiling solution of caustic soda (eight degress B). Let it remain for two hours at a steady boil and all the wool will be dissolved, leaving the vegetable fiber unchanged. For further tests see SILK, LINEN, FIBER.

Woolens. There are two great classes of manufacturers in this country each employed in using the same raw material—the fiber from sheep; still they are in many respects unlike each other. The products of the factories in which *carded* wool is employed are termed "woolen" fabrics; those in which *combed* wool is used are termed "worsted" fabrics. The fundamental distinction between the two classes of the fabrics is the way the yarn for each is spun. Yarn for woolen cloth is very slightly twisted, so as to leave the fibers as free as possible for the fulling process, and the fibers are crossed and interlocked in every direction. Worsted, on the the other hand, is fiber prepared by combing, and requires the long hairs to be laid parallel with each other, being hard spun and made into a much stronger thread, thereby producing a yarn quite unlike the woolen yarns. Names are given to various kinds of woolen cloths according to the way they are finished, the special material of which they are made, and the purposes for which they are intended. Broadcloth, melton, kersey, cassimere, tweed, ladies' cloth, flannel, blankets, cheviot, and doeskin are representative woolens. In order to illustrate the difference between a worsted and a woolen fabric of exactly the same *weave*, compare the character and properties of a fine doeskin with those of a fine corkscrew worsted: the qualities of luster, softness of handle, and fineness of texture are common to both these fabrics; but however carefully the doeskin may be examined, the crossings of the warp and weft will be found to be completely hid from

view, causing the cloth to appear more like the result of felting wool than of interlacing individual threads of warp and weft with each other. On taking up the corkscrew worsted, although the threads may not be followed without the aid of a magnifying glass, yet it is clear to the casual examiner that its leading feature (the "corkscrew") is obtained by the mode of interlacing the threads. This leads to an important conclusion, namely, that the soft, pliable and mellow condition, or rather structure, of a woolen thread make it capable of taking a different finish to that of worsted, while the latter is more suitable to fabrics where the *weave* is intended to be the most prominent feature of the pattern. The well defined surface of the worsted thread fully develops the effect of *woven pattern*, and hence the larger variety to weave effects seen in the worsted fabrics for both ladies' and gentlemen's wear. The soft and pliable nature of woolen yarns fit them especially for napping, or in which the *finish* is to form the main feature of the completed fabric.

Worsteds. In the 15th century the production of woolen fabrics was a source of great wealth to many towns in eastern England, each town usually striving to excel in some special line or grade of woolen material. A sort of woolen yarn took took its name from *Worstead*, in Norfolk county, where it was first made. This yarn had a closer and harder twist than any woolen thread then made, and could be woven into cloth of special fineness. For 400 years this yarn has retained its identity, possessing now the same distinctive features as then. "Worsted" yarn, as explained under the head of WOOL, is spun in a different way from "woolen" yarn. Throughout the process of worsted yarn manufacture, the fibers of which it is composed are mechanically arranged according to one regular order of parallelism, producing by this method a more symmetrical thread than the pure woolen, in which the fibers project from the main body of the yarn on all points of its circumference. In the former the fibers of wool are *combed* but as near straight as possible; in the latter the wool is *carded*, and the fibers are short and crossed in every direction, so as to assist in the fulling of the cloth after it is woven. Those cloths manufactured from worsted yarns which are figured, are woven in various kinds of looms, but in the main by the Jacquard. Plain kinds are woven in looms similar to those used for woolens. When worsted fabrics leave the loom they require only a slight dressing, and in this respect differ much from woolen cloths, which require elaborate finishing processes. [See TEASLING, FULLING.] Manufacturers of worsted (in its widest signification,) are classified according to the materials of which they are composed, viz: (1) Fabrics composed entirely of wool; (2) fabrics composed of wool and cotton; (3) fabrics composed of wool and silk; (4) fabrics composed of alpaca and mohair, or the same mixed with cotton or silk. The *first* of these classes includes the fabrics so well known under the head of merinos, serges, bunting, reps, and a large proportion of the heavier fabrics used in men's clothing, notably all those in which the weave effect forms the most prominent feature of the

pattern. The *second* class includes many names used in the all-wool class, with the prefix of the word "union;" also vestings, linings, boot and shoe cloths, toilinette, valentia, etc. The *third* class includes the rich poplins made chiefly at Dublin, paramatta or Henrietta cloth, pongee, bombazine and tammy cloths. The *fourth* class includes alpaca and mohair mixtures, lusters, alpaca poplins, braids and laces.

The unique structure of worsted yarn makes it invaluable in the production of textile fabrics. Luster and uniformity of surface are its distinguishing characteristics. The method on which it is formed causes it to be capable of sustaining more tension, in proportion to size and thickness, than the pure woolen yarn; this characteristic, combined with its lustrous quality, gives it a pre-eminent position in the manufacture of fine coating. There is no other textile thread so highly adapted as the worsted to this important branch of weaving, inasmuch as a finer cloth, possessing a brighter and clearer surface is without doubt producible with worsted than woolen yarn. The method of adjusting the fibers in the formation of woolen yarn is such as to produce a thread with a somewhat indefinite and fibrous surface, which neutralizes the character of the *weave*, or destroys to a certain degree the pattern-effect in woven goods, due to crossing the warp and weft at right angles with each other. As the fibers are prepared on a different system in worsted yarn construction, a class of weave ornamentation of a decided or marked type may be obtained by employing this kind of thread. There is, in a word, more scope for pattern-production, for the level and regular structure of worsted imparts a distinctness to every section of a pattern; and from this peculiarity arises the great variety of effects seen in worsted trouserings, coatings, and dress fabrics, both in highly colored patterns and in piece-dyed fabrics of one shade throughout. The advantages which the worsted possesses over the woolen thread may be summed up as two-fold: (1) a smarter texture, that is, a clearer surface; and (2), a more definitely-pronounced weave effect. As to the carded thread (woolen), it is more suitable for cloths in which the colorings of the pattern require to be well blended, the texture fibrous, or the fabric well fulled; as, for example, fancy tweeds, cheviots, overcoatings, doeskins, meltons, kerseys, beavers and napped goods.

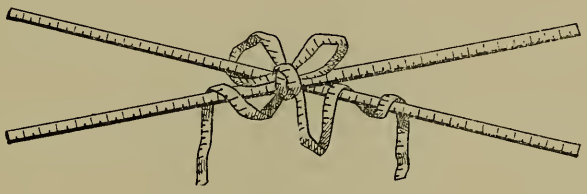
Y

Yacht-cloth (yot cloth). An all-wool fabric, twilled like serge, and finished with a rough surface, usually employed in the manufacture of men's summer suits. It is heavier than ordinary serge and piece-dyed in shades of dark blue.

Yachting Caps (yotting caps). A cloth cap designed for ladies' and children's summer wear, the most characteristic style of which is distinguished by a small peak and a full drooping crown.

Yard. An English measure of 3 feet or 36 inches. How this particular measure came to be first established in England is uncertain, but it has so intimate a relationship to the standards employed by the ancient Egyptians and Hebrews that authorities consider that it may not improbably be traced to these ancient units. The present standard has been scientifically fixed by the United States government to the one-millionth part of an inch. [See MEASURES, METRIC SYSTEM.]

Yarn. Any textile fiber prepared by the process of spinning for being woven into cloth ; also, the term applied to woolen fiber prepared for hand knitting. All the yarns used for weaving purposes, whether made on "woolen," "worsted," or cotton systems, may be divided into two great classes, namely: *crossband* and *openband* twists. The origin of this classification is derived from the twisting process. There are, as a simple experiment will show, two distinct methods of imparting twist to the attenuated sliver of the condenser. Suppose, for example, that a number of threads are about to be twisted together by hand ; in order to accomplish this, one end of the threads might be held in a fixed position between the forefinger and thumb of the left hand, while the right hand could be engaged in imparting twist to the fibers, causing them to twine around each other from left to right, and forming, by so doing, what would be an *openband* thread. To produce the opposite kind of a twist, called *crossband*, it would only be necessary to reverse the motion of the right hand, and thus cause the fibers ,during the imparting of the twist to the sliver, to revolve from right to left. In making this or a similar experiment, the left hand corresponds to the wooden frame, which was in Hargraves' machine, substituted for the hands of the spinner, or to giving-off rollers of the spinning frame in present use; for these grip the thick thread, while the spindles give the necessary twist in the direction they revolve, like the motions of the right hand. Yarn always loses a portion of its length in twisting, the loss being proportionate to the thickness of the yarn, and the hardness of the twist. If two bobbins containing the same *counts* are twisted together, the count will become half of what it was before [See THREAD], just as the weight will be double. In bleaching, cotton yarns also lose a part of their weight, amounting to about 12 per cent. By dyeing, on the contrary, they acquire additional weight, sometimes as much as 15 per cent. [See HANK, FACTORY.]



APPENDIX "A."

LENGTH AND RANGE OF "SIZES."

The garments for the various parts of the human body, together with numerous articles of dry goods devoted to the use of the same, are differentiated into "sizes" according to the necessities of the parts and the nature of the materials used. The table below indicates the size-figures and what they mean:

	LENGTH OF SIZE. (inches)	RANGE OF SIZES.	WHERE MEASURED.
Bolster	.....	42x63½	42x67½, 42x72, 42x76½, 45x63½, 45x67½, 45x72½, 45x76½,
Boys' suits	.....	4 to 18	years of age.
Buttons	$\frac{1}{40}$	8 to 70	diameter.
Caps, men's	⅛	6¾ to 8	mean horizontal diameter of the head.
Caps, boys'	⅛	6 to 7	mean horizontal diameter of the head.
Cardigan	2	1 to 7 or 34 to 46	around chest.
Coat, man's	1	34 to 50	around chest.
Cloak, lady's	1	32 to 44	around bust.
Cloak, miss'	1	4 to 18	years of age.
Collar, man's	½	14 to 20	length.
Collar, boy's	½	12 to 14	length.
Comfort	2	60x72 to 78x84	width and length.
Corset	1	16 to 30	around waist.
Cuffs, men's	½	9 to 12	length.
Cuffs, boys'	½	8 to 9	length.
Drawers, men's	2	28 to 44	around waist.
Drawers, ladies'	2	26 to 40	around waist.
Gloves, men's	¼	6¾ to 11	palm of hand.
Gloves, cadet	¼	5½ to 7¼	palm of hand.
Gloves, ladies'	¼	6 to 8	palm of hand.
Gloves, misses'	¼	5¼ to 6½	palm of hand.

	LENGTH OF SIZE. (inches).	RANGE OF SIZE.	WHERE MEASURED.
Gloves, fabric...	½ to 1	7 to 10	arbitrary basis.
Handkerchief...	1	12x12 to 27x27	length and breath.
Hose, men's.....	½	9 to 12	length of foot.
Hose, ladies'....	½	8 to 11	length of foot.
Hose, children's.	½	4 to 8	length of foot.
Hats.....	.....	.....	same as caps.
Jersey, ladies'...	2	32 to 44	around bust.
Jersey Underw'r.	2	2 to 6	equivalent to 30 to 40.
Jumper.....	2	34 to 44	around chest.
Mackintosh.....	2	34 to 44	over the coat.
Napkins.....	1		see TABLE LINEN.
Needles, sewing.	.....	1 to 10	
Needles, darning	.....	12 to 18	
Needles, knitting	.....	10 to 18	
Overcoat, man's.	1	34 to 50	over the coat.
Overcoat, boy's..	1	4 to 18	years of age.
Pant'loons, men's	1	29x29 to 50x36	around waist and inseam of leg.
Pantaloons, boys'	1	25x25 to 30x32	around waist and inseam of leg.
Pearl but., shirt..	1/40	8 to 16	diameter.
Pearl but., dress.	1/40	16 to 30	diameter.
Pearl but., cloak.	1/40	30 to 70	diameter.
Pillow cases.....	.....	42x36	45x36, 45x38½, 50x36, 50x38½, 50x40½ 54x36, 54x38½, 54x40½.
Ribbons.....	.....	2 to 30	see RIBBON.
Satchels.....	1	9 to 16	length.
Shirts, men's....	½	14 to 20	neckband.
Shirts, boys'.....	½	12 to 14	neckband.
Slickers.....	2	1 to 6	over the coat.
Smoking Jackets.	1	34 to 44	over the vest.
Rubber coat, m..	2	1 to 6	over the coat.
Rubber coats, b..	.....		
Sheets.....	.....	54x90	63x90, 63x93½, 63x99, 72x90, 72x93½, 72x99, 81x93½, 90x90, 90x93½, 90x99.
Shoes.....	⅙ and ⅓	.....	see BOOTS AND SHOES.
Thimbles, ladies'.	.....	5 to 10	arbitrary basis.
Thimbles, child..	.....	3 to 6	arbitrary basis.
Trunks.....	2	26 to 38	length.
Undershirt, m....	2	34 to 50	around chest.
Umbrellas.....	1	26 to 36	length of rib.
Valise.....	1	14 to 24	length. See SATCHEL.
Vest, men's.....	1	34 to 50	around chest.
Vest, children's..	2	16 to 34	around waist.
Vest, ladies'.....	2	28 to 40	around waist.
Waists, children's	1	4 to 18	years of age.
Warmus.....	2	34 to 44	around chest.
Whalebones.....	1/16	3/16 to 12/16	width of bone.

AMOUNT OF MATERIAL REQUIRED FOR ARTICLES AND GARMENTS.

The following table indicates the *average* amount, and the width of material required for various articles and garments:

	Width. Inches.	Yards.
Apron	27	2½
Basque	31	2½
Binding, bottom of dress		3
Blanket	72	2½
Bolster case	36	2
Butcher's apron	40	1¼
Chemise, misses'	36	3½
Chemise, ladies	36	1¾
Coat	31	2½
Coat and vest	54	2¼
Comfort	24	14 to 15
Corset cover	36	1¼
Curtain, holland	31	2½
Curtain, lace	31	3
Drawers, ladies'	36	2¼
Drawers, misses'	36	1½
Drawers, men's	36	2¼
Dress skirt	31	5
Jumper	27	3
Kilt skirt, boy's	27	1½
Kilt skirt, ladies'		
New Market	54	3½
Nightgown	36	5
Nightshirt, men's	36	5
Nightshirt, boy's	36	3⅛
Overalls, men's	27	3
Overcoat, men's	54	2¼
Pantaloons	30	2½
Pillow case	42 or 46	1 to 1⅛
Quilt	72	2½
Rag carpet 1 lb. warp for	36	2½
Rag carpet 1½ lbs. rags for	36	1
Roller towel	18	2½
Sheet	72	2½
Shirt, man's	27	3½
Shirt, boy's	27	2½
Skirt lining	24	5
Smoking jacket	27	3
Sofa cover	27	5
Table cloth	64	2 to 2½
Vest, man's	27	1
Waist lining	36	1½

CHILDREN'S WAISTS.

Plain.			Pleated.		
Yr's	27 Inches.	36 Inches	Yr's.	27 Inches.	36 Inches.
3	1¼	1⅛	3	1⅝	1¼
4	1⅜	1¼	4	1⅝	1⅜
5	1½	1⅜	5	1¾	1½
6	1½	1⅜	6	1¾	1½
7	1¾	1½	7	2	1⅝
8	1¾	1½	8	2¼	1¾
9	1⅞	1⅝	9	2⅝	1⅞
10	2	1¾	10	2⅞	1⅞
11	2¼	1¾	11	3⅛	2
12	2½	1⅞	12	3⅜	2⅛

Hosiery Sizes.

The following sizes in hosiery should be sold for corresponding numbers of shoes:

Ladies'	1½ to 2	2½ to 3½	3½ to 4½	5 to 5½	6 to 6½	7 to 8
		8½	9	9½	10	11
Mens'	6 to 6½	7 to 7½	8 to 8½	9 to 9½	10 to 10½	11 to 12
	9½	10	10½	11	11	12
Children's		6 to 7	8 to 9	10 to 11	12 to 13	
		4	5	6	7	

Underwear Sizes.

The following are the proper sizes in underwear for children from 1 to 17 years of age:

Mos.	Yrs.	Yrs.	Yrs.	Yrs.
6	1 to 2	2 to 3	4 to 5	6 to 7
16	18	20	22	24

Yrs.	Yrs.	Yrs.	Yrs.	Yrs.
8 to 9	10 to 11	12 to 13	14 to 15	16 to 17
26	28	30	32	34

In drawers, one size smaller is required for the same age, beginning at 4 years. In inches of *waist measure*, children's underwear should correspond with the sizes below:

Inches	12	14	16	18	20
Size	16	18	20	22	24

Inches	22	24	26	28	30
Size	26	28	30	32	34

Ladies jersey vests are numbered 2, 3, 4, 5 and 6. These sizes correspond to the following *bust measure:*

Size	2	3	4	5	6
Inches	30	32	34	36	38-40

The sizes marked on boxes of "flat" goods are always waist measure. Bust measure is four inches larger than waist measure. The corresponding sizes are as below:

Size	28	30	32	34
Inches	28	30	30	32

Sizes	36	38	40
Inches	32	34	34

Cardigan Jackets.

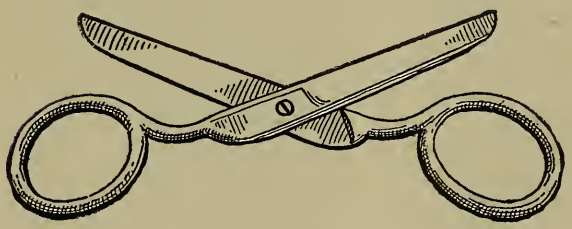
The following are the standard sizes and measurements of cardigan jackets:

No. 1=size 34, length 24 inches, width 14 inches.
No. 2=size 36, length 24 inches, width 15 inches.
No. 3=size 38, length 25 inches, width 16 inches.
No. 4=size 40, length 25 inches, width 17 inches.
No. 5=size 42, length 26 inches, width 18 inches.
No. 6=size 44, length 27 inches, width 19 inches
No. 7=size 46, length 28 inches, width 20 inches.

Dress Linings.

The dress linings usually given away with dress patterns of expensive material, are as follows:

5 yards cambric
2 yards silesia.
1 yards canvas.
Bones or steel.
1 spool silk.
2 spools twist.
1 velveteen binding.
1 pair shields.



APPENDIX "B."

The following tables give the widths, number of yards to the pound, and counts of threads to the inch of the principal makes of domestic cottons, ginghams, drillings, ticks, etc.:

UNBLEACHED MUSLINS AND SHEETINGS.

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Aberford Standard	36	2.84	48x48
Acorn	36	4.00	50x56
Adriatic	36		
Agawan	36	4.00	52x44
Agawan, XX	30		
Albama	27	12.00	36x36
Albany, LL	36	4.00	56x56
Albany, BB	36		64x72
Alaska	36	3.95	72x80
Alexandria	42		
Alpha	36	3.86	64x68
Allendale	54		
Allendale	7–4	2.36	60x64
Allendale	8–4	2.02	60x64
Allendale	9–4	1.84	60x64
Allendale	10–4	1.65	60x64
Allendale	11–4	1.51	60x64
Allendale, L	12-	1.38	60x64
Alligator	27	13.00	26x26
Alligator	26	13.55	40x32
American, XX	36	2.54	52x56
American, Mills, C. D	36	3.98	52x48
Amory Manufacturing Company	36	3.84	80x76

NAME.	WIDTH IN INCHES.	YARDS TO POUNDS.	COUNTS TO INCH.
Amory Manufacturing Company	36	3.68	76x76
Amory Manufacturing Company, LL	40	3.49	80x72
Anchor, L	36	6.65	44x42
Androscoggin	46	3.36	72x72
Androscoggin	48	3.10	72x72
Androscoggin	7–4	2.14	72x72
Androscoggin	8–4	1.87	72x72
Androscoggin	9–4	1.66	72x72
Androscoggin	10–4	1.50	72x72
Androscoggin	11–4	1.38	72x72
Antilope, A	36	3.26	44x44
Anniston	36	3.20	48x44
Appleton, A	36	2.76	48x52
Appleton, A	36	2.80	44x50
Appleton, Fine AA	35	4.39	60x60
Appleton, Fine AA	35	4.37	60x56
Appleton, GG	35½	2.86	52x56
Appleton, Fine GG	35¾	4.53	56x60
Appleton, R	36	3.70	64x64
Appleton, XX	36	4.17	56x56
Archery Bunting	36	8.20	44x48
Argyle Family	36	3.52	60x64
Argyle Family	40	3.25	60x54
Arizona	36		
Ascot	36		68x76
Ashland	36	6.90	44x44
Atlantt, AA improved	36	3.00	46x48
Atlantt, AA	36	3.00	46x48
Atlantt, BB	30	3.59	48x48
Atlantic, A	36	2.85	48x48
Atlantic, H	36	2.95	52x56
Atlantic, P	36	4.00	56x56
Atlantic, D	36	3.33	48x48
Atlantic, V	30	3.61	52x52
Atlantic, LL	36	5.03	64x64
Atlantic, LL	36	4.94	64x64
Atlantic	5–4	2.69	68x72
Atlantic	5–4	2.74	68x68
Atlantic	6–4	2.18	68x68
Atlantic	7–4	1.82	68x68
Atlantic	8–4	1.68	68x68
Atlantic	9–4	1.46	68x68
Atlantic	10–4	1.32	68x68

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Atlantic	11–4	1.24	68x68
Atlantic Comet	36	3.45	64x64
Atlantic Comet	40	3.11	64x64
Atlas R	35	3.79	60x60
Augusta A No. I	36	3.03	48x44
Augusta	30	3.53	40x40
Augusta	27	4.52	40x40
Aurora LL	36	4.00	56x60
Aurora C	31	5.50	40x44
Aurora R	36	3.50	68x68
Aurora B	36		64x68
Badger State LL	36	4.00	56x56
Badger State RR	36	3.25	64x64
Badger State R	36	3.45	64x64
Bangor J	30	4.13	48x44
Bangor F	36	2.90	48x48
Bangor BB	36	4.05	56x56
Bangor C	30	4.50	56x56
Beaver Dam LL	36	4.00	56x56
Bedford R	30	5.96	64x68
Beacon	36	3.87	56x56
Bennington AL	36	3.15	64x68
Bennington FF	36	2.90	48x48
Bennington M	36	3.54	60x64
Bennington R	30	6.00	64x64
Black Crow	36	3.70	60x64
Black Crow	36	3.66	60x64
Black Rock	36	3.61	64x68
Boott FF Standard	36	2.89	48x48
Boott Sterling	36	3.60	60x64
Boott 2d	36	3.81	60x60
Boott 2d	36	3.81	62x60
Boott Warwick C	34	4.09	58x60
Boott Warwick AL	36	3.29	68x68
Boott Warwick PL	40	2.86	68x68
Boston	45	2.08	68x72
Boston	50	2.22	72x72
Boston	5–4	2.49	68x64
Boston	6–4	2.29	68x68
Boston	7–4	1.97	72x72
Boston	8–4	1.73	72x72
Boston	9–4	1.52	72x72
Boston	10–4	1.38	72x72

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Boynton	28	8.38	56x56
Broadway	36	4.50	44x66
Brighton Mills A	40	3.18	
Brighton Mills R	36	3.18	
Busy Bee	36	4.35	64x64
Busy Bee	33		
Busy Bee	7–8		
Burlington	4–4		
Burlington	7–8		
Buckshead	36	2.85	48x48
Buck's Head	40	3.17	48x48
Buckingham	36		
Cabot, A (Dwight)	36	2.97	48x48
Cabot No. 10 (M)	36		76x80
Cabot W	36	3.45	48x48
Calvert Manufacturing Company	36	2.93	48x48
Calvert Manufacturing Company	36½	2.86	48x48
Cambria	36		
Calumet A	36	2.85	48x48
Calumet B	36	2.95	48x52
Calumet C	36	3.30	56x60
Calumet LL	36	4.00	56x56
Calumet X	36	5.45	48x48
Carlyle	28	5.25	64x66
Cartwright	36	4.83	48x52
Cartwright CW	36	4.64	52x56
Cartwright Mills	36	4.86	52x56
Cary, G. W	36	3.03	48x44
Cast-Iron Brand C	36	3.13	68x72
Cast-Iron Brand	36	3.07	68x76
Central Falls	36	6.22	44x40
Century B	36	3.69	68x72
Century B	36	4.08	68x72
Century L	28½	4.82	64x64
Century Cotton B	36	3.69	68x72
Century Cotton L	28	4.82	64x64
Champion Mills K	31½	5.92	64x64
Chesterfield Mills A	36	2.78	48x46
Chittenango A	36	4.70	44x44
Clarion LL	36	4.00	
Clifton CCC	36	3.33	48x44
Clifton CCC	36¼	2.87	48x44
Clifton CC	31	3.64	48x44

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Comet C	36	3.45	64x64
Comet	40	3.11	64x64
Common Sense	36	4.02	68x72
Conestoga W	36	3.61	60x60
Conestoga S	33	4.18	60x60
Conestoga G	30	4.73	60x60
Conestoga D	28	5.11	60x60
Conestogo	10–4	1.28	56x52
Conestogo	11–4	1.12	56x52
Constitution	36	3.48	64x68
Constitution	40	3.14	64x68
Constitution	42	2.93	64x68
Constitution	45	2.76	64x68
Constitution	48	2.76	64x64
Continental C	36	3.50	64x68
Continental D	40	3.27	68x72
Continental D	40	3.05	64x72
Continental E	42	2.12	64x78
Continental W	45	2.75	64x68
Continental H	48	2.63	64x68
Cotton Valley Mills Company	36	3.79	60x62
Crown XXX	36	2.85	48x48
Darlington	36	2.85	
Decatur	28	8.68	52x52
Des Moines	36	4.00	64x72
Dwight	36	3.95	76x82
Dwight Improved X	30	4.65	64x64
Dwight Improved X	27	4.73	60x64
Dwight DMC	36	3.31	72x72
Dwight DMC	36	3.97	76x80
Dwight Star	36	4.02	80x76
Dwight Star	40	3.38	80x76
Dwight Anchor	36	3.25	72x72
Dwight Anchor	40	3.00	72x72
Echo Lake	36	3.60	72x68
Echo Lake	40	3.49	64x62
Eldorado	36	3.20	68x64
Enterprise EE	36	3.95	52x52
Ettrick AA	36½	2.81	48x48
Ettrick EE	36	2.91	48x48
Exeter A	36	4.08	64x64
Exeter S	33	4.56	64x64
Exeter C	40		

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Farmer A	36	4.00	58x58
Farmer BB	32	4.55	64x64
Farmer extra No. 1	28	6.59	60x60
Fine Sheetings	36	5.15	44x44
Forest Mills	36	3.65	68x68
Fountain City	36	3.63	48x52
Foxhall A	27	4.33	36x44
Fruit of the Loom	8-4	1.70	68x68
Fruit of the Loom	9-4	1.55	68x68
Fruit of the Loom	10	1.32	68x68
Glendale	36	2.95	44x44
Glendale	30	3.40	
Glendale B	36	4.02	
Good as Wheat	36	4.10	76x84
Grafton extra A	28	6.95	64x66
Granite B	32	4.77	48x52
Graniteville A	36	3.00	48x52
Graniteville EE	36	3.00	48x48
Graniteville C	27	4.67	40x40
Graniteville RR	27	3.77	48x48
Graniteville RR	29	3.42	52x52
Great Falls E	36	3.00	52x56
Great Falls J	36	4.27	64x68
Great Falls N	36	5.17	50x48
Great Falls XX	36	4.60	56x56
Great Western	36	2.98	48x48
Greystone Steam Mills	36	3.70	64x66
Hamilton Mills	36½	5.15	44x42
Harold M	36	4.17	56x60
Hartford A	35	5.25	
Henrietta EE	36	3.82	
Here You Are	36¾	5.51	52x48
Hildreth A	36½	2.86	44x48
Hill Semper Idem	36	4.10	80x64
Hill Semper Idem	36	3.83	
Honest Household	36	4.15	72x84
Honest Width	36	3.50	60x60
Honeet Width	36¾	5.51	52x48
Hoosier LL	36	4.00	56x56
Housewife Friend LL	36	3.98	
Housewife Friend extra	36	4.05	52x56
Huguenot Mills C	36	3.94	52x56
Huguenot Mills A	36	2.73	48x48

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Huguenot Mills A	36	3.73	48x48
Huguenot Mills B	36	2.75	48x48
Huron D	35½	4.53	56x56
Indiana Standard C	36	3.25	40x48
Indiana Standard LL	36	4.00	56x56
Indian Head A	36	2.83	44x50
Indian Head E	48	2.12	46x50
Indian Head D	49	2.57	44x50
Indian Head B	30	3.42	48x48
Invincible	30	5.16	44x44
Ironside A	36	3.02	48x48
Irving Mills XX	36	3.92	
Jollico Mills B	30	3.70	48x48
Jones' long cloth C	39¾	3.59	
King Manufacturing Company AA	36	3.03	48x48
King Manufacturing Company EC	32	5.42	56x60
Laconia	63	2.38	64x64
Laoonia	72	2.12	64x64
Laconia	81	1.80	64x64
Laconia	90	1.65	64x64
Laconia	99	1.48	64x64
Lake George AA	36	3.15	48x44
Lake George AA	36	4.38	56x60
Lanark A	36	4.27	44x44
Lanark B	30	5.27	44x44
Lanark C	27	6.00	44x44
Lancaster	10–4	1.98	60x60
Langley A	36	3.00	44x44
Langley A	30	3.90	44x44
Langley	27	4.60	44x44
Lawrence LL	36	3.90	56x56
Lehigh E	36	9.00	36x36
Lockwood A	40	3.60	68x76
Lockwood C	30	4.35	68x76
Lockwood B	36	3.88	68x68
Lockwood R	36	3.75	68x72
Lockwood D	28	7.20	64x68
Lockwood F	30	6.59	64x68
Lockwood	42	3.04	64x72
Lockwood	54	2.32	68x72
Lockwood	63	2.11	64x68
Lockwood	72	1.75	64x72
Lockwood	81	1.56	64x72

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Lockwood	90	1.42	64x72
Lockwood	99		68x68
Lonsdale	36		76x88
Lowell	60	2.13	56x60
Log Cabin	36		
Louise	35¾	3.54	
Louise	40		76x88
Lyman A	45	2.35	48x48
Lyman B	40	2.56	48x52
Macon, A	36	2.87	48x48
Mass., Fine J	29	4.03	48x48
Mass., Fine Standard	36	2.90	48x48
Mass., Fine BB	26	4.00	60x60
Mass., Fine C	28	4.38	40x40
Marlboro	63	2.07	72x62
Marlboro	81		68x72
Marlboro	81	1.45	72x72
Maginniss, EE	36	4.00	
Master Workman D	36½	3.38	
Mechanics, AA	36	12.23	32x28
Michigan, LL	36	4.00	
Mohawk Valley Mills	63	2.00	68x68
Mohawk Valley Mills	88	2.12	64x66
Mohawk Valley Mills	72	1.98	64x64
Mohawk Valley Mills	81	1.70	64x64
Mohawk Valley Mills	90	1.53	64x64
Mohawk Valley Mills	99	1.35	64x64
Mohawk Valley Mills A	31		56x56
Monticello, XXX	29¼	3.92	50x38
Monadnock	72	2.55	64x60
Monadnock	81	1.95	64x60
Monadnock	90	1.82	64x60
Monadnock	99	1.70	64x60
Monadnock A	36	5.20	48x52
Monhansett Manufacturing Company	36	4.45	72x64
Mystic River	36	5.50	48x52
Nashua, E, Fine	40	3.70	68x68
Nashua, R	36	3.53	64x68
Nashua, F	42	2.95	68x68
Nashua, O	33	3.80	72x72
Nashua, P	45	2.72	68x68
Nashua, W	48	2.56	68x68
Nantuck Sheeting	90	2.19	68x65

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Natchez, A	36	3.25	48x43
Natchez, F	36	4.15	40x44
Natchez, 2	35½	2.52	60x60
Natchez, 1	30	4.20	48x48
Natchez, G	30	5.00	40x44
Natchez, H	36		
Natchez, S	30	4.50	60x64
Neponset	36	5.50	52x52
New Hartford, AA	37	4.60	42x44
Newburg	36	4.19	60x60
Newburg C	31		
Newberry Mills, A	36	2.87	48x48
Newport, A	36	4.44	
Newport, D	36	4 50	52x56
Newmarket, B	36½	4.77	48x52
Newmarket, G	36	4.90	56x60
Newmarket, N	36	4.00	62x62
Newmarket, DD	36	4.58	52x90
Newmarket, X	36		
Newmarket, K	31	5.86	62x68
Newmarket, KK	29		
New York Mills	38	2.20	62x62
New York Mills	57	1.82	66x60
New York Mills	81	1.25	64x68
New York Mills	90	1.25	64x68
New York Mills	99	1.12	64x68
New York Mills	108	1.00	64x68
Niobe, R	36	4.52	52x56
Nonpareil	36	5.28	52x52
Oela, XX	28		40x40
Oriental Bunting, A	36	10.28	36x32
Oriental Bunting	36	10.52	
Ozark AA	36	2.79	48x52
Pacific, Extra	36	2.85	50x50
Pacific H	36	3.15	56x56
Pacific	54	4.22	68x68
Pacific	63	1.87	68x72
Pacific	72	1.62	64x72
Parcolet Mfg. Co	36	4.07	56x60
Pacolet, LL	36	4.00	
Palatka Bunting	35½	8.72	56x62
Park, A	33	4.32	42x50
Pembroke	72	2.15	60x68

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Pembroke	63		60x68
Pembroke	72	2.15	60x68
Pembroke	81	1.85	60x68
Pembroke	90	1.62	60x68
Pepperell, E	40	3.44	66x68
Pepperell, R	36	3.70	64x64
Pepperell	63	2.36	64x64
Pepperell	72	2.10	64x64
Pepperell	81	1.79	64x64
Pepperell	90	1.62	64x64
Pepperell	66	1.47	64x64
Pequa	90	1.51	64x64
Pequot, A	36	3.17	64x64
Pequot	54	2.18	72x76
Pequot	63	2.08	72x76
Pequot	72	1.71	72x76
Pequot	81	1.45	72x76
Pequot	90	1.33	72x76
Pequot	99	1.22	68x76
Perkins, X	30	4.67	60x60
Perkins, Y	33	4.31	64x64
Perkins, Z	36	3.90	64x64
Phœnix, AA	39	3.50	64x64
Piedmont	36	3.09	48x48
Piedmont	30		38x44
Piedmont	27	4.62	48x44
Plymouth, H	29½	4.96	
Pocahontas, R	36	3.00	80x72
Pocahontas, E	40	3.65	80x72
Pocasset Canoe, E	40	3.10	64x64
Pocasset, C	36	3.63	64x64
Pocasset, O	33		64x64
Portsmouth, P	28	7.00	64x64
Portsmouth, B	31	9.41	48x48
Prescott, L	36	4.50	64x64
Pride of the Nation	36	3.85	84x84
Prairie Bunting, A	36	8.63	44x36
Princton, 401	36	3.93	56x60
Rexford Standard, AA	36	2.76	48x44
Richmond Co. Mills, BD	36	4.69	48x52
Riverside Mills, XX	36	5.36	52x48
Rosalie F	36	2.96	48x48
Royal Standard	36	2.90	52x52

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Royal Standard	35	3.60	48x48
Salsbury E	39	3.40	64x64
Salsbury R	36	3.72	64x64
Salsbury O	33	4.05	64x64
Salsbury N	30	4.40	64x64
Saracen	36	4.38	54x60
Saranac A	36	4.83	52x52
Saranac E	40	3.08	68x68
Saranac R	36	3.45	64x68
Scotia Mills, OM	36½	4.72	48x48
Sea Shore Shirtings	27½	2.73	40x32
Shawmut LL	36	4.00	52x52
Shawmut XX	36	3.16	64x64
Sherman	30	5.09	46x40
Sibley B	40	2.50	
Statute of Liberty	36	3.97	60x68
Stark AA	36	2.85	48x48
Superior W. E	36	4.85	48x52
Superior Sea Island	36	4.76	56x56
Sun Tissues W	37	9.00	48x50
Tit for Tat A1	36	4.15	56x60
Tremont CC	36	4.00	48x52
Utica C	36	4.19	48x44
Utica Cotton Co	36	5.45	48x44
Utica Steam Mills	39	3.15	68x84
Utica Steam Non	40	2.94	92x96
Utica Steam Non	48	2.23	68x72
Utica Steam Non	58	1.91	64x64
Utica Steam Non	9–4	1.37	64x68
Utica Steam Non	10–4	1.31	68x68
Utica Steam Non	11–4	1.15	68x68
Utica Steam Non	12–4	.98	64x68
Verona	36	3.77	88x84
Victoria R	36	3.68	64x64
Victoria AA	36	3.95	52x52
Victoria LL	36	3.92	52x56
Victoria E	40		64x64
Volunteer L	36	5.42	
Volunteer B	32	5.98	
Volunteer C	28	8.18	
Volunteer D	28	6.93	
Wachusett A	36	2.85	48x48
Wachusett B	30	3.42	38x38

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Wachusett	40	2.57	48x52
Wachusett	48	2.12	48x52
Wamsutta	59	1.80	72x76
Wamsutta	72	1.45	72x76
Wamsutta	81	1.40	72x76
Wamsutta	90	1.15	72x76
Wamsutta	99	1.05	72x76
Wamsutta	108	.96	72x76
Washington A	36	3.59	52x60
Waterville	36	5.15	64x68
Whitfield, Fine	40	3.66	56x60
Windsor H	36	5.34	52x48
Williamville Sea Island	46	3.90	80x80
Yardstick	36	3.52	60x60

BLEACHED MUSLINS AND SHEETINGS.

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Allendale	6-4	2.65	64x60
Allendale	7-4	2.35	64x60
Allendale	8-4	2.08	64x60
Allendale	9-4	1.87	64x60
Allendale	10-4	1.64	64x60
Allendale	11-4	1.50	64x60
Alexandria	36	3.73	80x80
Alexandria	42	3.29	72x72
Alexandria	46	3.23	72x72
Alpine Rose baptiste	36	4.50	104x96
Alpine Rose twilled	36	3.70	84x96
Amory	36	3.70	88x88
Androscoggin A A	36	3.98	88x88
Androscoggin L	36	4.17	80x76
Androscoggin	42	3.64	72x64
Androscoggin	46	3.37	72x64
Androscoggin	6-4	2.57	72x64
Androscoggin	7-4	2.20	72x64
Androscoggin	8-4	1.92	72x64
Androscoggin	9-4	1.71	72x64
Androscoggin	10-4	1.54	72x64

NAME	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Art Cambric	36		100x98
Ashbyrne	36		84x88
Aurora	36	3.80	88x84
Aurora Cambric	36		100x100
Ballardville	36	5.00	64x64
Barker	36	4.25	80x80
Bay Mills	36	3.91	88x82
B B muslin cambric	36	5.90	100x80
Beaver Fall Mills	26	7.85	64x60
Berkely cambric	36	5.27	120x108
Berkely, No. 60	36	5.58	88x84
Berkely, No. 150	36	5.17	120x108
Beakley, No. 180	36	7.32	120x128
Berkley Madapolom	36	4.30	102x100
Berkshire X	46	4.50	80x80
Bershire Hiwatha	36	5.38	56x60
Birkshire Lily	33	5.75	72x68
Berkshire Peacock	31	6.10	60x60
Berkshire Bugle	31	6.20	60x60
Berkshire XIX	27		56x60
Big Bonanza	30	5.18	64x60
Blackburn AA	36	4.80	68x72
Boott R	28	5.91	68x60
Boott E	36	4.34	64x64
Cabot	36	4.65	80x76
Cabot	31	5.67	80x76
Canoe River	27	7.70	60x56
Champion	36	5.50	60x56
Chapman X	46	4.31	74x64
Charter Oak	36	4.80	64x64
Chestnut Hill	36	5.20	64x60
Clinton A1	24	4.30	84x80
Commonwealth O	27	8.00	56x52
Conestoga Mills	10-4	1.11	60x48
Conestoga Mills	90		60x48
Continental Mills	36	3.02	70x60
Continental H	48	2.62	64x68
Continental LN	36	4.00	88x88
Continental A	36	4.20	84x84
Continental half bleached	36		68x72
Copper Fastened	35½	4.38	60x56
Cumberland	36		80x84
Dauntless	36	5.85	60x60

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Davol Mill	36	3.75	84x88
Defiance	36	3.90	84x88
Defiance	36	3.90	87x82
DeSoto Mills E	36	3.14	52x48
Diamond Hill cambric	36	7.05	88x80
Dwight Anchor Co	36	4.48	76x76
Dyerville A	36	4.00	80x76
Edward Harris	30	5.75	72x72
Ellerton WS	36	4.00	72x72
Exeter	36	4.20	72x68
Exeter	30	5.00	72x68
F-PF cambric	36		88x76
Fairfax	36½	4.00	88x80
Fairmount Q	36	5.00	64x64
Farmer's Choice	36	5.00	64x64
Farwell Mills	36	4.38	80x80
Farwell Mills	42	3.72	80x80
Farwell Mills	45	3.48	80x80
Fearless-of-all-Competition	36	4.45	72x72
Fidelity	36	4.20	84x80
First Bale	36	5.52	68x64
First Call	36	4.80	68x64
Fitchville	36	4.50	72x72
Forestdale	36	4.25	80x76
Forrest Mills	36	5.00	72x68
Forrest Mills	36	4.77	72x68
Forrest Mills	30	4.10	88x84
Fruit of the Loom	36	4.10	88x84
Fruit of the Loom	31	4.22	88x84
Fruit of the Loom (100s)	36	3.72	100x100
Fruit of the Loom	31	4.32	82x80
Fruit of the Loom	42	3.64	82x80
Fruit of the Loom	50	2.96	88x72
Fruit of the Loom	45	3.07	88x80
Fruit of the Loom	48	2.78	88x76
Fruit of the Loom	63	1.98	80x60
Fruit of the Loom (extra)	72	1.70	80x64
Fruit of the Loom	81	1.49	80x60
Fruit of the Loom	90	1.12	80x60
Fruit of the Loom	90	1.42	72x64
Gem of the Spindle	36		80x76
George Washington XX	36	3.72	76x72
Gold Medal	36	4.27	76x72

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Gold Medal	32½	5.47	72x64
Great Falls Mfg. Co. J	39¾	4.27	64x68
Great Falls S Tiger	31	5.18	72x68
Great Falls M Dog	33	4.62	76x72
Great Republic	36	4.20	80x80
Green G	36	5.00	64x64
Grinnell, fine	40	3.47	104x96
Grinnell, fine	45	3.21	100x100
Grinnell, fine	54	2.59	104x92
Grinnell, fine	63	2.58	104x92
Grinnell, fine	72	2.04	104x92
Grinnell, fine	99	1.52	104x92
Hero	36	4.60	72x72
Highland Mills	36	3.70	76x68
Hillsdale Mfg. Co	36	5.00	68x68
Hill's Semper Idem	36	4.24	80x80
Hill's Semper Idem	36	4.27	84x76
Hill's Semper Idem	36	4.36	84x80
Hill's Semper Idem	42	3.75	84x84
Hill's Semper Idem	45	3.44	84x72
HEP fine cambric	35½	5.75	84x72
Homesville B	36	5.16	64x64
Homesville H & E	36	4.85	72x68
Homesville H & E	31	6.00	68x64
Homesville WT	33	5.75	68x64
Homesville XXX	36	4.50	72x68
Homespun	36	4.15	76x76
Hope	36	4.80	76x72
Howe	36	4.65	76x72
Ideal Q	36	5.39	60x40
Indian Head Shrunk	35		48x48
Industry	36		56x56
Jack Horner	30	5.72	64x64
Jacque Rose Com. Cambric	36	5.40	84x84
Jacque Rose Cambric	36	5.40	84x84
J. C. Knight Cambric	33	4.80	
Jewett City Mills	48	3.65	76x84
Jumping Horse	36	4.75	68x64
Just Out	27	6.15	64x60
King Phillip AP	36	3.80	84x84
King Phillip OP	36	3.67	84x84
King Phillip cambric	36	5.75	96x104
Knights cambric	33	7.00	84x80

NAME,	WIDTH IN INCHES.	YARDS TO YARDS.	COUNTS TO INCH.
Laconia Mills	46	2.70	64x64
Laconia Mills	54	2.95	64x64
Laconia Mills	63		64x64
Laconia Mills	72	2.09	64x64
Laconia Mills	81	1.89	64x64
Laconia Mills	90	1.55	64x64
Laconia Mills good-night cambric	46	2.68	96x80
Lafaytte	36	5.00	64x64
Lancaster	90	1.90	64x52
Landseer	36	4.10	80x80
Langdon GB	36	3.87	92x84
Langdon GB "76"	36	3.80	88x84
Langdon	42		88x80
Lily of the Valley half bleached	36	4.25	76x68
Linwood	36	4.30	84x80
Little Chief cottons	36	4.71	80x64
Loch Lamond cambrics	36	5.27	76x68
Lockwood VVV	36	3.75	88x84
Lockwood VVV	42	3.12	72x64
Lockwood VVV	42	3.12	68x64
Lockwood VVV	45	2.99	68x60
Lockwood VVV	45	3.01	68x60
Lockwood VVV	50	2.57	68x64
Lockwood VVV	72	1.89	68x64
Lockwood VVV	81	1.67	68x64
Lockwood VVV	90	1.45	72x64
Lonsdale	36	4.31	84x80
Lonsdale	32	4.70	84x84
Lonsdale cambric	36	4.70	104x96
Lonsdale Nameles Star	30½	4.27	80x72
Madapolam cambrics	36	4.40	108x100
Magic	26	8.29	52x40
Masonville	36	4.02	88x84
Masonville	36	3.97	88x84
Melrose Mill	36	3.90	84x88
Milton Falls	36	5.00	64x64
Mohawk	7-8	2.22	72x60
Mohawk Valley Mills	45	2.91	64x64
Mohawk Valley Mills	54	2.56	64x64
Mohawk Valley Mills	63	2.21	72x60
Mohawk Valley Mills	72	1.87	72x60
Mohawk Valley Mills	81	1.69	68x60
Mohawk Valley Mills	90	1.52	72x60

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Mohawk Valley Mills	99	1.36	64x64
Monadnock	72	2.11	68x52
Monadnock	81	1.87	68x52
Monadnock	90	1.69	68x52
Monadnock	108	1.10	68x52
Monadnock	81	1.88	68x52
Monadnock	90	1.70	68x52
Monadnock	108	1.10	68x52
Monohansett half bleached	36	4.45	72x64
Monohansett Manufacturing Company	46¾		72x64
Nashau, E	36	3.50	75x68
Nashau, P	45	3.11	75x68
Nashau, W	45	3.02	75x68
Naumkeag Twill	72	1.60	
Naumkeag Twill	81	1.45	
Naumkeag Twill	90	1.28	
Netherwood	36	4.30	76x80
New Candidate	35¾	4.72	80x76
New Bedford Sheeting	45		
New Bedford Sheeting	48		
New Bedford Sheeting	50		
New Bedford Sheeting	54		
New Bedford Sheeting	63		
New Bedford Sheeting	72	1.80	92x84
New Bedford Sheeting	81	1.60	88x84
New Jersey	36	.73	76x64
Newmarket	36	4.55	68x64
New York Mills Extra	36	4.87	96x96
New York Water Twist	36		92x104
New York Mills	45	2.61	68x56
New York Mills	54	2.06	68x56
New York Mills	72	1.50	72x56
New York Mills	81	1.22	72x60
New York Mills	90	1.20	60x48
New York Mills	90	1.20	72x68
New York 100	99	1.00	68x64
No Dicker	31	4.75	72x68
Oak Grove	32	5.77	68x60
Oak Lawn	36	5.17	72x64
Our Choice	36	4.50	76x72
Our Own	30	5.72	64x64
Our Reliance	36	5.70	60x56
Paragon	36	4.50	72x68

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Peabody Mills, H	36	4.70	60x52
Pelham, Q	36	4.70	68x60
Pelham	36	4.70	68x64
Pelham	36	4.70	64x64
Pembroke	54	2.65	64x64
Pembroke	63	2.40	64x64
Pembroke	63		60x68
People's Cry (The)	36		72x56
Pepperell E	40	3.44	66x68
Pepperell R	36	3.70	64x64
Pepperell O	33	4.00	64x64
Pepperell N	30	4.39	64x64
Pepperell	45	2.90	64x64
Pepperell	48		64x64
Pepperell	63	2.36	64x64
Pepperell	72	2.10	64x64
Pepperell	72	1.95	64x64
Pepperell	81	1.79	64x64
Pepperell	90	1.63	64x64
Pepperell	99	1.47	64x69
Pepperell	108	1.00	64x64
Pepperell Mfg. Co.'s Extra—GH Twills	36	3.27	100x60
Pequa	90	1.51	64x64
Pequot A Heavy	36	3.20	68x64
Pequot B	40	2.80	64x64
Pequot	45	2.59	72x76
Pequot W	48	2.32	68x76
Pequot	54	2.18	72x76
Pequot	54	2.29	72x68
Pequot	63	2.07	72x76
Pequot	63	1.89	72x62
Pequot	72	1.71	72x76
Pequot	72	1.68	72x72
Pequot	81	1.45	72x76
Pequot	81	1.49	72x72
Pequot	90	1.33	72x76
Pequot	99		68x70
Perkins Z	36	3.90	64x64
Perkins Y	33	4.31	64x64
Perkins X	30	4.67	60x64
Phœnix AA	39	3.50	64x64
Piedmont	27	4.62	48x44
Piedmont	36	3.09	48x44

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Piedmont	30		48x44
Pocahontas, R	36	3.90	80x72
Pocahontas, E	40	3.10	64x94
Pocahontas, D	30		
Pocasset Canoe, E	40	3.10	64x64
Pocasset, C	36	3.63	64x64
Pocasset, O	33		64x64
Portsmouth, C	36		
Portsmouth, B	31	9.41	48x48
Portsmouth, P	28	7.00	64x64
Prescott, L	36	4.50	64x64
Pride-of-the-Nation	36	3.85	84x84
Preston	36		
Princton 401	36	3.90	56x60
Quinnbaug Company	36	4.70	80x72
Rochdale (half bleached)	36	4.90	68x68
Rosaland (As You Like It)	36		76x76
Rasaland (As You Like It)	36	4.32	80x76
Second to None	36	5.22	68x60
Security	30	6.20	60x56
Senate Mills (half bleached)	36	4.18	68x72
Signal, A	32	5.66	64x64
Signal, B	27	6.12	64x64
Social, Q	36	4.75	80x76
Social, L	36	5.10	72x72
Social, W	36	5.97	68x64
Standard	36	4.15	88x84
Standish	36	4.25	80x76
Star, W	36	5.20	64x64
Sun	36	3.57	80x68
Sunlight	27		56x60
Superior American	36		76x80
Superior Royal Bunting	36	8.97	44x40
Telegraph	30	6.00	60x52
Ten Strike	36	4.50	72x68
Triumph	36	5.70	68x60
Tuscarora Mills	36	3.28	80x68
Tuscarora	36	3.28	80x60
Universal	36	3.55	80x76
Utica Cotton Extra Heavy	36	3.00	68x64
Utica Nonpareil	36	3.20	92x96
Utica Extra Heavy	36	3.55	96x80
Utica	5-4	2.72	68x60

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Utica	6–4	2.17	68x56
Utica	8–4	1.31	68x60
Utica	8–4	1.68	72x72
Utica Steam Mills	72	1.59	72x60
Utica	9–4	1.35	68x64
Utica	10–4	1.31	68x60
Utica	10–4	1.70	72x60
Utica	100	1.14	68x60
Utica Diamond. U	36	3.47	72x72
Valley Mills Q	35½	7.89	60x60
Valley Mills Q	25	6.80	52x44
Waltham XX (h'f bl'd)	36	3.50	72x60
Wamsutta Mls O XX	36	3.50	92x92
Wamsutta ST	45	2.33	72x64
Wamsutta	50	2.28	88x88
Wamsutta	60	3.40	
Wamsutta Cambric	36		68x56
Wamsutta Cambric fine	36	6.15	100x96
Wamsutta	81	3.47	88x88
Wamsutta	45	3.09	72x72
Wamsutta ST	45	1.98	72x72
Wamsutta	63	2.07	72x64
Wamsutta Twilled	72	1.44	72x68
Wamsutta	81	1.33	72x72
Wamsutta Twilled	90	1.17	
Wamsutta ST	90	1.17	72x68
Wamsutta	99	1.03	72x64
Wamsutta	108		
Wamsutta Ex Hvy Jean	36	4.82	68x64
Wamsutta Gold Medal	36	4.82	68x64
Wamsutta Gold NB	36	3.36	68x56
Wamsutta Night Robes	36	4.82	68x54
Wamsutta d'bl warp	35¾	2.82	80x60
Warren Mfg. Co. linen fine	36		
Washington	36	5.00	64x64
Wessacumcon D	36	4.34	
Wessacumcon B	36		
Wauregan 100's	36		100x100
Wauregan No 1	36	3.90	88x88
Wauregan Cambric	36		108x94
White Horse	36	5.00	64x64
White Hall	36	4.75	72x80
White Rock	36	4.10	88x80

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Whiting	36		
Whitinsville Cotton Mills	36	4.50	80x76
Whitinsville Cotton Mills	36	4.58	80x76
Williamsville A2	36	3.59	88x64
Winchester	36		
Winona	36	3.60	88x84
Winthrop AA	36		
Winthrop E	42	3.62	60x68
Winthrop	45	2.75	64x68
Woodbury	36	5.29	64x64
World Wide	36		
Worth	36	4.80	72x60

TICKINGS.

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Amoskeag Mfg Co	32	1.97	52x80
Amoskeag Mfg Co	31½	2.00	
Amoskeag Mfg ACA	36	1.85	
Amoskeag Mfg	31½	1.94	
Amoskeag Mfg	31½	2.03	
Amoskeag Mfg. A	30½@ 31	2.27	
Amoskeag Mfg B	36	2.50	
Amoskeag C Improved	30@ 31	2.59	56x56
Amoskeag D Improved	30@ 31	2.60	
Amoskeag E Improved	31	3.07	
Amoskeag XX Improved	32	1.87	65x68
Amoskeag Mfg Co X	31@ 31	2.70	54x60
Amoskeag Awning sateen	21	1.97	54x80
Amoskeag Garniture	32	2.01	
Belgrade fcy red 135	30	2.77	76x54
Berwick Mfg Co BA fancy colored	40	2.84	84x64
Brandywine Mills No 10	31¾	3.08	44x96
Conestoga Steam Mills	33	2.00	
Conestoga Prem A	46	2.00	
Conestoga FF	33	2.00	
Conestoga Extra	36	2.25	
Conestogo Extra	32	2.50	
Conestoga Gold Medal	36	2.30	
Conestoga CT	36	2.42	

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Conestoga CCA	31½	2.58	
Conestoga AA	29	3.40	
Conestoga fancy red RR	33	2.04	32x60
Cordis, ACE	32	2.07	
Cordis, No. 1	32	2.07	
Cordis, No, 2	32	2.22	
Cordis, No. 3	30	2.50	
Cordis, WS	29	4.00	60x76
Challenge, fancy	30	3.84	36x84
Challenge, fancy		3.71	36x84
Endurance, fancy	32	2.66	44x96
Everett plaid PT	30	2.40	
Farmer's		2.88	36x80
Hamilton Manufacturing Company	30½	2.42	56x56
Hamilton Manufacturing Company BT	30	2.54	52x52
Hamilton Manafacturing Company D	30	2.50	68x48
Hamilton Manufacturing Company N	31¼	3.48	64x44
Hamilton Manufacturing Company B	30½	2.95	64x48
Horse Head	30½	3.45	72x44
Jewitt City	30	3.92	76x40
Lenox, fancy	32	2.16	64x48
Lenox, fancy	32	3.84	36x84
Lenox, fancy	30	3.71	
First Prize B	30	2.93	
First Prize C	30	2.83	52x88
First Prize D	30	2.68	52x84
First Prize E	30	2.90	48x84
Ocean	27	4.83	64x36
Old Clock Tick C	30	2.83	76x52
Old Clock Tick (I) C	30	2.98	72x52
Old Clock Tick G	31½	2.08	72x56
Old Clock Tick G	31½	1.97	
Old Clock Tick K	28½	4.68	60x40
Old Clock Tick R	30	3.59	72x42
Omega medal superior, extra	36⅛	2.38	72x76
Omega middle superior	32	2.37	72x76
Omega medal, fancy, RD	31	2.16	52x88
Randolph Mills blue	29½	3.51	60x36
Rosemont Mills RLT, fancy	31½	3.34	72x36
Rosemont Mills XXX	32	3.09	104x40
Swift River	30	3.79	76x40
Tiger Mills No. 1	33	2.05	
Tiger Mills No. 1	32½	1.97	76x56

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Tiger Mills No. 2	31		84x60
Tiger Mills No. 3	31	2.60	84x52
Tiger Mills No. 3	31	2.71	72x52
Tiger Mills XXX twills	33	2.10	56x56
Tiger Mills XXXX	33	1.70	72x76
Tiger Mills fancy		2.05	60x68
Triumph Manufacturing Company	30	3.01	36x96
York AA	32	2.15	
York T	30	2.40	

COTTON DRILLS.

Boott Standard	30	2.85	76x88
Clifton K	30	2.87	76x52
Darlington Mills	28¾	2.87	72x52
Eureka	29⅛	2.77	72x48
J P King Manufacturing Company	20	2.93	68x48
London Mills XX	30	3.52	64x38
Massachusetts Standard	30	2.85	
Massachusetts DN	27	3.05	
Massachusetts G	30	3.80	
Normandie Standard	29	2.73	70x52
Pacolet Manufacturing Company	29½	2.87	
Pepperell brown	29	2.84	72x52
Pepperell bleached	27	3.28	80x48
Pepperell dragon	27¼	3.36	80x48
Plymouth Standard	29½	2.89	
Plymouth 300	20½	2.60	
Prescott, blue D	30	3.25	72x68
Royal Standard, brown	29	2.72	64x68
Royal Standard 250X	30	2.49	68x56
Royal Standard bleached	28	3.11	76x48
Stark HD brown	27	2.48	66x52
Stark A improved	30		
Stark A, bleached	28		76x52
Suffolk, standard D	30	2.85	

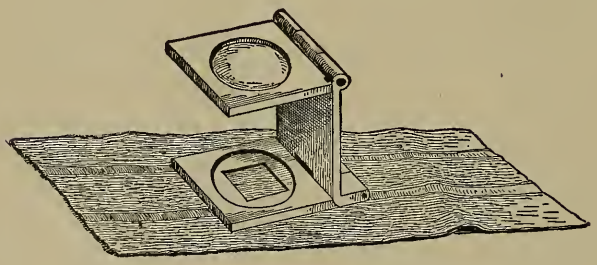
COTTON CHEVIOTS.

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Amoskeag stripes	27½	3.55	
Amoskeag checks	27½	3.32	
Alabama stripes	26	4.51	
Algeron plaids	27	4.36	48x33
Crown A stripes	26	4.89	
Crown A plaids	28	4.16	
Conestoga stripes	28	2.69	
Falmouth checks, BB	27	4.52	
Forrest Hill	28	4.18	36x40
Great Republic	25½	4.26	
Iadna Mills	26	4.84	
Philadelphia	26	4.51	
Pioneer plaids	28	4.36	40x44
Prodigy stripes	29½	3.85	
Rosedale	27	5.42	
Slater	27	3.42	
Santa Rosa	27¼	4.45	
Real Caledonia J. C. K.	28	4.30	
Uncasville	27½	2.37	
Uncasville	27	2.37	

DOMESTIC GINGHAMS.

Amoskeag Mfg. Co.	26½	6.28	72x76
Amoskeag staples	26½	5.60	68x76
Amoskeag fancy staples	26½	5.56	68x76
Amoskeag Canton	26	6.92	56x60
Amoskeag Canton checks	26½	6.34	56x60
Amoskeag Chalons cloth	26	7.53	48x72
Amoskeag Persian	26½	6.60	48x56
Amoskeag Zanzibar	25⅞	5.58	60x76
Arasapha Mfg. Co.	29	6.44	36x40
Bay State	25¼	8.34	36x44
Caledonia	26¼	6.68	48x56
Elberon Seersucker	25½	6.38	40x56
Everett Classics	26	5.68	52x72

NAME.	WIDTH IN INCHES.	YARDS TO POUND.	COUNTS TO INCH.
Franklin Suitings	26¾	6.89	44x72
Glenarie	25½	6.40	40x48
Gotham	26¾	5.91	44x56
Johnson Mfg. Co	26	6.50	56x68
Johnson Pin Checks	26	6.50	56x64
Johnson Plaid Checks	26	5.90	64x64
Loraine Knotted	29	5.40	76x80
Manchester	27	6.00	44x52
Monogram	26⅜	6.50	48x56
Nevelle Seersucker	26		48x56
Parkhill Mfg. Co. Toile Du Nord	25½	6.70	60x72
Pontiac Seersucker	25	7.58	40x56
Randelman			40x44
Renfrew, Dress	26	6.34	60x60
Renfrew, Novelties		5.86	52x56
Tacoma Cloth	25⅞	7.30	48x56
Woodboro Mfg. Co	27	7.08	48x56
York Mfg. Co. staples	27	5.33	52x56



APPENDIX "C."

THE TARIFF.

A TABLE OF LEADING ARTICLES IMPORTED, GIVING THE RATE OF TAXATION AT ENTRY BY THE NEW TARIFF OF 1890.

The articles covered by the Tariff act of 1890 number several thousands. The following table embraces about 150 selected articles, being mainly those in most general use by the trade throughout the United States. N. o. p. indicates "when not otherwise provided for."

ARTICLES.	NEW TARIFF (M'KINLEY) RATE.
Aniline colors or dyes	35 per cent.
Bagging for Cotton	1 3-5 and 1 4-5 cents per cent.
Bags, grain	2 cents per pound.
Beads, ornamental	10 per cent.
Bindings, cotton	40 per cent.
Bindings, flax	50 per cent.
Bindings, wool	60 cents per pound and 60 per cent.
Blankets, value not over 30 cents per pound	16½ cents per pound and 30 per cent.
Blankets, value 30 cents, and not over 40 cents per pound	22 cents per pound and 35 per cent.
Blankets, value 40 cents, and not over 60 cents per pound	33 cents per pound and 35 per cent.
Blankets, value 60 cents, and not over 80 cents per pound	38½ cts. per pound and 40 per cent.
Blankets, value over 80 cents per pound	38½ cts. per pound and 40 per cent.
Bonnets, silk	60 per cent.
Bonnets, straw	30 per cent.
Buttons, pearl	2½ cents per line per gross and 25 [per cent.
Buttons, sleeve and collar, gilt	50 per cent.
Buttons, wool, hair, etc	60 cents per pound and 60 per cent.
Canvas for sails	50 per cent.
Caps, cotton	50 per cent.
Caps, fur and leather	35 per cent.
Carpets, treble ingrain	19 cts. per square yd. and 40 per cent.

ARTICLES.	NEW TARIFF (M'KINLEY) RATE.
Carpets, two-ply	14 cts. per square yd. and 40 per cent.
Carpets, tapestry	28 cts. per square yd. and 40 per cent.
Carpets, Wilton and Axminster	60 cts. per square yd. and 40 per cent.
Carpets, Brussels	44 cts. per square yd. and 40 per cent.
Carpets, Velvet	40 cts. per square yd. and 40 per cent.
Clothing, ready made, cotton n. o. p.	50 per cent.
Clothing, ready made, linen n. o. p.	55 per cent.
Clothing, ready made, silk, n. o. p.	60 per cent.
Clothing, ready made, woolen n. o. p.	49½ cents per pound and 60 per cent.
Cotton trimmings	60 per cent.
Cotton galloons and gimps	40 per cent.
Cotton gloves	50 per cent.
Cotton handkerchiefs	50 per cent.
Cotton hosiery valued at 60 cents, and not more than $2 per dozen pairs	50 cents per dozen and 38 per cent.
Cotton hosiery $2 to $4 per dozen	75 cents per dozen and 40 per cent.
Cotton hosiery more than $4 per dozen	$1.00 per dozen and 40 per cent.
Cotton shirts and drawers, value $3 to $6 per dozen	$1.25 per dozen and 40 per cent.
Cotton velvets, plushes, etc	10 cts. square yard and 20 per cent.
Cotton Swiss muslin	60 per cent.
Cotton webbing	40 per cent.
Cotton curtains	60 per cent.
Extracts, Dyewood, Logwood	⅞ cent per pound.
Fans, palm leaf	30 per cent.
Felt hats	55 per cent.
Felt shoes	49½ cents per pound and 60 per cent.
Flannels, value not over 30 cents per pound	16½ cents per pound and 30 per cent.
Flannels, value 30 cents to 40 cents	22 cents per pound and 35 per cent.
Flannels, value 40 cents to 50 cents	33 cents per pound and 35 per cent.
Flax, manufactures of	50 per cent.
Flowers, artificial	50 per cent.
Fur manufactures	35 per cent.
Gloves, men's kid and plain	$1.00 per doz. not less than 50 per cent.
Gloves, embroidered	$1.50 per doz. not less than 50 per cent.
Gloves, lined	$2.50 per doz. not less than 50 per cent.
Gloves, women's kid, plain	$1.75 per doz. not less than 50 per cent.
Gloves, women's lined	$2.75 per cent not less than 50 per cent.
Gloves, suede and schmaschen, embroidered	$ .50 per doz. not less than 50 per cent.
Gloves, suede, lined	$1.00 per doz. not less than 50 per cent.
Hair of hogs, for mattresses	15 per cent.

ARTICLES.	NEW TARIFF (M'KINLEY) RATE.
Hair manufactures n. o. p.	33 cents per pound and 40 per cent.
Hair braids and ornaments	60 cents per pound and 60 per cent.
Hair human, unmanufactured	20 per cent.
Handkerchiefs, linen	55 per cent.
Handkerchiefs, silk	60 per cent.
Handkerchiefs, cotton hemstitched	35 per cent.
Hemp cordage, untarred	2½ cents per pound.
Hides, raw, salted, pickled	Free.
Horn, manufactures of	30 per cent.
India rubber, raw	Free.
India rubber, manufactures	30 per cent.
India rubber, vulcanized	35 per cent.
India rubber wearing apparel	50 cents per pound and 50 per cent.
Ivory manufactures n. o. p.	40 per cent.
Jewelry	50 per cent.
Jute, burlaps	1⅝ cents per pound.
Jute, for cotton bagging	1 3-5 and 1 4-5 cents per pound
Jute, other bagging	2 cents per pound.
Knit Goods, wearing apparel, value not over 30 cents per pound	33 cents per pound and 40 per cent.
Knit Goods, wearing apparel, value 30 cents, and not over 40 ceets per pound	38½ cents per pound and 40 per cent.
Knit Goods, wearing apparel, value 40 cents and not over 60 cents per pound	44 cents per pound and 50 per cent.
Knit Goods, wearing apparel, value 60 cents, and not over 80 cents per pound	44 cents per pound and 50 per cent.
Laces, cotton	60 per cent.
Laces, linen	60 per cent.
Leather manufactures n. o. p.	35 per cent.
Linen manufacturies n. o. p.	50 per cent.
Linen wearing apparel	55 per cent.
Linen thread	45 per cent.
Mats, cocoa and rattan	8 cents per square foot.
Matting, jute	6 cents per square yard.
Muffs, fur	35 per cent.
Needles, sewing	Free.
Oil cloths, floor	15 cents square yard and 30 per cent.
Photograph albums	35 per cent.
Pins, metal	30 per cent.
Quilts, cotton	45 per cent.
Robes, buffalo	35 per cent.

ARTICLES.	NEW TARIFF (M'KINLEY) RATE.
Rope, hemp	50 per cent.
Rugs, Oriental	60 cents square yard and 40 per cent.
Sealskin sacque	35 per cent.
Sheetings, linen	50 per cent.
Shirts, all or part linen	55 per cent.
Shoe laces, cotton	40 per cent.
Shoe laces, leather	35 per cent.
Shoes, leather	25 per cent.
Shoes, india-rubber	30 per cent.
Silk, raw	Free.
Silk Fabrics	50 per cent.
Silk, spun in skeins	35 per cent.
Silk laces, embroideries, handkerchiefs, and wearing apparel	60 per cent.
Skins, raw	Free.
Skins, tanned and dressed	20 per cent.
Soap, castile	1¼ cents per pound.
Straw manufactures n. o. p.	30 per cent.
Tooth brushes	40 per cent.
Trimmings, cotton	60 per cent.
Trimmings, linen	60 per cent.
Trimmings, lace	60 per cent.
Trimmings, wool, worsted, etc.	60 cents per pound and 60 per cent.
Towels, linen damask	50 per cent.
Umbrellas, silk or alpaca	55 per cent.
Velvets, silk	$3.50 per lb, but not less than 50 per ct.
Willow manufactures	40 per cent.

THE M'KINLEY TARIFF.

THE FOLLOWING IS AN OFFICIAL COPY OF THE TARIFF ACT OF 1890, SO FAR AS IT CONCERNS THE DRY GOODS AND KINDRED BRANCHES OF TRADE.

COTTON MANUFACTURES.

Cotton thread, yarns, or warp yarn, whether single or advanced beyond the condition of singles, by grouping or twisting two or more single yarns together, whether on beams or in bundles, skeins or cops, or in any other form, except spool thread of cotton hereinafter provided for, valued at not exceeding 25c. per pound, 10c. per pound; valued at over 25c. per lb. and not exceeding 40c. per lb. 18c. per lb; valued at over 40c. per lb. and not exceeding 50c. per lb., 23c. per lb.; valued at over 50c. per pound and not ex-

ceeding 60c. per lb. 28c. per lb.; valued at over 60c. per pound and not exceeding 70c. per lb. 33c. per lb.; valued at over 70c. per pound and not exceeding 80c. per lb.; 30c. per lb.; valued at over $1 per lb. 50 p. c. ad valorem.

Spool thread of cotton, containing on each spool not exceeding 100 yards of thread, 7c. per dozen; exceeding 100 yards on each spool for every additional 100 yards of thread or fractional part of 100 yards, 7c. per dozen spools.

Cotton cloth not bleached, dyed, colored, stained, painted or printed, and not exceeding 50 threads to the square inch, contained in the warp and filling, 2c. per square yard; if bleachcd, 2½c. per square yard; if dyed, colored, stained, painted or printed, 4c. per square yard.

Cotton cloth not bleached, dyed, colored, stained, painted or printed, exceeding 50 and not exceeding 100 threads to the square inch, counting the warp and filling, 2¼c. per sq. yd.; if bleached 3c. per sq. yd.; if dyed colored, stained, painted or printed, 4c. per sq. yd.; Provided, that on all cotton cloth not exceeding 100 threads to the sq. in., counted the warp and filling, not bleached, dyed, colored, stained, painted or printed, valued at over 6½c. per sq. yd.; bleached, valued at over 9c. per sq. yd.; and dyed, colored, stained, painted or printed, valued at over 12c. per sq. yd. there shall be levied, collected, and paid a duty of 35c. p. c. ad valorem.

Cotton cloth not bleached, dyed, colored, stained, painted or printed, exceeding 100 and not exceeing 150 threads to the sq. in.; counting the warp and filling 3c, per sq. yd.; if bleached, 4c. per sq. yd.; if dyed, colored, stained, painted or printed, 5c. per sq. yd.; Provided, that on all cotton cloth exceeding 100 and not exceeding 150 threads to the sq. in., counting the warp and filling, not bleached, dyed: colored, stained, painted or printed, valued at over 7½c. per sq. yd.; bleached at over 10c. per sq. yd.; dyed, colored, stained, painted or printed, valued at over 12½c. sq. yd. there shall be levied, collected and paid a duty of 40 p. c. ad valorem.

Cotton cloth, not bleached, dyed, colored, stained, painted or printed, exceeding 150 and not exceeding 200 threads to the sq. in., counting the warp and filling, 3½c. per sq. yd.; if bleached, 4½ per sq. yd.; if dyed, colored, stained, painted or printed, 5½c. per sq. yd.; Provided, that on all cotton cloth exceeding 150 and not exceeding 200 threads to the sq. in. counting the warp and filling, not bleached, dyed, colored, stained, painted or printed, valued at over 8c. per sq. yd.; bleached, valued at over 10c. per sq. yd.; dyed, colored, stained, painted or printed, valued at over 12c. per sq. yd.; there shall be levied, collected and paid a duty of 45 p. c. ad valorem.

Cotton cloth, not bleached, dyed, colored, stained, painted or printed, exceeding 200 to the sq. in., counting the warp and filling, 4½c. per sq. yd.; if bleached 5½c. per sq. yd.; if dyed, colored, stained, painted or printed 6¾c. per sq. yd.: Provided, that on all such cotton cloths not bleached, dyed, colored, stained, painted or printed, valued at over 10c.

per sq. yd.; bleached, valued at over 12c. per sq. yd., and dyed, colored, stained, painted or printed, valued over 15c. per sq. yd., there shall be levied, collected, and paid a duty of 45 p. c. ad valorem. Provided further, that on cotton cloth, bleached, dyed, colored, stained, painted or printed, containing a mixture of silk, and not otherwise provided for, there shall be levied, collected, and paid a duty of 10c. per sq. yd. and in addition thereto 35 p. c. ad valorem.

Clothing ready made, and articles of wearing apparel of every description, handkerchiefs and neckties or neckwear composed of cotton or other vegetable fiber, or of which cotton or other vegetable fiber is the component material of chief value, made up or manufactured wholly or in part by the tailor, seamstress or manufacturer, all of the foregoing not especially provided for in this act, 50 p. c. ad valorem. Provided, that all such clothing, ready made, and articles of wearing apparel having india rubber as a component material (not including gloves or elastic articles that are especially provided for in this act), shall be subject to a duty of 50c. per lb., and in addition thereto 50 p. c. ad valorem.

Plushes, velvets, velveteens, corduroys, and all pile fabrics composed of cotton or other vegetable fiber, not bleached, dyed, colored, stained, painted or printed, 10c. per sq. yd. and 20 p. c. ad valorem; on all such goods if bleached, 12c. per sq. yd. and 20 p. c. ad valorem; if dyed, colored, stained, painted, or printed, 14c. per sq. yd. and 20 p. c. ad valorem; but none of the foregoing articles in this paragraph shall pay a less rate of duty than 40 p. c. ad valorem.

Chenille curtains, table covers, and all goods manufactured of cotton chenille, or of which cotton chenille forms the component material of chief value, 60 p. c. ad valorem.

Stockings, hose and half-hose, made on knitting machines or frames, composed of cotton and other vegetable fiber, and not otherwise especially provided for in this act, and shirts and drawers composed of cotton, valued at not more than $1.50 per dozen, 35 p. c. ad valorem.

Stockings, hose and half-hose, selvedged, fashioned, narrowed or shaped wholly or in part by knitting machines or frames, or knit by hand, including such as are commercially known as seamless stockings, hose or half-hose, all the above composed of cotton or other vegetable fiber, finished or unfinished, valued at not more than 60c. per dozen pairs, and in addition thereto 20 p. c. ad valorem; valued at more than 60c. per dozen pairs and not more than $2 per dozen pairs, 50c. per dozen pairs, and in addition thereto 30 p. c. ad valorem; valued at more than $2 per dozen pairs and not more than $4 per dozen pairs, 75c. per dozen pairs, and in addition thereto 40 p. c. ad valorem; valued at more than $4 per dozen pairs, $1 per dozen pairs, and in addition thereto 40 p. c. ad valorem; and all shirts and drawers composed of cotton and other vegetable fiber valued at more than $1.50 per dozen and less than $3 per dozen, $1 per dozen, and

in addition thereto 35 p. c. ad valorem; valued at more than $3 per dozen and not more than $5 per dozen, $1.25 per dozen and in addition thereto 40 p. c. ad valorem; valued at more than $5 per dozen and not more than $7 per dozen, $1.50 per dozen and in addition thereto 40 p. c. ad valorem; valued at more than $7 per dozen, $2 per dozen, and in addition thereto 40 p. c. ad valorem.

Cotton cords, braids, boot, shoe, and corset lacings, 35c. per lb; cotton gimps, gallons, webbing, goring, suspenders, and braces, any of the foregoing which are elastic or nonelastic, 40 p. c. ad valorem; Provided that none of the articles included in this paragraph shall pay less rate of duty than 40 p. c. ad valorem.

Cotton damask, in the piece or otherwise, and all manufactures of cotton not especially provided for in this act, 40 p. c. ad valorem.

FLAX, HEMP, AND JUTE, AND THEIR MANUFACTURES.

Flax straw, $5 per ton.

Flax, not hackled or dressed, 1 cent per pound.

Flax, hackled, known as "dressed line," 3 cents per pound.

Tow, of flax or hemp, one-half of 1c. per pound.

Hemp, $25 per ton; hemp, hackled, known as line of hemp, $50 per ton.

Yarn made of jute, 35 p. c. ad valorem.

Cables, cordage, and twine (except binding twine composed in whole or in part of istle or tampico fibre, manila, sisal grass or sunn), 1½c. per lb; all binding twine manufactured in whole or in part from istle or tampico fibre, manila, sisal grass or sunn, seven-tenths of 1c. per lb.; cables and cordage made of hemp 2½c. per lb.; tarred cables and cordage 3c. per pound.

Hemp and jute carpets and carpetings, 6c. per square yard.

Burlaps not exceeding 60 inches in width, or flax, jute or hemp, or of which flax, jute or hemp, or either of them, shall be the component material of chief value (except such as may be suitable for bagging for cotton), 1⅝c. per pound.

Bags for grain made of burlaps 2c. per pound.

Bagging for cotton, gunny cloth, and all similar material suitable for covering cotton, composed in whole or in part of hemp, flax or jute butts, valued at 6c. or less per sq. yd., 1 6-10c. per sq. yd.; valued at more than 6c. per sq. yd., 1 8-10c. per square yard.

Oil-cloth for floors, stamped, painted or printed, including linoleum, corticene, cork-carpets figured or plain and all other oil-cloth (except silk oil-cloth), and water-proof cloth, not specially provided for in this act, valued at 25c. or less per sq. yd., 40 p. c. ad valorem; valued above 25c. per sq. yd., 15c. per sq. yd. and 30 p. c. ad valorem.

All manufactures of flax or hemp, or of which these substances, or either of them, is the component material of chief value, not specially

provided for in this act, 50 p. c. ad valorem; Provided, that until Jan. 1, 1894, such manufactures of flax containing more than 100 threads to the square inch, counting both warp and filling, shall be subject to a duty of 35 p. c. ad valorem in lieu of the duty herein provided.

Collars and cuffs, composed entirely of cotton 15c. per dozen pieces and 35 p. c. ad valorem; composed in whole or in part of linen 30c. per dozen pieces and 40 p. c. ad valorem; shirts and all articles of wearing apparel of every description, not specially provided for in this act, composed wholly or in part of linen, 55 p. c. ad valorem.

Laces, edgings, embroideries, insertings, neck rufflings, ruchings, trimmings, tuckings, lace window curtains, and other similar tamboured articles, and articles embroidered by hand or machinery, embroidered and hemstitched handkerchiefs, and articles made wholly or in part of lace, rufflings, tuckings or ruchings, all of the above-named articles composed of flax, jute, cotton, or other vegetable fibre, or of which these substances or either of them, or a mixture of them is component material of chief value, not specially provided for in this act, 60 p. c. ad valorem: Provided, that articles of wearing apparel, and textile fabrics, when embroidered by hand or machinery, and whether specially or otherwise provided for in this act, shall not pay a less rate than that fixed by the respective paragraphs and schedules of this act upon embroideries or the materials of which they are respectively composed.

All manufactures of jute, or other vegetable fiber, except flax, hemp or cotton, or of which jute, or other vegetable fibre, except flax, hemp or cotton is the component material of chief value, not specially provided for in this act, valued at 5c. per lb. or less, 2c. lb.; valued above 5c. per lb., 40 p. c. ad valorem.

WOOL AND MANUFACTURES OF WOOL.

All wools, hair of the camel, goat, alpaca and other like animals shall be divided for the purpose of fixing the duties to be charged upon them, into the three following classes.

Class one, that is to say, merino, mestiza, metz or metis wools, or other wools of merino blood, immediate or remote. Down clothing wools and wools of like character with any of the preceding, including such as have been heretofore usually imported into the United States from Buenos Ayres, New Zealand, Australia, Cape of Good Hope, Russia Great Britain, Canada and elsewhere, and also including all wools not hereinafter described or designated in classes two and three.

Class two, that is to say, Leicester, Cotswold, Lincolnshire, Down combing wools, Canada long wools, or other like combing wools, of English blood; and usually known by the terms herein used, and also hair of the camel, goat, alpaca and other like animals.

Class three, that is to say Donskoi, native South American, Cordova, Valparaiso, Russian camel's hair, and including all such wools of like

character as have been heretofore usually imported into the United States from Turkey, Greece, Egypt, Syria, and elsewhere, excepting improved wools hereinafter provided for.

The duty on wools of the first class which is imported washed shall be twice the amount of duty imposed on the unwashed wool; and the duty on wools of the first and second classes which is imported scoured, shall be three times the duty imposed if imported unwashed.

Unwashed wools shall be considered such as shall have been shorn from the sheep without any cleansing; that is, in the natural condition. Washed wools shall be considered such as have been washed with water on the sheep's back. Wool washed in any other manner than on the sheep's back shall be considered as scoured wool.

The duty upon all wools and hair of the first class shall be 11c per ℔ and upon all wools or hair of the second class 12c per pound.

On wools of the third class, and on camel's hair of the third class, the value whereof shall exceed 13c per lb., including charges, the duty shall be 32 per cent ad valorem. If the value exceeds 13c per lb. the duty shall be 50 per cent advalorem.

On woolen and worsted yarns made wholly or in part of wool, worsted or the hair of the camel, goat, alpaca or other animals, valued at not more than 30c per lb., the duty per pound shall be two and one-half times the duty on unwashed wool of the first class, and in addition thereto 35 p. c. ad valorem; valued at more than 30c and less than 40c per lb. the duty shall be three times that imposed on unwashed wool of the first class, and in addition thereto 35 p. c. ad valorem; valued at over 40c per lb. the duty shall be three and a half times that imposed on unwashed wool of the first class, and in addition thereto 40 p. c. ad valorem.

On woolen or worsted cloths, shawls, knit fabrics, and fabrics made on knitting machines or frames, and all manufactures of every description made wholly or in part of wool, worsted, or the hair of the camel, alpaca, goat or other animals not specially provided in this act, valued at not more than 30c per lb. the duty shall be three times the duty imposed on a pound of unwashed wool of the first class, and in addition 40 p. c. ad valorem; valued at more than 30c and less than 40c per lb., the duty per pound shall be three and one-half times the duty imposed on unwashed wool of the first class, and in addition thereto 40 p. c. ad valorem; valued at above 40c per lb., four times the duty on a pound of unwashed wool of the first class and 50 p. c. ad valorem.

On blankets, hats of wool, and flannels for underwear, composed in part or wholly of wool, valued at not more than 30c per lb., the duty per lb. shall be the same as that imposed on 1½ lb. of unwashed wool of the first class, and in addition 30 p. c. ad valorem; valued at more than 30c and less than 40c per lb., the duty per lb. shall be twice the duty imposed on a pound of unwashed wool of the first class; and in addition thereto upon all of the above named articles 35 p. c. ad valorem. On blankets and hats of wool

composed of wool or hair, wholly or in part, valued at over 50c per lb. the duty shall be three and one-half times the duty imposed on a lb. of unwashed wool of the first class, and in addition 35 p. c. ad val. Flannels composed wholly or in part of wool or hair, valued at above 50 cts a pound, shall be classified to pay the same duty as dress goods, coat linings, Italian cloths, and goods of similar character and description, provided by this act.

On women's and children's dress goods, coat linings, Italian cloths, and goods of similar character and description of which the warp consists wholly of cotton or other vegetable material, valued at not exceeding 15c per sq. yd. 7c per sq. yd. and in addition thereto 40 p. c. ad val., valued at above 15c per sq. yd., 8c per sq. yard and in addition thereto 50 p. c. ad valorem. Provided, That on all such goods weighing over 4 ounces per square yard the duty per pound shall be four times that on a pound of unwashed wool of the first class and in addition thereto 50 per cent ad valorem.

On women's and children's dress goods and similar fabrics not specially provided for in this act the duty shall be 12c per square yard and 50 p. c. ad valorem. But if such goods weigh over 4 ounces to the sq. yd. the duty shall be four times that on a pound of unwashed wool of first class and in addition thereto 50 p. c. ad valorem.

On clothing, ready made, and articles of wearing apparel of every description not specially provided for in this act, and plushes and other pile fabrics, composed wholly or in part of wool, the duty per pound shall be four and one-half times the duty on a pound of unwashed wool of the first class, and in addition thereto 60 per cent ad valorem.

On cloaks, dolmans, jackets, ulsters, or other wraps or outside garments composed wholly or in part of wool, the duty per pound shall be four and one-half times the duty imposed on a pound of unwashed wool of the first class, and in addition thereto 60 per cent ad valorem.

On webbings, gorings, suspenders, braces, bindings, braids, galloons, fringes, cords and tassels, laces and embroideries, head nets or buttons of any kind made wholly or in part of wool, the duty shall be 60 cents per pound, and in addition thereto 60 per cent ad valorem.

NEEDLES.

Needles for knitting or sewing machines, crochet and tape needles and bodkins of metal, 35 per cent ad valorem.

Needles, knitting, and all others not specially provided for in this act, 25 per cent ad valorem.

BUTTONS AND BUTTON FORMS.

Button forms; lastings, mohair, cloth, silk or other manufactures of cloth, woven or made in patterns or such size, shape or form, or cut in such manner as to be fit for buttons exclusively, 10 per cent ad valorem.

Buttons, commercially known as agate buttons, 25 per cent ad valorem.

Pearl and shell buttons, 2½ cents per line, button measure of one-fortieth of an inch, per gross, and in addition thereto 25 per cent ad valorem.

Ivory, vegetable ivory, bone or horn buttons, 50 per cent ad valorem.

Shoe buttons made of paper board, papier mache, pulp or other similar material not specially provided for in this act, valued at not less than 3 cents per gross, 1 cent per gross.

LEATHER AND MANUFACTURES OF LEATHER.

Calf skins tanned, dressed upper leather, including patent, japanned and enameled leather; chamois or other skins not specially enumerated or provided for in this act, 20 per cent ad valorem; bookbinders' calf skins, kangaroo, sheep and goat skins, including lamb and kid skins, dressed and finished, 20 per cent ad valorem; skins for morocco, tanned but unfinished, 10 per cent ad valorem; japanned calf skins, 30 per cent ad valorem; boots and shoes made of leather, 25 per cent ad valorem.

Gloves of all descriptions, composed wholly or in part of kid or other leather, shall pay at the rates fixed in connection with the following specific kinds thereof, 14 inches in extreme length when stretched to the full extent, being in each case hereby fixed as the standard, and 1 dozen pairs as the basis, namely: Ladies' and children's schmaschen of said length or under, $1.75 per dozen; ladies' and children's lamb of said length or under, $2.25 per dozen; ladies' and children's kid of said length or under, $3.25 per dozen; ladies' and children's suedes, of said length or under, 50 per cent ad valorem; all other ladies' and children's gloves and all men's leather gloves of said length or under, 50 per cent ad valorem; all leather gloves over 14 inches in length, 50 per cent ad valorem, and in addition to the above rates there shall be paid on all men's gloves $1 per dozen; on all lined gloves $1 per dozen; on all pique or prick seam gloves, 50 cents per dozen; on all embroidered gloves with more than three single strands or cords, 50 cents per dozen pairs. Provided, That all gloves represented to be of a kind or grade below their actual kind or grade, shall pay an additional duty of $5 per dozen pairs. Provided further, That none of the articles mentioned in this paragraph shall pay a less rate of duty than 50 per cent ad valorem.

MISCELLANEOUS MANUFACTURES.

Feathers and downs of all kinds, not specially provided for in this act 10 per cent ad valorem. Manufactured articles of feathers and down including dressed and finished birds suitable for millinery ornaments, 50 per cent ad valorem.

Furs, dressed on the skin but not made up into articles, and furs not on the skin, prepared for hatters' use, 20 per cent ad valorem.

Glass beads, unthreaded, or unstrung, 10 per cent ad valorem.

Hair cloth, known as crinoline cloth, 8 cents per square yard.

Hair cloth, known as hair seating, 30 cents per square yard.

Hair, curled, suitable for beds and mattresses, 15 p. c. ad valorem.

Manufactures of bone, chip, grass, horn, India-rubber, palm-leaf, straw, weeds of whalebone, not specially provided for in this act, 30 p. c.

Matting made of cocoa-fibre or rattan, 12c. per sq. yd.; mats made of same, 8c. per sq. foot.

Plush, black, known commercially as hatters' plush, composed of silk or silk and cotton, and used exclusively for making men's hats, 10 p. c.

Umbrellas, parasols and sunshades, covered with silk or alpaca, 55 p. c.; if covered with any other material 40 p. c.

Handles for umbrellas, parasols and sunshades, if plain 35 p. c.; if carved, 50 p. c.

FREE LIST.

On and after the 6th day of October, 1890, unless otherwise specially provided for in this act, the following articles when imported shall be exempt from duty:

Bolting cloth, especially for milling purposes, but not suitable for wearing appearel.

Coir and coir yarn.

Cotton and cotton waste, or flocks.

Fans, common palm leaf, and palm leaf unmanufactured.

Floor matting manufactured from round or split straw, including what is commonly known as China matting (old tariff 20 p. c.)

Furs, undressed.

Istle, or Tampico fibre.

Jute and jute butts; manila, sisal grass and sunn.

Hides, raw or uncured, whether dry, salted or pickled, Angora goat skins, raw, without the wool, asses' skins, and all other skins, with the wool on, except sheep skins.

India-rubber, crude, and milk of, or old scrap or refuse India-rubber which has been worn out by use and is fit only for remanufacture.

Ivory and vegetable ivory, not manufactured.

Needles, hand, sewing and darning.

Silk, raw, or as reeled from the cocoon, but not double, twisted or advanced in manufacture in any way.

Whalebone, unmanufactured.

That on and after the first day of March, 1891, all articles of foreign manufacture, such as are usually or ordinarily marked, stamped, branded, or labeled, and all packages containing such or other imported articles, shall respectively be plainly marked, stamped, branded, or labeled in legible English words, so as to indicate the country of their origin; and unless so marked, stamped, branded, or labeled they shall not be admitted to entry.

APPENDIX "D."

A LIST OF GERMAN WORDS AND PHRASES WITH ENGLISH SPELLING AND PRONUNCIATION.

To those who desire to obtain a practical knowledge of German trade words and phrases, and haye but a limited time to devote to it, the following list will afford a speedy and thorough grounding in all that is necessary for conversational purposes. Clerks and salesmen will find the list to be especially beneficial, inasmuch as nowadays a situation often depends upon the clerks' ability to speak German; and it is not an infrequent occurrence that a clerk who possesses this accomplishment is allowed considerably more in salary than the one who lacks it. Merchants, even, will find that the ability to carry on a store conversation in German rarely ever fails to produce a favorable impression, and sometimes is of immense advantage, in dealing with German customers.

Ah should be pronounced as *a* in "father;" *ch* has the sound of *k* or *kh*.

A—ine
Acceptable—an'-nam-bar
Again—ve'-dar
All-wool—gans wolla
All right—gans goot; or, ine'-ver-stand-an
Alpaca—alpaca
Aluminum—aluminium
American—Amer-i-can'-esch
American cloth—amer-i-can'-eshar stoff
And—und
Angora wool—angora woll'-a
Any—et'-was; or, ine'-e-gas
Anilin—an-e-lene'
Anything—ehr'-gend et-was
April—Ap'-ril
Apron—schurtz'-a
August—August
Arctics—e'-ber-schu
Astrakhan—astrakhan
Baby—kind
Baby cap—kinder kap'-pa

Back (as of cloth)—ruk-si'-ta
Band—band-ine'-fassung
Bandana—das si-de'-na-tukh
Bankrupt—bank'-rott
Barege—barege
Barter—towsh or tausche
Basket flannel—korb flan-nell'
Basket weave—karb ga-flecht'
Bathing suit—bad-e'-anzukh
Batting—vah'-ta or vaht'-ta
Be—zine or sein
Beads—pear'-lin
Beautiful—shane; or, proct'-vall
Beaver cloth—cah'-stor stoff
Bed clothes—bed tukh
Bed gown—bed dek'-ke
Bed linen—bed li'-nen
Bed quilt—bed mat-trat'-ze
Bed tick—bed e'-ber-tsug
Berlin wool—Ber-li'-ner-wolla
Best—bes'-ta
Better—bes'-ser
Between—zwis'-chen; or, twisch'-en
Bib—let'-zchen; or, bu'-shen
Blanket—wolla bed tukh
Bleached—geb-leicht'
Blouse—blu'-za
Blouse waist—blu'-zen wes'-ta
Blue—blaw
Bobbinet—spitz'-en-grund
Bolster—pole'-ster; or, kis'-sen
Bolt—bahl'-len
Bonnet—hoot
Book muslin—boak mus-lene'
Boots (long)—steef'el; (low) schuh
Bought—ga'-kowft
Box (large)—kiss'-ta; (small) kiss'-tschen
Braid—be-satz
Breeches—bine'-kleid'-ar; or, ho'-zen
Broadcloth—fi'-nes tukh
Brocade—bro'-kat
Bring—bring'-en
Buckle—schnal'-la
Buckram—steef line'-vand
Bunting—flagg'-stoff; or, flag'-stouf

Burlaps—yu'-ta
Bustle—kueh
Butcher's linen—schlak'-ter li'-nen
Butter cloth—butter-stoff
Buttons—k'nap'fa
Buy—kow'-fen
Calfskin—kalbs'-fell
Calico—calicot
Call again—kom'-en ze we'-dar
Call in again—kom'-en ze we'-dar ha-rine'; or, kom'-en ze we'-dar fore
Cambric—cambric
Camel's hair—kam-ale' haar
Can I?—Darf ich?
Cannot—kann nicht
Canton flannel—woll flan-nell'
Canvas (fine)—can'-na-vis; (coarse)—per-sen'-ig
Cap (for child)—kap'-pa; (for men)—mu'-tsa
Cape—kap'-pa; or, um'-schlag-tukh
Cardigan jacket—cardyan jack'-a
Carpet—tep'-pich
Cashmere—kasch'-mere
Cashmere shawl—kasch'-mere schaal
Cassimere—ine'-facker woll-stoff
Celluloid—cel'lo-lu-ede'
Chair—stool
Chambray—chambray
Change (to exchange)—um'-tow-schen
Change (money)—weck'-seln
Check—ahn'-weis-ung
Checkered—kar'-riert
Cheese-cloth—kazy'-gaze
Chemise—nacht hembt
Chemisette—fore'-hembt
Chenille—Chen-nil'-ya
China silk—Chi'-na si-da
Chintz—zitz
Cloak—um'-schlag-tukh; or, man'-tel
Clock—uhr
Cloth—stoff, or stuff
Clothes—klei'-dar
Clothier—klei'-dar handler
Coat—rogh or rok
Collar—krah'-gen
Color—fahr'-ba
Come—kom'-en ze

Comfort (quilt)—spra-deck'-a
Contrast—ga'-gensatz; or, un'-ter-schede
Cord—schnure
Corset—kor'-sett
Corset jean—kor'-sett ba-klei'-dung
Cotton—bom'-wolla
Cottonade—ar-bi'-tar stoff
Count—tzay'-len or tsa'-len
Counter—lad'-den-tish (bench)
Counterpane—li'-nen-tukh
Coverlet—coverlet
Crape—krapp; or, flor
Crash—li'-nen-handt'-tukh
Cravat—kra-vaht'-ta
Cretonne—kre-tonn'
Crewel—ga-tzwirn'-tes garn
Crinoline—kren-o-lene'
Cuffs—mahn-schat'-ten
Curtain (thick, heavy)—fore-hane'-ga
Curtain (lace)—gar-dene'-en
Cut—schni'-dan; or, schnitt
Damask—dahm'-ahst
Damp—dum'-feg; or, ba-deckt'
Dark—dunk'-el
Day—tahg or tag
December—Da-cam'-ber
Delaine—wall'-an
Desk—pult
Diaper—ga-blume'-tas li'-nin
Dickey—fore'-hembt
Difference—unter-'ter scheet
Dimity—ga'-ka'-parta par'tchant
Distinction—un'-ter-scheet
Ditto—a'-ban-fahlls
Do—tu'-an
Do you need any dry goods?—Brow'-ken ze ell'-en-vah'-ren?
Do you speak German?—sprach'-en ze Deutsch?
Dogskin—hund'-a-fall
Dog cheap—re'-sig bil'-lich
Dollar—thah'-lar
Dolman—dolman
Domet—dril'-lich
Do not go—ga'-han ze nicht
Door—tu'-ar
Double-dyed—dop'-pelt ga-farbit'

Dozen—dut'-zend
Doyley—ser-vi-et'-ta
Drab—licht braun (brawn)
Drape—drab-pere'-an
Draper—drah-pere'-ar
Drawers (for women)—unter-bine-kleider
Drawers (for men)—unter-ho'-zen
Dress (for women)—klide or kleid
Drilling—dril'-lich
Drugget—dro-guet'
Dry goods—kurtz'-vah'-ren; or ell'-en vah'-ren
Due-bill—fel'-li-ga rech'-nung
Dust—stawb
Dyed—ga-farbt''
Eiderdown—eider-du'-nan
Eight—ahcht or acht
Eighty—ahcht'-zig
Eighteen—ahcht'-zhan
Elastic cord—gum'-mi let'-za
Elastic web—gum'-mi band
Eleven—elf
Ell—el'-la
Enough—gan-ugh'
Embroidery—stick'-e-ri
Embroidery silk—stick'-si'-da
Examine—an'-zane
Except—owse-ga-nom'-an
Expenses—cost'-en; or, owsi'lahg-en
Expensive—toy'-er; or, kost'-bar
Face (as of cloth)—o'ber-si'ta; or, o'ber-fleck'-a
Factory—fahb-rique'
False hair—fawl'-chas hahr (haar)
Fade—bli'-ken; or, ap-bli'-ken or schwin'-dan
Fan—feh'-yahr or fa'-hahr
Fancy—fan-tash'-tish
Fashion—mo'-da
Fashion plate—mo'-da bild
Fast color—acht fahr'-big
Featherbone—fa'-der-bine
Feathers—fa'-dern
Febuary—Fa'-bru-ahr'
Fell—fal'-len
Felt—feltz
Few—ine'-e-ga va'-ne-ga
Fichu—hals-tukh

Fifteen—fumf'-zahn
Five—fimf
Fifty—fumf'-zig
Fine—shane or shuhrn
Flag—flag'-ga
Flannel—flan-nell'
Flax—flachs (flax)
Fleece—fleece
Floss—stick-si'-da
Fold—zu-zam'-man-pack'-en
Foot—fuhs or fu"-us
For—fere
Forty—fere'-tzig
Four—fere
Fourteen—fere'-tzan
Friday—Fri'-tahg
Fringe—frahn'-za
Frieze—frese
From—fon or von
Fur—paltz
Gaiter—ga-mah'-schen
Galloon—bor'-den
Galoshes—gum'-mi schu'-a or o'-ber schu'-a
Garment—ga'-vand
Garter—strumpf'-band
Gauntlet—pan-zar-hand'-schu
Gauze—gah'-za
German knitting worsted—Deu'-tcha strick wolla
Gimp—zi'-da-na spitz'-an
Get—bring'-an; or, hole'-an
Gingham—gingham
Girdle—ger'-tle
Girl—maid'-tschan
Give—ga'-ban
Glove—hahnd'-schu
Go—ga'-han
Ga! (German)—Get out of here!
Good—goot
Good bye—ad-dieu'-a
Good day—goot'-en tag
Good evening—goot-en ab'-end
Good morning—goot'-n mor'-gan
Good night—goot'-en nacht (nakt)
Goods (merchandise)—vah'-ren
Gossamere—durch'-sech-tech

Got—emp-fing'
Gown—dare-lahn'-ga-rok
Grade (quality)—klahs'-sa or qual-e'-tat
Grain (as of silk)—fah'-den
Gray—grow
Green—gru'-en
Grenadine—grenadine
Grosgrain—dig-fah'-dig
Gutta-percha—gutta-percha
Hair-net—hahr-netz
Half—hawlp or hahlb
Hammock—hang'-maht-ta
Handkerchief—tasch'-an-tukh
Hand—hahnd
Hank—zum k'nawul bild'-en
Has—haht
Hat—hut
Have—habt or hah'-ben
Haversack—hah'-fer-sahk
Hemp—hanf
Hemstitch—zaum
Hence—in tzu'-kumft
Her—ehr; or ear
Him—ehm
Home—haus or house
Homely—has'-lich
Holland—see Curtain
Hood—hau'-ba
Hooks and eyes—hak'-an und uhr'-zan
Hoops—ri'-fan
Hoopskirt—ri'-fan
Hose—strump'-fa
Hot—vahrm
Hour—stun'-da
House—haus
How—We
How large?—We gros?
How much?—We feel?
How often?—We oft?
How late? or, what o'clock is it?—We spate? or We spate estas?
How is your health? (or business)—We gaitz eh'am?
Hundred—hunde'-art or hoond'-art
Husband—mahn; or, ga'-mahl
Hunt—su'-ken
I—ich

I am told—ich here'-ta
I do—ich tu'-a
I do not—ich tu'-a nicht
I take—ich na'-ma
I take the liberty of—ich binn zo fry tzu
I will (future tense)—ich var'-da
I will (present tense)—ich vill
In—in
Inch—tzoll
Indeed—vir'-klich
Indigo—indigo
India rubber—gum'-mi
Indigo blue—indigo blaw
Inform—sah'-gan
Ingrain—in dare wolla ga'-farbt'
In stock—auf lah'-ger
Invoice—rechnung
Inventory—in'-ven-tahr
Is—ist
It—ess or s
I can—ich kann
I will call on you—ich ver'da we'der for'-spreck-ken
I will come to see you—ich kom'-ma zu ene'en
Jaconet—fi'-nar mus-lene'
Jannary—Jan-u-ahr'
Jersey—jersey
July—July
June—Ju-nee'
Jute—yu'-ta

Kind—art
Kilt—kort'-zas ruck'-zhen
Knitting cotton—bom-wollon'-us strick'-garn; or strick wolla
Knitting silk—strick si'-da
Knitting needles—strick nod'-dle
Knit Underwear (cotton)—ges-strick'-tas un'-ter-zeug
Knit Underwear (wool)—flan-nell' un'-ter-zeug
Knit Underwear (silk)—si-da un'-ter-zeug
Lace—spit'-za
Lady—frow; or, madam
Lady (unmarried)—frau-line'
Lambrequin—fore-hang'
Large—gross; or, ba-doy'-tand
Lawn—lin'-own; or, schlier'-line-vand
Leather—la'-dar
Left—ga-las'-san

Left (direction)—link'-a
Left hand—link'-a hahnd
Less—va'-ne-gar
Light (color)—lecht
Light (weight)—licht
Lighter (weight)—lichter
Lightest weight—am licht'-a-stan
Line—lene'-ya
Linen—li'-nen
Lining—foot'-air or fut'-tar
Lisle thread—lisle ge-vay'-ba
Look—sa'-han ze
Madder—fair-ba-roy'-tha
Made—ga-macht'
Makes no difference—das macht nix
Man—mann
Manufacturer—fab-rik-ant'
Many—feel'-a
Many times—oft
March (month)—Martz
Mark—tzeick'-nan
Mark down—her-un'-ter zet'-zen
Market—hahn'-dle
Matting (floor)—foos'-matta
May—my
Me—mere
Measure—mahs; or, maws
Medium quality—mit'-ler-a gweet'-ta
Men—loy'-ta; or, mann'-er
Merino—merino
Milliner—mo-dis'-tin; or, putz'-mack-ehr-in
Million—million
Minute (time)—mi-nu'-ta
Miss—Frau-line'
Mister—Herr; or, Hahr
Mistress—Dahm'-ma
Mode—mode
Mohair—kah-mal-hahr
Moire—moire-wolla
Monday—Mon'-tagh
Money—geldt
Month—mo-naht'
Mosquito netting—mosquito netz
Mourning—trow'-ar
Muff—muff

Much—feel
Muffler—hals-krawg'-gen
Mull—mull
Muslin—mus-lene'
Myrtle green—muer'-ten gru'-en
Nainsook—nainsook
Nankeen—nankeen
Nap—nap'-pa
Napping—k'no'-ten
Napkin—serviet'-ta
Narrow—ankh
Neckcloth—hals'-tukh
Necktie—hals-bin'-da; or slips
Needle—nod'-dle or nah'-dle
Net (fabric)—netz
Net (price)—ne'-to
New—noy
Nice—schorn, or shane, or shaney
Night gown—nacht hempt
Night shirt—nacht hempt
Nine—noin
Nineteen—noin'-tzan
Ninety—noin'-zig
No—nine
Normal—nor-mahl' or nor-mawl
Not—necht; or, nix
Nothing—nix; or, kine'-en
Nottingham lace—Nottingham spitz'-a
November—November
Now—yetzt
Nubia—nu'-bisch'-a bin'-da
Number—num'-mare
Nursery cloth—kin'-der kleid'-ar
Nursery pins—zick'er-hitze'-noddle
October—October
Of—fon or fawn
Oil cloth—oil tukh
Oil red—oil far'-ba
Oiled silk—wox taf'-fet
Oilskin coat—wox taf'-fet e'-ber tzukh
Oil clothing—wox'-tukh
Old—ahlt or awlt
On—owf or auf
On (time)—ahmm or awm
One—ine

One-half—ine hawlp
One hundred—ine hoond'-art
One-quarter—ine fere'-tle
Organzine—organzine
Ostrich feathers—straus'-sen fa'-dern
Out—owse
Out of date, or out of stock—owse ga speeldt
Overcoat—e'-ber-rock; or, e'-ber-tze'-har
Package—pack-kate'
Pantaloons—bine'-kleider
Paper—pa-pier'
Paper collar—pa-pier' krawg'-en
Parasol—zone'-an-schirm
Partner—tile hawb-er; or tzo'-tius
Partnership—tile hawb-er-shaft
Pattern—moos'-ter
Pearl—pare'-lin
Pearl button—parl-moot'-er-k'nap'-fa
Pen—fa'-der
Pencil—blize'-tift
Pen-holder—fa'-der hol'-tare
People—folk; or loy'-ta
Petticoat—frau'-en-rok
Pile—o'-ber-fleck'-ke
Pillow—kopf'-kis'-sen
Pillow case—kopf'-kiss'-en e'-ber-tzukh
Pin—steck-noddle
Pink—fleisch-fahr'-ba
Place—platz
Plaid (pattern)—care-riert or cah'-riert
Plain—ine'-fach
Pleasant—an'-ga-name or an-ga-na'-mar
Pleat—fahl'-ta
Plenty—ga-nuck' or ga-nu'-ga
Plush—ploosh
Ply (fold)—fach or fahch
Polite—hur'-flich
Polonaise—polonaise
Pongee silk—pongee si'-da
Poor (quality)—ga-rin'-ga
Poor (not rich)—ar'-mes
Poplin—pah-pe-lene'
Portiere—fore'-hangk
Pretty—pracht'-ful; or hepsch; or nett
Price—prize

Prints—ga'-druckt
Promise—fore'-spracken
Purple—pur'-pur
Pure wool—rine'-wolla
Pure (merchandise)—rine
Pure (liquids)—klare
Quilling—spool'-la
Quilt—bed'-dek-ke; or, polster
Quilted—ga-poll'-start
Quality—qweet'-ta
Quarter—fere'-tle
Rain—ra'-gan
Rear—hin'-ten
Red—rote
Regular—ga-vern'-lich
Regular made—ra'-gal-recht ga-makt'
Remnant—e'-ber-est
Retail—da'-tile
Ribbon—bahnd
Right (direction)—reckts
Right (proper)—reckt
Roll—bal'-len; or, roll'-a
Rubber—gum'-mi
Rubbers—gum'-mi schua
Rug—row'-hare tep'-pick; or, row'-hare deck'-a
Russian embroidery—Rus'schick-a stick'-er-i'
Russet—dunk'-el brawn
Sack—sacque
Sacque—zack'-oat
Safety-pin—zick'er-heitz'-noddle
Salary—ga-halt'
Same—de-sel'-ba
Sample—mu'-ster
Satchel—zack-schen
Sateen—bom-wol'-la-nar dam'-ast
Satin—at'-las
Satin ribbon—at'-las bahnd
Satinet—halb-atlas
Saturday—Zon'-a-hend; or Zams'-tagh
Scarf—hals-bin'-da; or slips
Scarlet—shar'-lack
Scarce—zel'-ten
Scissors—schar'-a
Scrim—fore'-hangh
Sealskin—za-huntz'-fell

Second (time)—se-koon'-da
Second (number)—zwi'-ta
Second quality—zwi'-ta gweet'-ta
See—za'-hay
See (if used in the sense of visiting)—be-zu'-ken
September—September
Serge—zerche
Servietta—servietta
Seven—see-'ben
Seventeen—zeep'-tzan
Seventy—zeep'-tzig
Sew—na'-han
Sewing—na'-hand
Sewing machine—nay-machine'-a
Sewn—ga'-nate'
Shade (color)—fahr'-ba
Shall I?—zoll ich?
Shalloon—schal-longh'
Shawl—schahl
Sheet—bet'-tukh
Sheeting—bet-li'-nen
Shirt—hembt
Shirting—hembt-li'-nen
Shirt waist—fore'-hembt-chan
Shoddy—shoddy
Shoe—Schu
Shoes—schu'-a
Short—kurtz
Shot silk—ra'-gan-bo'-gan-far'-be-ga si'-da
Show—tzi'-gan
Show window—schaw-fan'-ster
Showcase—owse-lah'-ga
Shroud—grahb'-tukh
Sidewalk—foose'-vague
Silesia—Schlaza
Silk—si'-da
Silk cord—si'-den-a schnure
Since—dah-hayr'; or, da-hair'; or site
Six—zax
Sixteen—zex'-tzan
Sixty—zex'-tzig
Size—groys'-sa
Simple—ine'-fack
Simply—nure
Skein—strangk

Skirt—ine'-fas'-sung; or, bor'-ta
Small—kline
Socks—strump'-fa
Some—ine'-e-ga
Son—zohn
Speak—spreck'.en
Splendid—prackt'-ful
Spatterdash—gam-ash'-en
Spoke—ga-sprak'; or, ga'-spok-en
Square (measurement)—fere'-eek-ig
Square (honest)—pass'-end; or ar'lich
Stockinet—strumpf-ga-va'-ba
Stockings—strump'-fa
Stocking yarn—strick'-wolla
Stool—stool
Store—lad'-dan
String—binde-fad'-en; or, schnure
Stripe—stri'-fan
Style—steel
Suit (for man)—an'-zukh
Sun—zohn'-na
Sunday—Zun'-tagh
Sunshade—zohn'-nan-schirm
Sure—zick'-air
Suspenders—ho-zen-tra'-ger
Swiss Embroidery—Schwitzer stick'-er-i'
Table linen—tish'-tzoig
Table cloth—tish'-tukh
Table damask—dam'-ast-tukh
Taffeta—tafft
Take—na'-men
Tailor—schni'-dar
Tapestry (hangings)—tap-a'-ta
Tapestry (floor)—tap'-pich
Tariff—tare-efe'
Tarlatan—tarlatan
Tassel—quast; or, trod'-dle
Tell—zah'-gen
Ten—tzane
Terry cloth—terry cloth
Textile—va'-ber-ri'
Than—als
Thank—dank'-en
Thank you—drank'-a Ene'-en
That—dass

The—(masculine) der; (feminine) de; (neuter) das
Them—ee'-nan
Then—dahn or dann
There—dar or dah
There are—dar zint
Therefore—dar-uhm'; or vile
There is—ess geebt
These—de'-za
They—ze
Thimble—finger-huth
Thing—ding; or, sah'-ca
Thirty—dry'-sig
Thirteen—dry'-tzan
This—dese'-es
Those—ya'-na
Thousand—tows'-and
Thread—fah'-den; or, zweern
Three—dry
Three-quarters—dry-fere'tle
Thursday—Don'-nars-tagh
Tick (for bed)—e'ber-tzukh; or tzie'-ka
Ticking—drahel
Tie (wrap)—bin'-den or pah'kan
Tie (a bow)—bahnd; or schli'-fa
Time—tzite
Tinsel—broca-tel'; or lighter bro-caht'
Tippet—pelz'-krah-gen; or, pel-lar-e'-na
Tissue—ga-va'-ba
To—mere or tzu
To-day—hoy'-ta
To make—mock'-an
To you—e'-nan
Tortoise-shell—schild-kroyten-schal'-la
Towel—hahnd'tukh
Town—stadt
Told—zahg'-ta
Tolerable—shreck'-lich
Took—nahm or namm
Trade—han'-dle
Trade-mark—handles-mark
Trimming—auf'-puty
Trousers—ho'-zen
Trunk—koff'-er
Trust (credit)—kra-de-tere'-an
Trust (confide)—an'-fer-trow'-an

Tuesday—Deens'-tagh
Turkey red—Turkirch roth
Turkish towels—Tur'-kish-a hand'-tu-kair
Tweed—tweed
Twelve—tzwelve
Twenty—tzwahn'-tzig
Twill—ga-kag'-pert
Twine—tzweern, or bin'-far'-den
Two—zwy or swi
Ugly—has'-lich
Ulster—uls'-tare
Umbrella—ra'-gan-schirm
Unacceptable—un'-an-nam-bar
Unbleached—un'ga-blicht
Under—un'-ter
Undergarments—un'-ter-kli'-da
Undershirt—un'-ter-hembt
Understand—fur-stay'-han
Underwear—un'-ter-tzoig
Undressed—(leather)tzuga-rich-i'-tat
Unequal—un'-glich
Unequalled—un'-fer-glick'-lich
Uneven—un'-glick
Up—hin-owf'
Upon—owf
Upholstery—tap-a-zier'-ar'bite
Us—uns
Use—ga-brauck'
Utrecht velvet—oo'treckt ploosch
Veil—schly'-ar
Velvet—velvat; or, ploosch
Velveteen—bom woll-ploosch
Vest—ves'ta
Valentia—valentia
Valuable—vert'-ful
Value—varte
Very well—gants goot
Wadding—vat'-ta
Waist (of the body)—tal'ya
Waist-band—lipe'-gurt
Waist shirt—fore'-hembt
Warm—vahrm or varm
Warmus—ga-strick'a-woll-yak'-a
Warp—kaht'-a; or kot'-a
Wash—vasch'an

Wash-blonde—vasch-blonde
Waste—fare-swan'-den
Watch—(time-piece)wasch; or auf'pas-san
Well—goot
Watered—vally; or val'-lae
Watered silk—ga-vel-ta si'-da
Water—vass'-er
Waterproof—vass'-er-dicht
We—veer
Weave—va'-ban
Web—ga-va'-ba
Wednesday—Mitt'-vokh
Week—vokh'-a
Whalebone—fish-bine
What—vass or vhas
What is the value of this?—vass kas'-tat deez'-es?
Where—vo
Which—vel'-chass; or vel'-kass
White—vice
Who—vahr; or vare
Why—var'-uhm
Wide—vite; or brite
Widow—vit-fa
Wife—frou; ga-mah'-lin
Wigan—cal'-e-ko
Will you?—Wal'-lin ze?
Window—fen'-ster
Window blind—gar-de'-na; or, fore'-hangh
Window curtain—fen'ster fore'-hang; or, gar-de'-nan
Woman—frou
Women—frou'-en
Wool—wolla
Woolen—woll'-an
Worsted—kamm-voll'en-es garn
Worth—vert
Would you?—kern'-en ze? or verd'-en ze?
Wrap (to encase)—tzu-zam'-man-pack'-en
Wrap (garment)—ume-schlac'-tukh
Wrong—un-recht'; or, falsch
Worse—schlec'-ter
Worst—schlect'-tes-ta
Worthless—vert'-lace

Interrogative Phrases.

Who?—Vair?
Who was it?—Vaire var es?
What is it?—Vas ist es?
Who is it?—Vair ist es?
What are you doing?—Vas toon ze?
What is he doing?—Vas toot air?
Tell me—Zaa'gen ze meer
Will you tell me?—Vollen ze meer zaa'-gen
How are you?—Vee gates
How is he?—Vee gates eem?
Why?—Varoom?
What for?—Vo-fee-yur'?
Is it ready?—Ist es fair'-tig
Do you hear?—Heuren ze?
Where is he?—Vo ist air?
Where is she?—Vo ist zee?
Where is it?—Vo ist es?
Where are you going?—Vo ga'-ze hin?
Where do you come from?—Vo Kom'-men ze hair?
Where were you?—Vo va'ren ze?
What?—Vas?
What is it?—Vas ist is?
What is that?—Vas ist das?
What have you?—Vas hav'-hen zee?
What do you say?—Vas zaa'-gen ze?
What do you mean?—Vas mi'nen ze?
What do you want?—Vas vollen ze?

Affirmative Phrases.

It is true—Es ist var
It is so—Es ist zo
I believe it—Ich glow'bay es
I think so—Ich denk'ay es
I say it is—Ich zah'gay es ist
I am certain—Ich bin gay-viss'
I am certain of it—Ich bin dessen gay-viss'
You are right—Ze haa'ben recht
I know it—Ich vice es
I know it well—Ich vice es ge-now'
I promise it to you—Ich ver-sprech'ay es een'en
I will give it to you—Ich vill es een'en gay'ben
You are wrong—Ze hoa'ben oon'recht
Very well—Zare vole

Imperative Phrases.

Come away!—Kom'-men ze fort!
Come here!—Kom'-men ze heer'-hair!
Go there!—Gay'en ze dort'-hin!
Come back!—Kom'-men ze tsoo-reuck'!
Go on!—Gay'-en ze vi'-ter!
Sit down!—Set'-sen ze zick!

Easy Expressions.

If you please—gue'-tigst
Yes, Sir—yah, mine hair
Yes, Madam—yah, mad-am'
No, Sir—Nine, mine hair
No, Madam—Nine, Mad-am'
No, Miss—Nine, frau'-line
Do you speak German?—Sprechen ze doytsh?
I do not speak German—Ich sprehen nicht doytsh
I speak it a little—Ich sprechary et'-vas doytsh
I understand—Ich ferstay
Do you understand?—Ferstay'-en ze?
Can you understand?—Kenn'-nen ze ferstayen
You speak too fast—Ze sprechen tsoo shnell
What do you say?—Vas zah'-gen ze?
Do you understand me?—Ferstayen ze mich
I speak German—Ich sprach'-a Deutsh
What can we show you to-day?—Vass cann ich ene'-en hoy'-ta tsi'-gan?
How many yards?—We feel'-a ell'-en
How much do you want?—We feel voll'-en ze?
It will not fade—Es virt nicht ap-bli'-ken
Shall I send the linen home?—Zoll ich ene'-en de line'-vand ens haus shick'-en?
What will you have?—Voss vin'-chen ze?
Yard—ell'-a
Yarn—garn or gahrn
Year—yar or yahr
Yellow—gelp
Yes—yah
You—ze
Yesterday—ges'-tern
Is it fast color?—Es ist ekt'-far-big?
This garment will fit you—Deez'-es klide virt Ine'-en pass'-en
It is two small—Es ist tzu kline
It is too large—Es ist tzu gros

How is your health?—Ve-gate' es Ene'-en
Our prices are low—Un'-za-re pri'-sa zind bill'-ig
What do you call that?—Ve nen'nen ze das?
What is that in German?—Ve histe das owf doytsh?
What does that mean?—Vas histe das?
What is it good for?—Votso ist es goot?
Is it good?—Ist es goot?
Is it bad?—Ist es schlect?
I forgot it—Ich ha'bay es vergos'sen
It is healthy weather—Es ist ga-zoon'des vetter
Christmas—Vy-nacht'en
Christmas eve—Vynachts a-bend'
New Year—Noiyar
New Year's day—Noiyarstagh
A new year—Ine noyes yar
On the first floor—Im ayersten stock
On the second floor—Im tsvi'ten stock
He is my friend—Air ist mine froind

The Earth.

The earth—dee air'day
the fire—das foyer
the water—das vasser
the steam—dair strome
the sea—dee say
the weather—das vetter
tthe wind—dair vinnd
the rain—dair ra-'gan
he storm—dair stoorm
the frost—dair frost
the winter—dair vinter
the snow—dair shnay
the ice—das ice
the morning—dair morgan
the day—dair tagh
the midday—dair mit'tagh
the night—dee nacht
the moon—dair mond
the sun—dee sounai
the star—dair stairn
the year—das yahr
the rainwater—das ro'-gan-vasser
the winter weather—das vinter vetter
the summer weather—das sommer-vetter

Trades.

The merchant—dair kowf'man
the shop—dair lah'den
the counting-house—das cong'twor
the merchandize—dee vah'ray
the wholesale merchant—dair gross'hendler
the retailer—dair kline'hendler
the stock—das lah'ger
the daybook—das joor'nal
the ledger—das howpt'boo*ch*
the cash book—das cassa'boo*ch*
the invoice—de fac'toor
the receipt—dee quit'dong
the debtor—dair fer'koyfer
the creditor—dair cre'deetor
the correspondent—dair correspondent

The Relations.

The father—dair fah'ter
the grandfather—dair gros-fah'ter
the step-father—dair stelf-fah'ter
the fatherland—day fah'ter-land
the mother—dee moo'ter
the brother—dair broo'der
the sister—dee shwester
the uncle—dair onkel
the aunt—tahn'tay
the nephew—dair neffay
the niece—the nichtay
the girl—das maid'chen
the man—dair mahn
the young man—dair youngay mahn
the old man—dair altay mahn
the friend—dair friend
the boy—dair k'nah'boy
the child—das kind
the parents—dee el'tern
the brother-in-law—dair shua'ger
the wedding—dee hoch'zite
the father-in-law—dair shee'gayr-fater
the mother-in-law—dair shee'gayr mooter

The Dress.

The clothes—dee klider
the coat—dair rock
the trowsers—dee hozen
the pocket—dee tashay
the buttons—dee kneupfay
the dressing-gown—dair shlafrok
the slippers—dee pantofeln
the drawers—dee oonterhosen
the stockings—dee strimpfay
the shirt—das hemd
the braces—dee hozentrayge
the waistcoat—dee vestay
the boot—dair steefel
the boot-jack—dair steefelnech*t*
the cap—dee meeutzay
the gloves—dee handshooay
the handkerchief—das tashentooch*h*
the watch—dee oor
the umbrella—dair raygenshearm
the purse—dee beursay
the brush—dee beenrstay
the comb—dair kam
the apron—dee sheeurzay
the fan—dair fe*ch*er
the dress—das klide
the petticoat—dair oonterrock
the stays—dair schneeurlibe
the veil—dair shlier
the powder—dee poouder
the soap—dee zifay
the tooth-powder—das tzaenpoolver

Collective Numbers.

A pair—ine pahr
a dozen—ine doot'-send
a score—tsvan'tsig
firstly—ayr'stens
secondly—tsvi'tens
thirdly—dry'tens
once—ine'mal
twice—tsvi'mal
three times—dry'mal
single—ine'fach
double—dop-pelt'
threefold—dry'fach
fourfold—feer'fach
one sort—i'ner-lye
two sorts—tsvier'lye
ten sorts—tsaner'ye

Countries and Nations.

The country—das land
the native land—das faterland
the state—dair staht
the empire—das ri*ch*e
the kingdom—das keuni*g*rai*ch*
Europe—Oiropa
the European—dair Oiropayer
America—America
the American—dair Amerikahner
Asia—Azien
Africa—Afrika
the East Indies—Ostindien
the West Indes—Vestindien
the United States—dee Verini*g*ten Stahten
Brazil—Brazilien
England—England
the Englishman—dair Englender
Ireland—Eerland
the Irishman—dair Eerlender
Scotland—Shotland
the Scotchman—dair Shottay
France—Frankrai*ch*
the Frenchman—dair Frantzosay
Germany—Doytshland
the German—dair Doytshay
Holland—Holland
the Dutchman—dair Hollender
Austria—Aceterrai*ch*
the Austrian—dair Aceterrai*ch*er
Prussia—Proyssen
the Prussian—dair Proysay
Russia—Roossland
the Russian—dair Roossay
Sweden—Shvayden
the Swede—dair Shvayday
Denmark—Danemark
the Dane—dair Daynay
Switzerland—die Shvyts
the Swiss—dair Shvytser
Italy—Italyen
the Italian—dair Italiayner
Spain—Spanyen
the Spaniard—dair Spsneeare
Greece—Gree*ch*enland
the Greek—dair Gree*ch*ay
Turkey—dee Teeurki
the Turk—dair Teeurkay
the Jew—dair Yooday
the Persian—dair Perzer

Adverbs.

Yes—yah
indeed—yah vole
truly—in dair tate
certainly—vaar'lich
surely—gay-viss'
only—noor
some—et'vas
nothing—nichts
much—feel
quite—gantz'lich
very—zare
so—zo
thus—alzo
how—vee
no—nine
not—nicht
but—noor
enough—ge-nooch'
scarcely—kowm
all—gants
almost—byn'ahe
here—heer
there—da
where—vo
in—her-ine'
out—here-ows'
then—den or dann
now—yetst
soon—bald
till—bis

seldom—zel'ten
since—site
ever—im'mer
never—nee
oft—oft
already—shcone
to-day—hoy'tay
yesterday—gest'ern
late—spate
why?—wahr-om'?
because—vile
if—ven
perhaps—feel'lykt

Adjectives.

Old—alt
young—yoong
new—noi
great—gross
good—goot
rich—riche
cold—kalt
warm—varm
long—lang
high—hoch
full—fol
cool—keel
near—nah
hard—hart
light—lycht
wild—villd
fat—fett
fine—fine
mild—milld
deep—teef
fresh—frish
ripe—rife
bitter—bitter
small—shmall
wide—vide
open—offen
loud—lout
right—recht
blind—blinnd
hot—hise
thick—dick
neat—net
thin—dee'yunn
broad—brite
round—roond
sharp—sharf
flat—flach
low—need'rig
beautiful—shane
handsome—hibsch
ugly—hess'lich
bad—schlecht
easy—leicht
heavy—shvair
soft—veich
true—vaar
short—koorts
far—vite
sweet—sees
hollow—hole
blunt—stoompf
delicious—kenst'lich
disagreeable—oo'nan-ga'-nam
honest—ayr'lich
polite—heu'flich
obliging—ga'fellig
kind—geeutig
prudent—kloog
ridiculous—lek'er-lich
reasonable—fer-ninf'tig
happy—glick'lich
glad—fro
satisfied—tsoo'freeden
active—tai'tig
rude—grobe
proud—stoltz
strong—stark
weak—shvach
clever—ges-hickt'
mild—ga-linde'
sick—krahnk
pale—blass

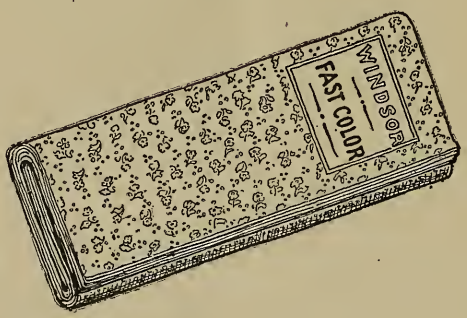
Healthy—ga-zoond'
poor—arm
empty—lair
dirty—shmoot'sig
cheap—bil'lig
clean—rine
tired—meeu'day
angry—bay'say
merry—loos'tig

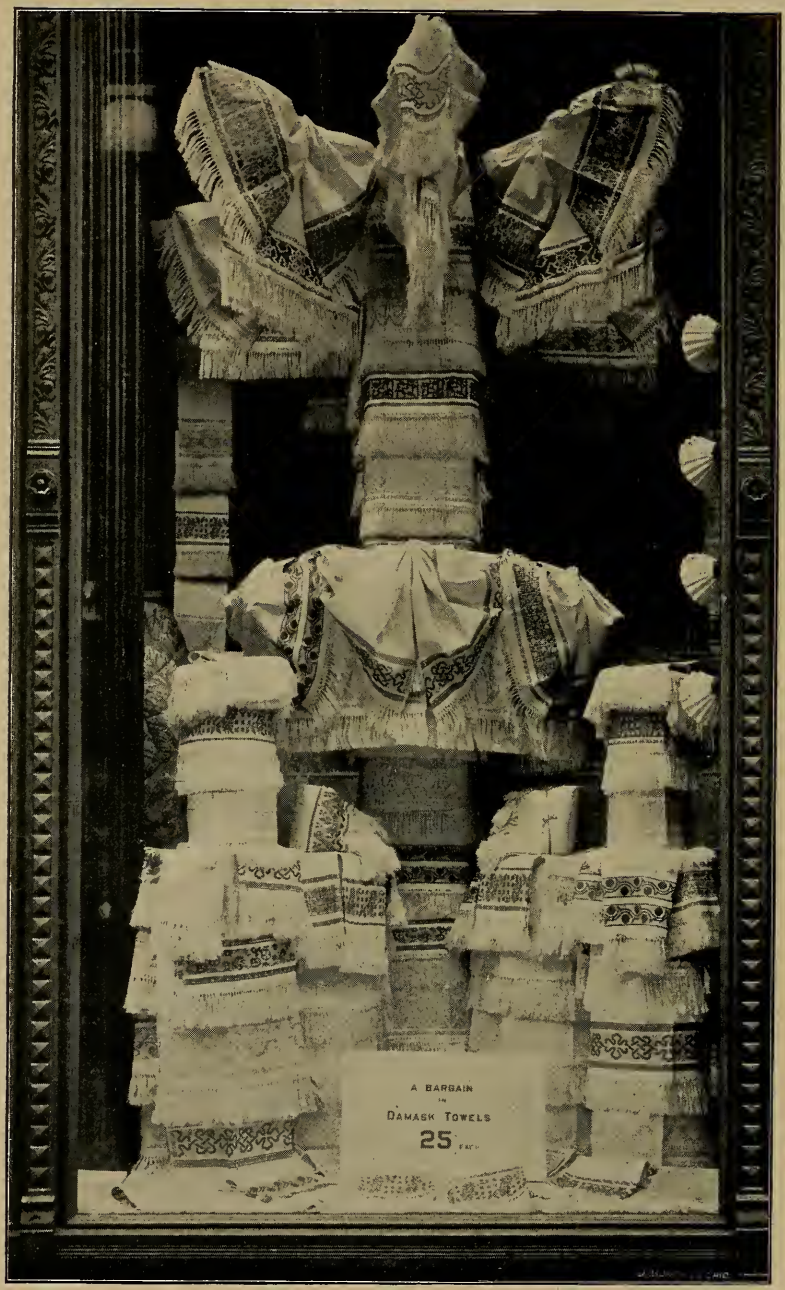
Prepositions.

Above—eeuber
about—oom
after—nach
against—gay'gen
before—for
of—fon
over—eeuber
since—site
for—feeur
from—fon
in—in
near—na'hay
under—oon'ter
up—owf
with—mit

Conjunctions.

And—oond
also—ouck
even—so'gar
or—oder
nor—nock
yet—dock
because—vile
that—das
therefore—da-hair'





A Damask Window.

WINDOW TRIMMING.

The merchant of to-day needs little argument to convince him that an attractive window display is a powerful means of increasing his trade. *Charity* knows that the way to a man's pocket is through his heart. *Business* knows that the channel to the same place is through the eye. A failure to please means a failure to sell, while a pleased fancy redounds to the merchant's profit. The storekeeper, when he has handsomely dressed his window, has half made a sale. A trimmed window is an object lesson which conveys at one glance more ideas than many columns of newspaper description. It will sell goods not only to those who intend to buy, but also to those who have no mind to purchase. The individual who never reads an advertisement in a newspaper, will stop before an attractive window. Then, too, there are probably as many people who pass a given store each day as read any paper in a given town. An attractive window is thus worth a page advertisement, provided it is gotten up in a manner that will attract the attention of the passers-by and please them when they stop to look at it. The advantages to the merchant from a first-class window display cannot be overestimated. An old retailer has said that all he asked was to get consumers inside his door. Give him a chance to show his goods and he could sell them. If he makes good use of his window, all the modern storekeeper needs to ask is, that the people shall pass his door. The window will bring them in. Not at first sight, perhaps, but in good season.

There was a time, and that not many years back, either, when a jumble of bright colored goods back of the plate-glass was all that was considered necessary for a window trim. There has come a change. There is as much resultant beauty in its particular line in a store window, after an hour's labor by the trimmer, as there is in a picture when the artist throws aside his brush after the last touch to the canvas.

To place a lot of bright new goods in a given space might seem to the casual observer but a very light and insignificant task indeed, and one certainly requiring no great amount of skill; but, carefully considered as a business work, it opens a very wide field for study and improvement. It requires constant practice and intelligent effort to be able to deal with the numerous details: the differing shapes and sizes of windows, the varying

shades of light, and the constant change of fashion in design and color, and numerous other links in a long chain of incidentals.

The show window was architecturally created for the sole purpose that it might be appropriately trimmed, and if it be not properly arranged it is simply useless—a waste of space which cannot be filled or used for any other purpose. To the general trade a well dressed window is an advertisement and encouragement to business which should not be overlooked. A very considerable portion of trade done may be traced directly to its agency. It indicates progressive ideas, which win the masses—the crowd ever following where life, activity and push are prominent. The advantages which a handsome window display gives a merchant over somewhat slower competitors are manifold; and many thousands of dollars in sales are recorded annually through attention paid in this direction, which otherwise would not have been made.

To clerks seeking advancement in mercantile life, no surer passport to success is to be found than to be able to appropriately trim windows. To be fully convinced of this fact, it is only necessary to consult the "want" columns of daily newspapers. From January to January, year in and year out, there constantly appears the little adlets:

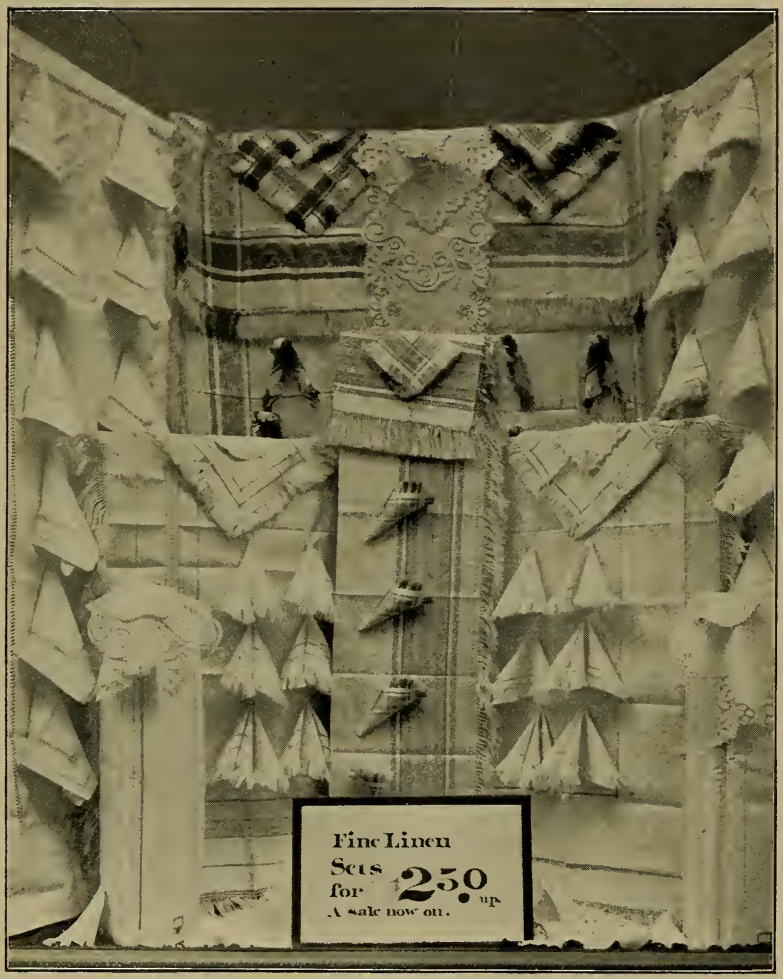
WANTED.—A dry goods salesman and window trimmer. Good salary to competent man. Apply to ————

Or,

WANTED.—A dry goods salesman who can trim windows. One speaking German preferred. Apply to ————

Unfortunately, it has seemed to be the desire of many writers on this subject to impress their readers with the idea that to dress a window is a most complex and laborious operation, difficult to acquire, and necessitating the possession of great artistic ability and a creative brain. One writer goes so far as to assert that good window trimmers are like poets, "born, not made," a very ridiculous idea as well as misleading. Indeed, it is quite possible that this course on the part of writers has discouraged many clerks from making a beginning; if so, let the idea be dispelled. Any clerk who has wit enough to sell goods can certainly train himself to be a good window dresser, particularly if helped along by suggestions as to the best fixtures in use, and illustrated designs and examples.

In considering the subject of window trimming the merchant, or the clerk who has this particular branch of the business in charge, should bear in mind what he hopes to accomplish by it. He aims to set forth a fair sample of the goods to be found within. They must be so displayed as to prove an attraction to the people upon the street, most of whom are intent (presumably) upon going somewhere else to buy. Their attention must be diverted from their original intention sufficient to excite in them the desire of possession. To do this the goods displayed must be of such a character



Fine Linen Window.

The sides and back are of fine linen damask, hung from a rod or wooden strips. The two short figures at either side are arranged in angles, and draped on a wooden rack three and a half feet in height. The center-piece is four and a half feet in height, formed of light scantling with a cross-piece at the top.

as will appeal with force to the purchaser at the time he is looking at them. In a word, the window must be dressed with *seasonable* goods.

Seasonableness, however, is not the only requisite in window dressing. It is, manifestly, quite unnecessary to go to much trouble to decorate a window with common goods which are so well known that they will attract no attention from the passer-by. His attention must be secured first by some feature with which he is *unfamiliar*. Second, his attention having been attracted, his curiosity must be gratified, and he must not be allowed to go away disappointed.

There are two classes of feminine buyers to whom the trimmed window appeals most strongly: The lady who has nothing to do looks round at the store windows through mere womanly curiosity; the lady who wants a dress or other article looks round for something to take her fancy; both are *certain* to be attracted by goods prettily or tastily displayed; both may be made customers; and it may be most certainly relied upon that they will each tell friends at home of what they have seen striking in ————'s windows. With women the subject of dress and dress materials forms a never failing source of interesting converse. And as a rule they have good memories in all that concerns goods which they have seen and examined, and when in want of any article noticed under such circumstances, they are generally sure to return to the store where it was first exhibited. First impressions with them are everything, and when particularly agreeable are indelible. The same goods may afterward be seen elsewhere, but there remains a feeling that they would like to go to the store where they first saw them, before purchasing. Hence, the window may be direct means of bringing a customer, or it may be a good advertisement.

But there are many kinds of people with whom the merchant has to deal, and whose patronage is solicited. Besides those whom it is desirous simply to attract, there are others for whom it is necessary to show what lines of goods are actually carried in stock; and having regard to this class, the window may properly be styled an index to the house. If carefully kept, it should be as reliable to refer to as the index of a book. In reality, it forms a means of reference between customer and merchant, and every variety of goods handled should as far as possible be from time to time represented in the window. It may be truthfully asserted that the store window is of the first importance to the every-day success of retail establishments. Neglect the window for one day, and you have neglected the means of arresting the progress of one or more purchasers, passing your door for the purpose of buying what you have to sell. Lay it down as an indisputable rule that windows properly dressed make trade.

Don't be discouraged if your window is small or badly constructed. Make the best of it, and carefully think out what kind of display will best suit the circumstances. You need a very small space to prove your taste and originality, and to make a show which people will cross the street to look at. After all, of course, your window, however beautifully and taste-

fully arranged, will not please *everybody*. But never mind the fault-finders. Study to do your best, and use every opportunity you can get for observing the effects produced by those who are successful in this matter.

Color.

Imitation of nature is the perfection of art. Whether we walk in garden or street, in store or shop, the eye is gratified with some glimmerings of this noble work—*color* completes the whole. No class or order escapes the snare of fashion and custom—from grasses and lichens to the beetles which crawl over them; from the whale which supplies the back-bone of our stays to the tiny shell which serves for adornment. We take our colors from every source, from "coral" to the "green water of the Nile;" the "peacock" to the "dead leaf." Each has its own peculiar charm, and each in its turn commands our admiration. So, in a peep at nature we behold endless shades, fading or deepening into each other; the sunset, with all its varied hues of red and gold; flowers of delicate tints, or birds of gaudy plumage; the landscape, with its contrasts of blue and gold, and green and brown—a combination of effect from an exhaustless store—a book of reference always open, offering continual rounds of instruction and pleasure. Nature is the source from which our colors are obtained, and an example of perfect harmony.

Color is by far the most effective means for attractive the eye, and a window dressed in colors secures the attention of the passer inevitably—far more readily than any merely ingenious arrangement of goods or fabrics in which color is absent.

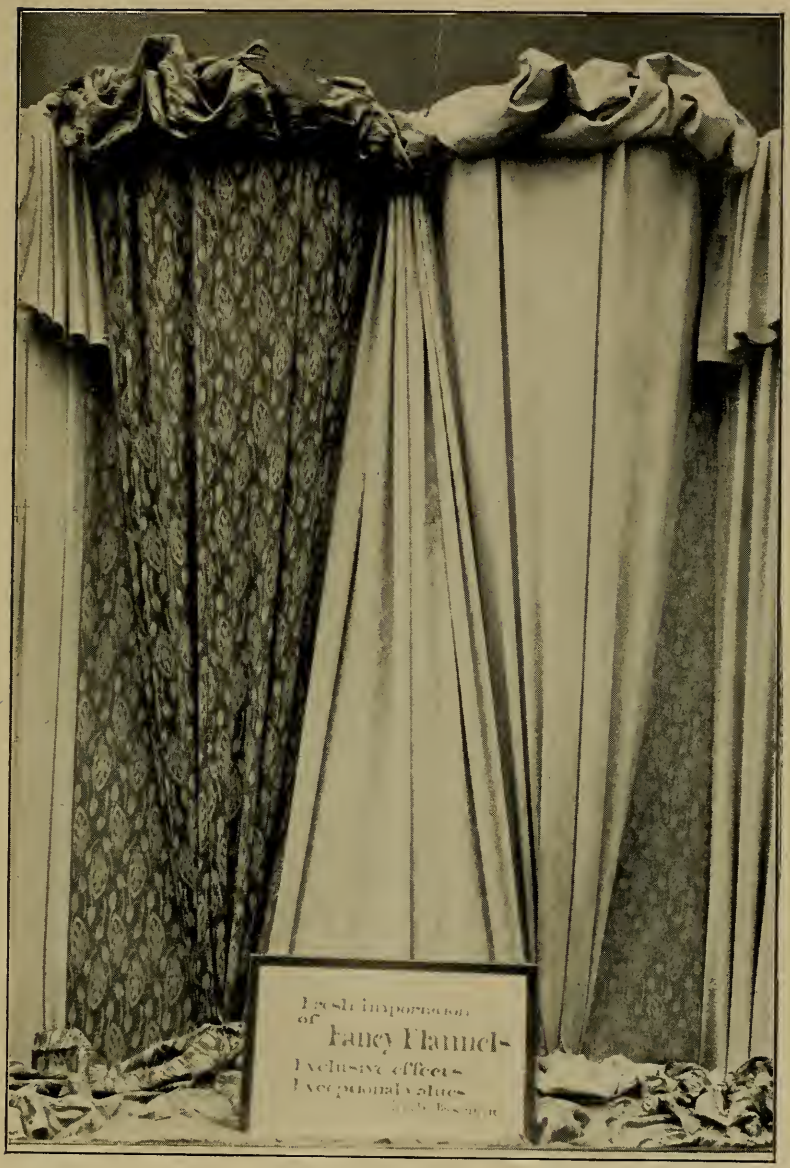
Good color effects are difficult to obtain where fabrics of any great variety of colors are used; and window trimmers of the best taste and most experience strongly favor the use of but two or three colors, complementary to each other, and as a rule grouped in large masses. A clash of colors affects one whose eye is at all sensitive, much like the prick of a pin, and this fact should be borne in mind before one essays to dress a window. It is better by far to discard a half-dozen colors and use but two or three, if by so doing the pleasing effectiveness may be enhanced. Every woman knows at all times, and a man knows as soon as his eyes rest upon them, that pale blue and rose pink blend well; that black and scarlet are strikingly effective when seen together, and that yellow and brown may rest one beside the other without offense. In case the eye does not readily tell just what colors will bear placing together, the following rules may be given as final reference in case of all color disputes:

Black goes well with any bright color.

Blue and orange increase each other's intensity reciprocally.

Deep green and deep blue are fairly pleasing when seen together, but in the lighter shades the result is just short of disagreeable.

Red and violet are not pleasant companions.



A Fancy Flannel Window.

This design can be duplicated in any window having a substantial frame work at the back of it. Seven feet above the floor attach two semi-circles made of board to the frame of the window. Fasten the goods to these in pleats and drape to the bottom as shown in cut.

Orange and green clash.

Orange and violet are void of offense.

Tan and dark blue are very effective.

Orange yellow deepens the hue of indigo, and has its own brightness intensified by the contrast.

Yellow tending to green may be agreeably associated with violet.

Yellow and green go well together.

Light green and light violet are preferable, when together, to green and blue, though this is not saying much for either combination.

Yellow and indigo simply melt one into the other.

Keep red and orange apart.

Red and green intensify each other.

A red that inclines to purple may be placed with propriety by the side of a greenish yellow.

A red that is suggestive of scarlet may be used as a pleasing contrast to blue.

Divorce blue and violet forever.

Black and white are specifics as modifiers of bright colors.

Orange and yellow accord incomparably better than red and orange.

Orange and violet accord passably.

Yellow and green form an agreeable combination.

The arrangement of yellow and blue is more agreeable than of yellow and green, but is less lively.

Green and blue produce an indifferent effect, but better when the colors are deep.

Green and violet, especially when light form a combination preferable to green and blue.

Orange-yellow, when placed by the side of indigo, increases the intensity, and *vice versa*.

Red and orange do not accord well.

Red and yellow accord pretty well, especially if the red is purple red rather than scarlet, and the yellow rather greenish than orange.

Red and blue accord passably, especially if the red inclines rather to scarlet than crimson.

Tan and dark blue, black and scarlet, yellow and brown, violet with light rose, deep blue with golden brown, deep red with gray, maroon with warm-green, deep blue with pink, chocolate with pea green, maroon with deep blue, claret with buff, black with warm green are each effective color combinations.

When two colors that do not combine well must needs come pretty close together, place a bit of white between them and the ill effect is neutralized.

Every color has effect by reflection upon its neighbor. Of two colors placed together, one of three results must follow: *both* may be improved; *one* may be improved while the other is spoiled; or, both may be spoiled.

The last effect will readily be observed by placing together two such colors as 1, red and orange; 2, violet and blue; 3, red and violet; 4, green and blue:

1 { The red will incline to violet.
  { The orange will incline to yellow.

2 { The violet will incline to red.
  { The blue will incline to green.

3 { The red will incline to yellow.
  { The violet will incline to indigo.

4 { The green will incline to yellow.
  { The blue will incline to indigo.

Effects produced by contrasting colors must have been made familiar to every one by certain card advertisements printed with letters in blue or red, which being looked at for a length of time, upon turning the head or closing the eyes convey impressions of the same in other or complementary colors. Every color has its completing or complementary, and it is these which when placed together, heighten and improve each other, as red and green; violet and greenish yellow; blue and orange; etc. Again if a number of pieces of woolen dress goods representing a given color (say, pale blue) are taken indiscriminately from the shelving and placed side by side upon the counter it will be found that almost every piece will bear a different hue. One will look green, another dull heavy blue, and another decidedly gray. It would be impossible to put such mixtures side by side in the window. No two lengths of goods should be placed together to the detriment of both. When a customer desires to see bright or trying colors they should be shown relieved by neutral or improving shades—blue, peacock, or green by cream, rose, cardinal, drab, brown, gray, or white, as occasion may require. The window trimmer must always endeavor to heighten and improve his colors in the same manner; he can judge the effect of one new shade by another as he displays them before his customers time after time, and each may have its place in his mind's eye before the work of trimming-up begins.

Black goods are affected very considerably by certain colors; some reds impart a green effect. Blue gives an orange gray appearance. When a dark navy is placed near black, the black assumes a shabby brown cast, and violet, green and orange also give very unsatisfactory results.

It is well for the window artist to remember that in arranging an exhibit of *silk* or *dress goods in delicate colors*, that each color alternating with white is an advantage. It may be that the use of black for mourning prevents the use of it in numberless cases where it would produce excellent effects. Black may be combined most advantageously not only with sombre colors to produce the harmony of analogy, but also with light and brilliant colors to produce the harmony of contrast.

China Silk Window.

The most striking feature of the above design consists in color combination. Unless great care is exercised in this direction, the result will fall short of expectation. But if the colors are chosen in conformity to the rules laid down on PAGES 471–84, an excellent trim will be formed. The drums of the ordinary kind described and illustrated on PAGE 503. The back figures should be brought down and pinned to the back of the second tier. The addition of lace and gloves or even fans, will materially help the appearance of this window.

No combination of primary colors with black is disagreeable, but there exists among these a natural difference of harmony which is not shown, at least to nearly the same degree, in two combinations of white with the same colors. In fact, the brilliancy of white is so predominant that whatever may be the difference in lightness or brilliancy observed between the various associated colors, there will always be the harmony of contrast according to what has been said of the influence of white in raising the tone and augmenting the intensity of color adjacent to it. If the binary combinations of black be examined in this point of view, it will be seen that the deep tones of all the color scales, and even of the blue and violet scales (which are not properly speaking, deep), form with it harmonies of analogy and not of contrast. So likewise do the unbroken tones of red, orange, yellow-green scales and the very light tones of the violet and blue scale.

It may be added, according to what has been said, that the combination of black with sombre colors, such as blue and violet, whose complementaries, orange and greenish-yellow, are luminous, may diminish the contrast of tone if the colors be juxtaposed with black, or one not far from it, and in this case the black loses much of its vigor.

Blue and black, violet and black, make combinations which may be employed successfully when only dark colors are required.

Light combinations, which exhibit the harmonies of contrast, appear in the order of beauty as follows:

Red or rose and black; orange and black; yellow and black; lastly, bright green and black. As to yellow, we repeat that it must be brilliant and intense, inasmuch as black tends to impoverish its tone.

Black, red, green and black is a good color combination, and is preferable to black, red, green and black, which contains too much black.

Black, blue, orange and black is prefered to black, blue, black, orange and black for a similar reason.

The effect of black with blue and orange, is inferior to that of white. Black, yellow, violet and black forms a pleasing combination.

Black, red, orange and black do very well, but as orange and red injure each other, there is an advantage in separating them by black.

Black, red, blue, black do better than black, red, black, blue, because there are too many sombre shades in the latter, and because these differ too much from the red. The effect of black on the binary colors red and blue is inferior to that of white.

Black, red, violet and black is not a good combination, as red and violet injure each other, and it is therefore advantageous to separate them by black, but the latter does not produce as good an effect as white.

Background of Window.

The relative merits of white and dark backgrounds are the subject of much dispute. The real test is: Does the drapery bring out the articles shown in strong relief and harmonize with them in tone? For most articles,

colored draperies of plush are undoubtedly most effective, as they give greater brilliance and warmth to the window, and they are doubly effective when nickel or brass fittings are used. On the other hand, for very delicate colors, such as pink, pale-blue, mauve, heliotrope, etc., *white* backgrounds are most effective; and black or nearly black articles show to better advantage in white windows. In many cases mirrors form effective backgrounds, as they concentrate the light, sharpen the outlines of objects displayed, and greatly increase the apparent size of the window. The women are few indeed who do not look at themselves in a mirror when a good excuse offers. The window furnishes this excuse, and in this way after a woman has inspected herself, she is naturally attracted to the goods she would otherwise pass by.

Dark drapery, especially of plush, forms a most desirable background, affording the best possible foil for articles relieved against it. A rich and desirable effect may be secured by arranging a metal rod or curtain-pole at the top of the window, and suspending with rings a background of plum-colored or dark wine-colored drapery-silk, of the light, flowing texture now so much used for the purpose. These harmonize admirably with almost any *bright color* placed in front of them. But, in case *very dark* goods are to be displayed, care should be used to place them close to articles or fabrics of a much lighter tone, in order to furnish the required foil.

In regard to light, it may be said in general terms that *all* light must come from in front, and that any admission of light from the rear, or directly behind the articles shown, completely ruins the effect of the trim by confusing and dimming the outlines and colors. It is important, therefore, epecially in an openly-dressed window, that a background shall be provided for the double purpose of excluding light from the rear and sharply defining the outlines of the articles displayed; and, moreover, such a background, if judiciously selected, can be made to supply an important color element in itself.

No light whatever should be allowed to come into the window except that which comes from in front; otherwise a perfect chaos of form and color will result. The window display should be as jealously guarded from *rear* and *side* lights as from dust and dirt. One might spend days of toil in arranging articles with due regard to form and harmony of coloring, and yet have nought but failure for his pains, if there be lacking the element of proper light. By day, what has been said about the exclusion of light from the rear and allowing the full flood to come from the front, will answer all purposes; but at night there is only one way to get a light that will do justice to an artistic arrangement of beautiful goods. It must come from the top and front of the window, so arranged by means of a polished reflector surrounding the lamps or gas jets, that the rich, warm glow is deflected downward and backward, taking in its embrace every thing included between the plate-glass and the background. No other arrangement of light is equally satisfactory.

Lace and Chiffon Drapery.

The colors should be selected with regard to harmony for this design, and the fans and gloves should also match in shade, or at least be of pleasing contrast. The background of window is formed of light colored China silk. The lace is draped from swinging arms.

Arrangement.

Simplicity in arrangement as well as in color is desirable. It is a safe rule not to display a great variety of articles in the same window, as a complicated arrangement usually appears confused. The most effective windows are made by the use of designs which are not intricate, and which are easily understood at a glance. The easiest way to dress a window tastefully is to arrange a *unit*, composed of as many articles as desirable, and to repeat this unit to fill one or more tiers of the entire window. Examples of this style are illustrated in subsequent pages. Where the primary purpose is to display as many goods as possible without regard to color-effect or harmonious arrangement, it is advantageous to trim the window close up to the front, and to fill it full enough to entirely cover the front space. Where color and form are considered, fewer articles may be used; they may be placed farther apart, and should be set back in the window deeper. Great height is undesirable, as it makes the display disproportionate as inspected from the vantage point in front, besides requiring a great quantity of goods.

In trimming a window with the purpose of getting as much of a show as possible with a few goods, the surroundings should be carefully considered; that is, the background, the light, and the distance from the front. Concerning the latter there is a good rule to the effect that a *thinly dressed window should be arranged well back from the glass*, and should be furnished with a strong background to bring it out boldly. A window dressed entirely to the front has no effectiveness as a whole, but depends for its effect entirely upon separate details, for the reason that it has not the requisite distance to give the eye the proper focus. But when the display is withdrawn two or three feet within the glass, the proper focus is obtained, and the eye takes in the whole design with pleasure. When the intention is thus to have the eye of the would-be purchaser take in the entire display at a glance, the arrangement of the articles should begin at a point at least two feet removed from the front, and there should be a similar distance from the glass *sides* (if any). Nothing is lost in beauty when the window is filled to repletion, provided always that care is taken to give the impression that many displays in one harmonious whole is intended.

It is desirable not to encumber the bottom of a show window with too many small objects. The bottom should serve to a considerable extent as a foil or background against which the articles shown may be strongly relieved and their value thus enhanced. This end is lost by crowding the ground; definiteness is sacrificed, and none of the articles shown are as effective as otherwise. The use of a background is to *sharpen* and strongly define what is placed against it. Many articles too closely grouped nullify this purpose. The same loss of effect ensues from allowing one object to overlap another; the outlines are confused and each article loses in effectiveness. Therefore, don't crowd your windows, don't

crowd your floors; be particular to have each article clearly defined against the background, and don't allow one article to overlap or stand partially in front of another of the same tone or color. If the colors contrast, the overlapping is not detrimental, because the contrast then serves the same purpose as a background, namely, it defines the form sharply.

Silk Puffs and Folds.

Several kinds of rich materials contain sufficient body to hold them in a given position for a considerable length of time; this is especially the case in regard to silks, which are raised to various figures in the following manner: The silk being in the bolt, one side is opened, and the first fold turned back. It is then moved round to face the operator, who must now take the second fold by the two corners, turning them in and keeping them firmly in hand by a pressure toward the center, so as by two or three slight jerks, to obtain sufficient air within to raise the figure desired. The simple secret being that air is brought into the fold and resisted by pressure of the corners inside, there is sufficient strength in the fabric to maintain the position. The art of raising silk lies not so much in hammering away upon the counter, as in *closing the selvages* by a light jerking pressure towards the center, simultaneously and equally, with both hands. There should be sufficient bulk in the bolt of silk to resist puffing operations; if not, this must be made up by placing a weight on the side folded up, or it may be held by some one pressing on each selvage.

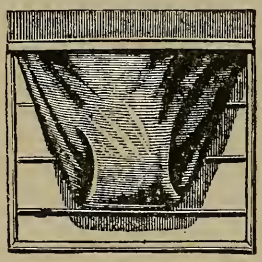


FIG. 1.

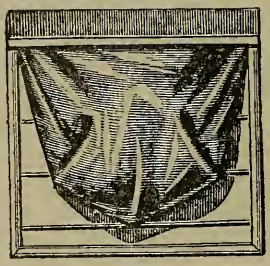


FIG. 2.

A really good plain silk has a fine effect when raised to the bold outline represented by Fig. 1, but with a flimsy silk this figure should not be attempted, as it generally caves in, and so discloses the poverty of the fabric. It is a plain, solid-looking puff, and to produce needs no particular movement beyond that already described; although many trimmers adopt the plan of pressing with the fingers towards the body, guiding the raising of the puff with the thumbs pointing upward and away. Adopting something like Fig. 2 (which is produced by raising as for Fig. 1), while blowing

the center down, or hitting it a smart cut with the hand when the silk first rises, a puff is obtained suited to any quality of goods. Rich goods always give a bolder outline.

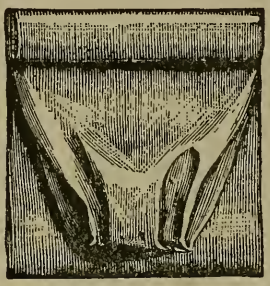


FIG. 3.

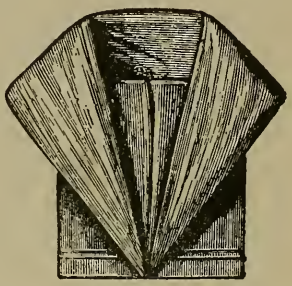


FIG. 4.

Figure 3 shows a pleat on either side, obtained by turning in the selvages and taking the crease so made in each hand, thumbs being out, and pointing over the fold in the piece toward each other. By raising and dropping the silk and drawing the thumbs together in a dexterous manner, a pleat may be produced, when the silk can be puffed as before. These three figures represent the simpler forms of draping generally in use, Fig. 1 being especially *adapted to rich plain silks, satins*, or very large figured designs. Fig. 2 may be employed for any quality of plain material, but having an extra bearing in the center it is well suited to cheap, sheer goods. Fig. 3 is very effective for either plain or fancy goods, and particularly for small designs. Any of these figures look very handsome when displayed on the top of shelving; but to accomplish this it is necessary to pin the selvages inside the puff, and the exercise of care in fastening them to any sort of support used. For a first row in the window puffed silks may be placed a few inches apart to allow other figures between—say a silk opened toward the window in book form, the first fold being taken by the selvage at the centre in one hand, pressed in, and raised, while with the other a foundation or form of disposal is fashioned similar to Fig. 4.

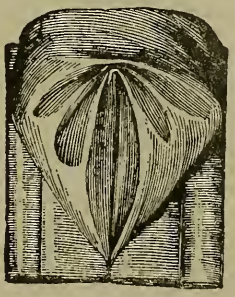


FIG. 5.

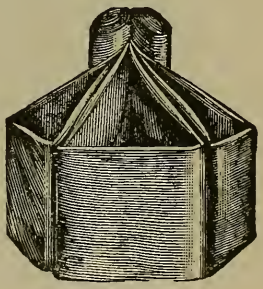


FIG. 6.

Perhaps the prettiest as well as the showiest of this class of puffs is Fig. 5, which is made by taking the silk as before and pleating the top of the puff to show three or four creases from the center. This figure requires support, owing to the width of silk taken up in pleating. Therefore a thin pine board or stiff cardboard should be used for this purpose, being first cut to fit under the creases. Another showy and easily-made puff is Fig. 6, which when carefully placed has a very imposing effect. The silk disposed in this manner reflects the light from all directions, often enhancing the beauty of the fabric. We have here a whole or large piece of silk standing on end, with three folds brought out and pressed down from the end of the fold. Sometimes for weak silks pasteboard or cardboard is placed upright inside each to give strength to the figure.

FIG. 7.

FIG. 8.

Figure 7 represents a simple folding over of two opposite corners. The silk being wide open on the counter, the furthest corner on the right hand is brought to the center of the near selvage; the top left corner treated similarly. The silk is then closed up and placed on end. A good bold figure is thus produced for either plain silk or satin. Either for interior or window decoration, Fig. 8 will be found "useful as well as ornamental." It is obtained by *pleating a fold into a number of small creases*, which when taken sufficiently far—say six creases—should be brought up from either selvage and pinned, being still held down in the center. This fan-like portion may lean against a strip of cardboard. As a finish to the figure, the next fold may be placed as in Fig. 4, but this can only be accomplished on a foundation or wide folding-board. Fig. 8 perhaps more than any other requires careful handling, or a good silk may be so creased and drawn out as to necessitate re-ironing.

Figure 9 represents a wooden frame or stand upon which may be displayed to advantage silks, velvets, plushes and other dress goods and trimmings for counter, cornice and show window use, by which a piece of the

Heavy Silk Drapery.

These figures are draped from "drums" elevated by means of light board boxes. The lower figures are two feet in height, the upper being a little over three feet in height. The background should be material of a color that will most strongly bring the silk into relief. The floor of window should be of light China silk arranged in small puffs or pleats.

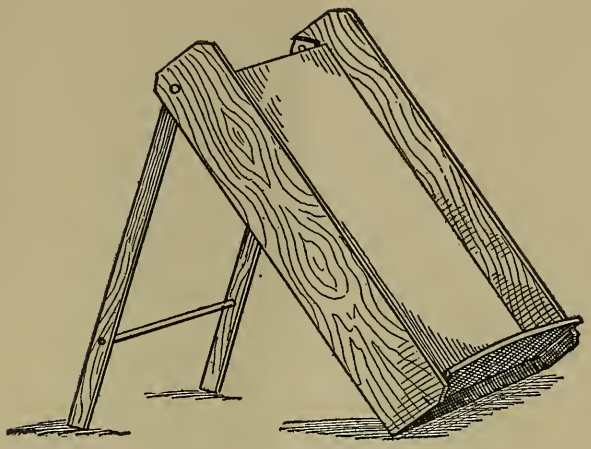


FIG. 9.

materials mentioned can be draped and carried about without much disarrangement of the goods from their original folds.

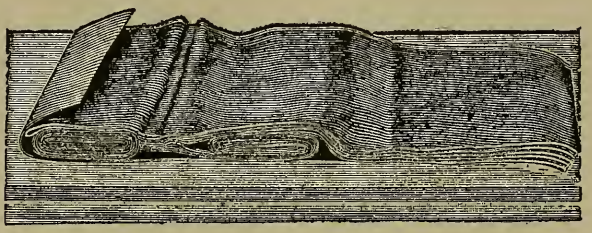


FIG. 10.

Figure 10 represents a piece of silk when ready to be placed upon the stand. This arrangement is made as follows: Open one side of a piece of silk, take first fold and refold in original folds and place under the paper on opposite half of the bolt. Then count off five folds to be used in displaying, and refold remaining silk. The piece is now ready to be placed upon the stand.

To produce the simple effect as shown in Fig. 11, place the silk on the frame and take the first and fifth folds and allow them to hang over each side of the bolt so as to hide the frame. Then turn in from the top and bottom the remaining three folds as shown in Fig. 11. To show trimmings on

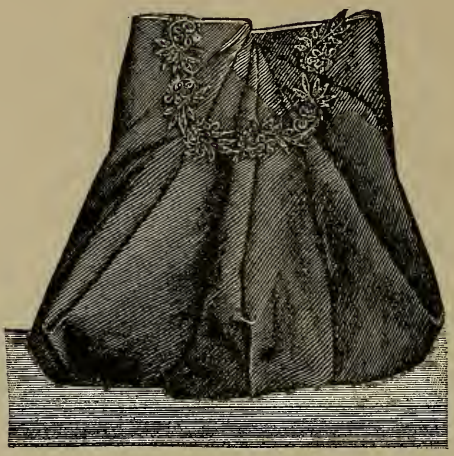


FIG. 11.

the display, place the piece of trimming under the frame from the back and bring the end over the top or through the folds.

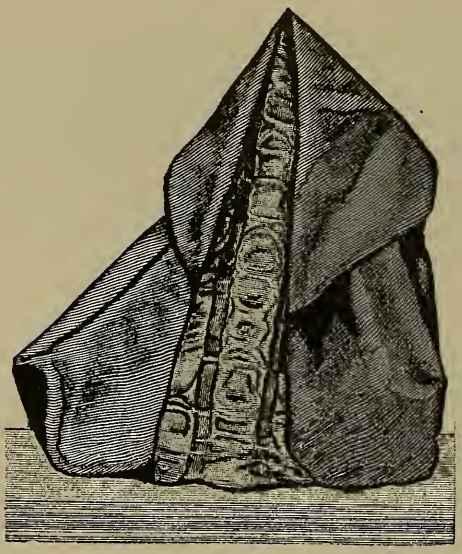


FIG. 12.

To produce Fig. 12 use the same five folds. Place the first and fifth folds on each side of the frame, turn the second and fourth folds from the top, and slightly from the bottom, and let them hang down. Then turn the third fold in and up over top of piece of silk. If trimming of another color is used, place it under the frame from the back and bring the end through the top fold, as shown in Figure 12. When a short length of silk is used, the folds may be pinned to make them secure.

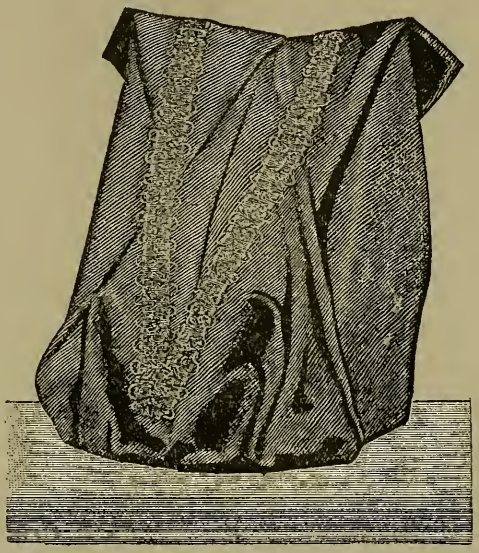


FIG. 13.

To produce Fig. 13 use five folds as before, the first and fifth on each side. Take the second fold by the lower end and carry (to the left) to top and center of the bolt. Then place finger in the center of the fold, at the top, and bring the fold over the finger to the center of the bolt and allow the end to hang over the back. The fourth fold should be draped in the same manner, except to the right. Then take the third fold and fold it in at the top and slightly at the bottom, and allow it to hang down With a little practice the silk (or any kind of dress goods) can be placed on the frame in any of the foregoing styles in a few minutes, and they are not easily pulled out of shape while there.

In Fig. 14 seven folds are used. The first and seventh are allowed to hang on each side of, and concealing the frame. The second and sixth are turned in from top to bottom as in Fig. 11. The third and fifth are folded

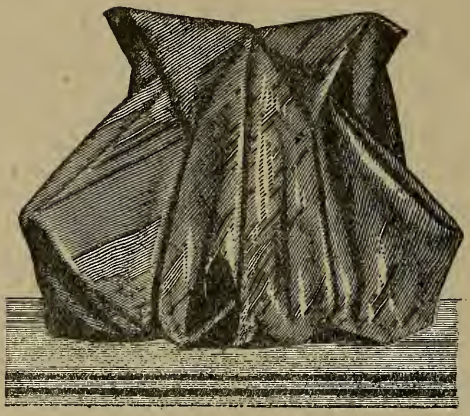


FIG. 14.

back and allowed to hang over the top in the same manner as the second and fourth folds in Fig. 13. Then turn in the fourth fold as shown in Fig. 14.

We have here noticed some of the various figures generally in use with the trade, but the window-dresser should not be confined to any one set of figures; his object should be to display his goods in manner and order best suited to the various fabrics. For instance, many of the soft twills now so much used can only be shown by puckering one or two folds very lightly, to give a graceful effect; while some large patterns or heavy watered goods should be opened wide and displayed as boldly as possible. Irish poplins and the goods they represent are generally opened to the fullest extent; two or three yards may be opened and brought over a stand. Sometimes the front row is made up by puckering a few yards over the length of the roller slightly raised.

Velvets require a very different mode of treatment; and will not bear pulling about too much, or the folds slip at once. They form very effective puffs, as Figs. 1, 2, 3, 11, and 12. When well and carefully done, two or three figures similar to those in use for cambrics may be of service; or when the corners of a fold are brought back to form a point in the center and a rest behind. By taking the center of the fold between the thumb and finger, and holding slightly inclined, the corners will drop back to the position required. This figure is adopted with plain silks, which are sometimes carried to the back of the window, back rows being held up with a pin and cotton.

The following color combinations for silk displays will be found to blend harmoniously:

A Unique Silk Window.

The background is draped with silk hung from a rod or curtain pole. The two side pieces at the back are formed of high drums or columns, eight inches in diameter and eight feet in height. The lower figures are draped over drums, and the side pieces are bust forms upon which is shown a silk waist. The floor of window is of wide silk lace and silk pocket handkerchiefs.

I.

Light Blue	Cuir	Violet
Coral Pink	Grey	Yellow
Cream	Eau de Nile	Rose
Lilac	Drab	Slate

II.

Bright Blue	Olive	Cardinal
Drab	Violet	Smoke Drab
Crimson	Brown	Mauve
Slate	Green	Fawn.

III.

Chaudron	Peacock	Olive
Navy	Claret	Dark Navy
Dark Drab	Dark Peacock	Brown
Grenat	Prune	Myrtle.

These may be changed for fancy goods, or soft goods, or satins, or velvets, or the whole may be carefully mixed. White and black can be used to improve or divide any trying colors. No better *effect* can be added to a silk window than that produced by a piece of rich white lace, opened out and festooned over the successive pieces; and as a question of effect no silk window is complete without the addition of such things as trimmings, flowers, fans, muffs, sunshades, millinery, and such like fancy articles in season, judiciously arranged. As in a picture, various objects and figures are introduced to give character to the work, the whole must be uniform, and each color should harmonize.

Print Puffs.

Modes of arrangement must always vary according to the finish of the goods in vogue. As fashion requires a dressy or soft finish, every department is affected; and as in silks, the old moire antique, which used to be opened and suspended from the top of the window, gives place to softer makes, which may be shown in some pretty puffing; or still softer twills, which can only be shown in graceful folds or puckerings. In the dress department winceys and camlets have no longer a place, but beige and fabrics of similar texture require to be dealt with. Among cottons, pique, marcella, lawn, and other harsh fabrics are laid aside for soft and delicate sateens; but here we have very little change in the mode of display; choice designs will bear much the same arrangement as stouter goods. The custom of displaying pieces of goods in piles increases every day, and a "stocky" window is looked upon as perfection; but over-stocked windows allow of very little change, consequently the effect is soon minimized, the object should be to introduce variety by puffing or folding. A nice display

of cottons will generally command attention, owing to the wonderful perfection which has been attained in printing; and as the majority of patterns are large to suit the fashion, they should be opened as much as possible. Soft finished cotton fabrics must be underlaid with paper in order to look well puffed, as Figures 1, 2, 3 and 4. Paper for puffing should correspond exactly to the length of fold and just a shade narrower than the goods to prevent showing at the edges. Manilla wrapping paper will answer every purpose. A good puff cannot be made with paper which has been used; it must be firm and perfect, as the figure will always cave in or wrinkle wherever the paper is weak or rumpled. It follows that the creases and outlines which form a figure must not be drawn with an uncertain hand, or be repeated with the same paper to result in uneven lines.

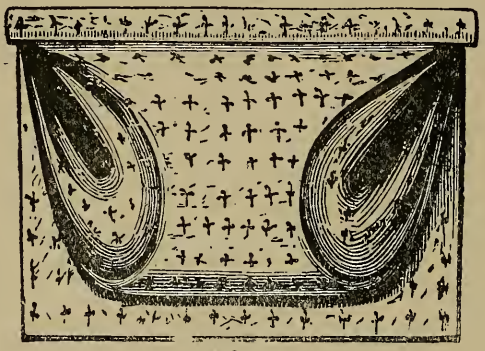


FIG. 1.

Figure 1 is formed by making a pleated puff similar to Fig. 3 in silks, but this figure should be drawn out as much as possible, so that when formed a much bolder and more angular raising is obtained.

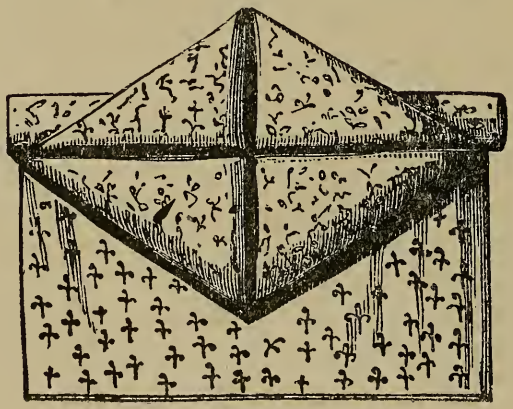


FIG. 2.

To obtain Fig. 2, the two sides are brought together (selvages being turned in), and the fold raised sufficiently; the center forms a hollow which may be brought to shape by drawing the hand down, the sides being then pinned together at the fold; angles above and below may be made equal. A very good figure is also produced by pressing the under part down to something like half.

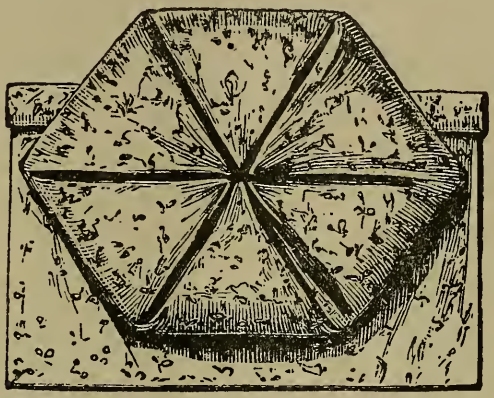


FIG. 3.

Figure 3 is by far the most effective to be obtained in cotton goods, and is made by *pinning the center in* instead of allowing it fall as in Figure 2. The pleats to the right and left must be carefully equalized by drawing the fingers up or down inside.

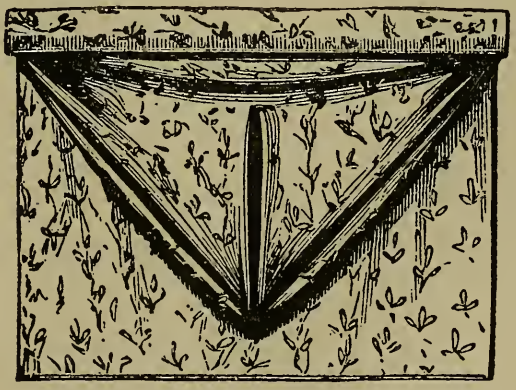


FIG. 4.

Figure 4 is a simple design made with a sheet of heavy brown paper inserted in the fold, and raised in a similar manner to Fig. 2, the under part being laid flat to the piece.

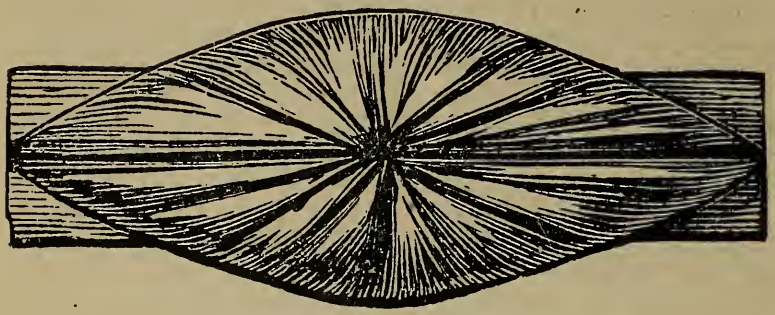


FIG. 5.

Figure 5 will give a good idea of an arrangement which is very effective. A dress length (12 yds) is folded to place upon a board or in front of a column or pillar, one fold being drawn up to the center as represented. It may be fastened top and bottom with pink tape.

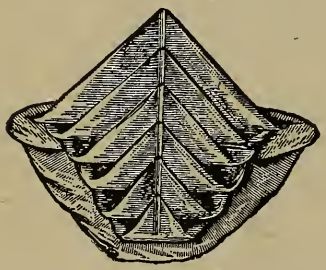
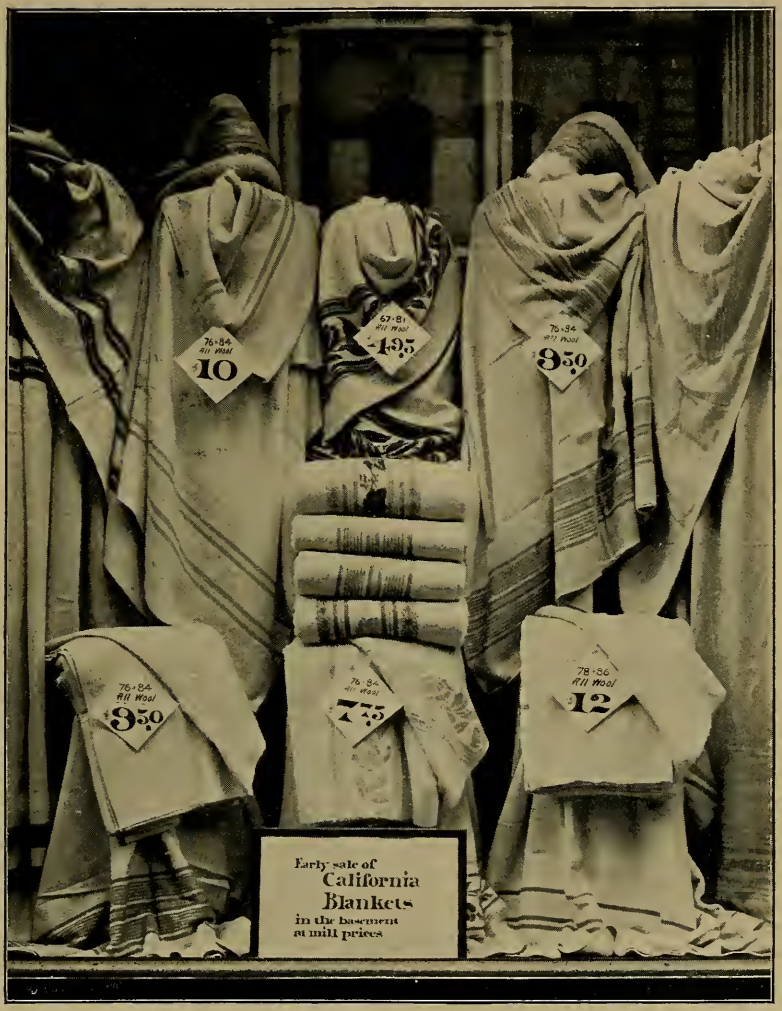


FIG. 6.

FIG. 7.

Fig. 6 illustrates the manner of folding a small-pattern print or shirting to place between puffs or on piles in the window. The arrangement is elaborate. It represents six folds turned in from corner to center; the print being folded and doubled to leave the six folds out; these are brought up in order, forming a kind of pyramid. A figure of this sort is only suited to the goods named, and great care should be observed in turning the corners. Sateens requiring soft or light disposing may be puffed something like Fig. 7, which shows three folds loosely puckered up in the hands. For the purpose of dressing a window of opened cotton goods the choice of figures is considerable. Fig. 2, though too angular to be effective in the first row, looks well carried up to the back of the window. Ginghams or zephyrs may be treated in a similar manner to prints where folded. The best and most effective windows are those made up entirely of kindred material, combining judgment of design with harmonious color combinations.



A Blanket Window.

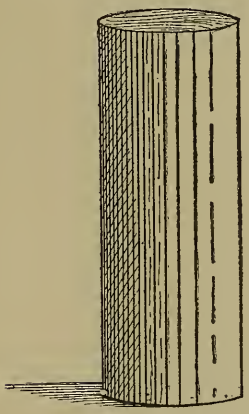
Use a two-tier window, beginning with three half opened blankets draped over dummies [See PAGE 503] standing upon the floor. The top figures are also formed by draping over dummies. The blankets on either side are draped from swinging arms, but if these are not available, they can be tacked to the wall without injury to the goods. Nice clean tickets with the price and size of blanket, add much to the appearance of the window.

Dress Goods Drapery.

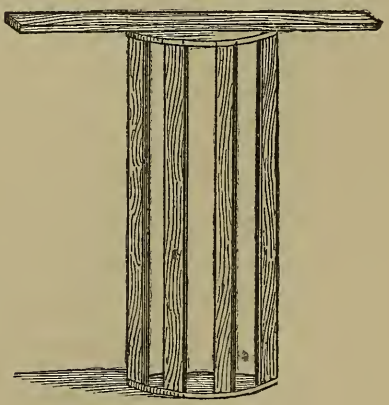
Generally speaking, dress fabrics should be displayed in the window by draping in the form of a dress skirt. A great variety of designs may be utilized, as shown in the following illustrations. Dummies or drums should be used as much as possible, as in that way less goods are necessary

SLAT DUMMY.

BOX DUMMY.

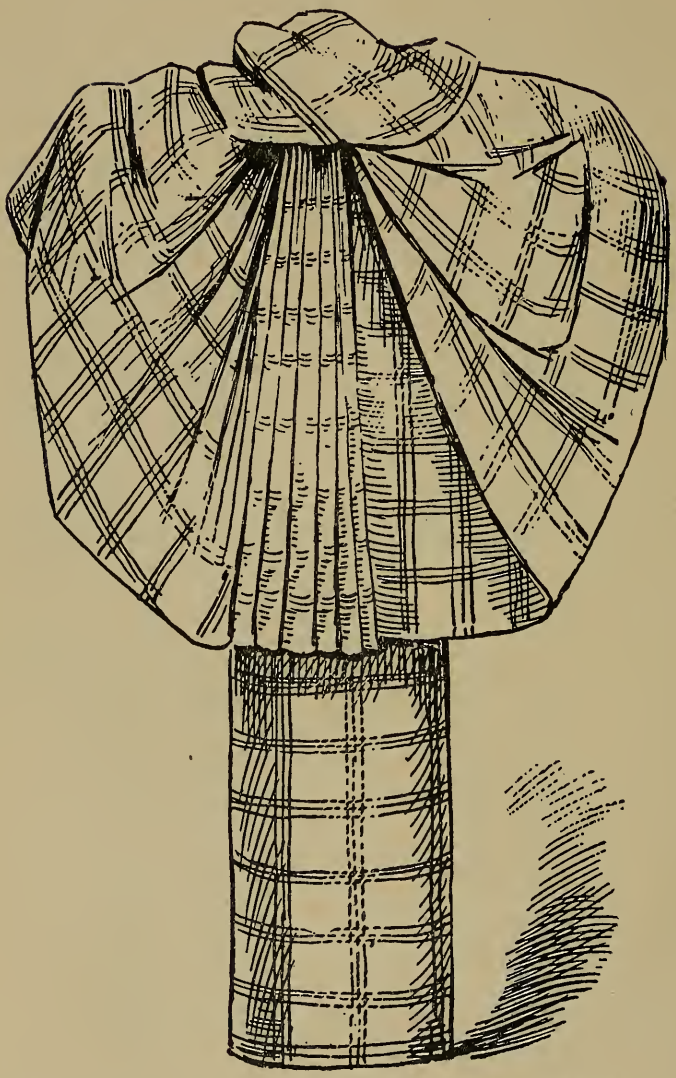


PAPER DUMMY.



SPREADER.

to be taken from stock for trimming up. These devices are of various forms and materials, ranging from long, narrow pine boxes to the elaborate roll of papier mache. The material of which very good ones are made is common heavy paste board or building paper. This should be cut in



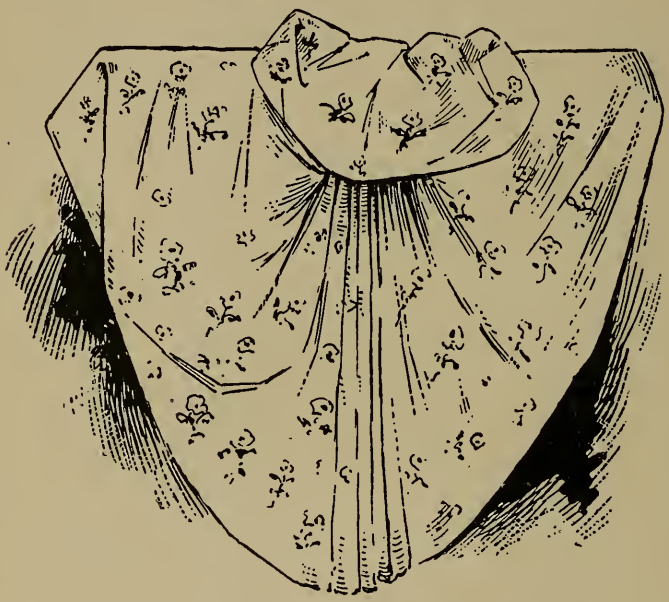
sheets one yard square; bend the opposite sides and make a lap of two inches on either edge; then fasten by tacking to a narrow strip of wood on the inside. This is one of the trimmer's most useful fixtures for displaying the various sort of dress fabrics upon.

The simplest method to drape a dummy is to select a piece of goods say 40 inches in width, and cover the front half of the dummy either with pleats or laid plain around the surface. Then take one end of the material, about a yard or a little over from the drum, and form an "apron" drap-

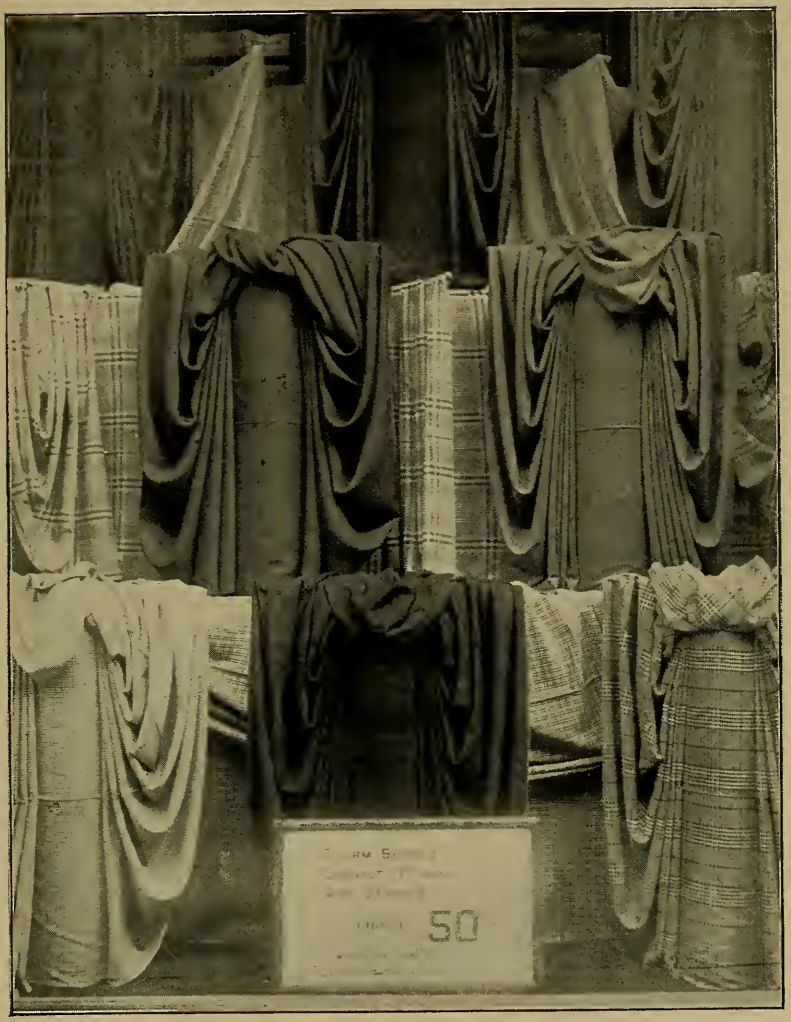
ery at the side. The balance of the material may be used to form the upper drapery and a graceful puff at the top. Six yards of material is required to drape a dummy in this style, although two or three yards may

easily be stuffed inside and concealed. Another method is to combine two different materials in thus draping the form, one color representing the skirt (around the body of drum) and the other color the drapery. Another very pretty effect is to cover the drum plainly as above described; then "gather" the material into pleated lengths of one yard each—with the pleated points hanging down in a sufficient number to cover that portion of the drum exposed to view Shorter pleats may be made and laid over the longer ones—as many rows as the trimmer desires, or the goods will make, thus increasing the size of the display.

To drape printed cotton goods, such as sateens, challies, or baptistes, it is best to lay them in close folds over the form or box, barely touching



the floor; pin only the top, letting the bottom fall gracefully. After the form is closely folded on the front part bring the goods to the back and around to the front or side of the form, leaving the full width of the goods hanging loosely. About nine inches from the end gather them neatly and tightly together, and pin these gathered knots to the top of the form about nine inches from front corner, and you will have completed the so-called overskirt or drapery. The balance of the goods leave for the bustle and back drapery, which are generally the most impressive and effective for display. Gather and fold the entire balance of the material and pin against the form every nine inches, allowing the goods to be fifteen inches



A Serge and Cheviot Window.

The tiers in this window are arranged to be about thirty inches in height. Substantial tiers are not absolutely necessary in duplicating this trim, as the foundation for the dummies to rest upon can be made by using two wide boards, resting on a dummy, or a box, at either end. The draping is simple, as will be seen from the illustration. If other styles of drapery is desired, see PAGES 503 to 507.

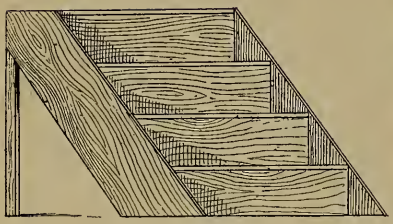
apart. The entire back of form being completed, put all the folded goods so arranged slightly apart, and they will form a very nice back drapery and bustle combined. If you desire a folded back drapery, simply let the goods sag loosely every twelve inches, and pin in succession, without gathering. In the first row place sateens, the next challies and the last baptistes. A very pleasing effect will also be produced by reversing every tier—that is, having the forms all facing to the right on the first row, the left on the second and again to the right on the third. As these forms taper in shape as well as in dressing, it is necessary to cover all the steps with similar goods to avoid vacant spaces and to cover the woodwork. A braided panel or set, a girdle here and there, attached in the proper place, will add considerably to the general effect. Always add price tickets, but not too large on such forms, as they almost invariably prove a valuable agent in selling the goods.

Another splendid device for displaying dress goods upon is the arm rack, composed of a short upright board, from a foot to fourteen inches in height, nailed to a cross board of equal dimensions. This is made stationary by means of tacking a slanting strip to the upright. A drapery similar to the figure on PAGE 490 can be displayed upon the arm rack.

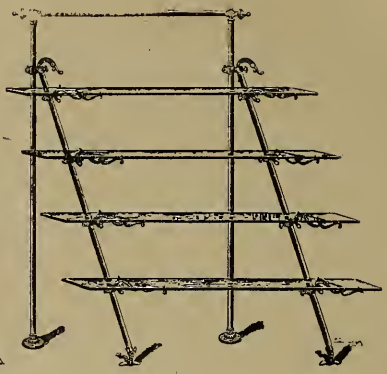
In large windows, especially bay windows, an attractive way to display dress fabrics, as well as all other goods of like character, is to get seven or more long, narrow boxes, say about five feet in height and from nine to twelve inches in width and about six in depth, and place them in an upright position, about three or four feet back from the window panes, and three feet apart, in two rows, one row behind the other, three in the first and four in the second, having the boxes of the first row standing in front of the spaces between the second row. Take the goods and drape them in long, graceful streamers from the top of the box to the floor, taking pains to have as many streamers from each box as will be necessary to conceal the same completely. In case the window should be a small one, have but a single row, and that of but two boxes, filling the spaces between with fancy fans or other suitable articles.

The Tier Window.

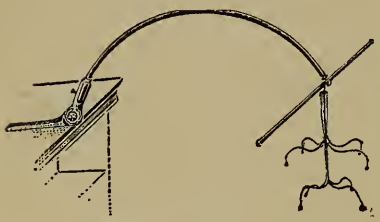
The simplest and most convenient method of displaying a quantity of fabrics in the show window, and one which can be recommended alike for its economy and opportunities offered the display of a large amount of goods, is the "tier" or "step" method. There are no lines of goods which can not be advantageously displayed thereon, and no other way by which so large a number of articles can be tastily exhibited at one time. The steps may be made in a variety of ways and materials, the height and depth of which is necessarily regulated by the dimensions of the window. Soft pine boards one inch thick and twelve inches in width will be found the best suited for all purposes, though for some lines of merchandise brass fixtures greatly enhance the beauty of the display.



WOODEN TIERS.

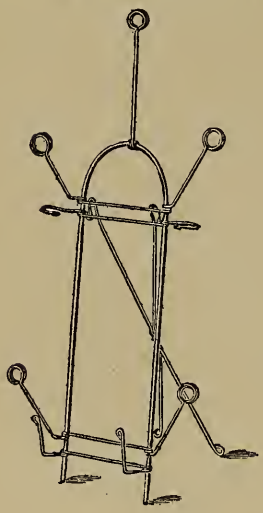


METAL TIERS.

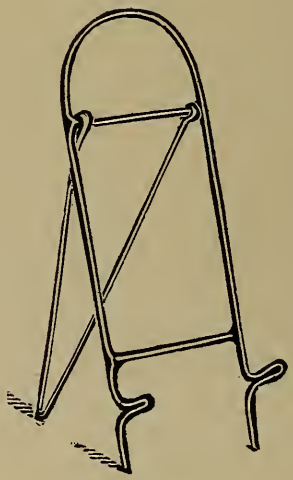


METAL SHELF ARM.

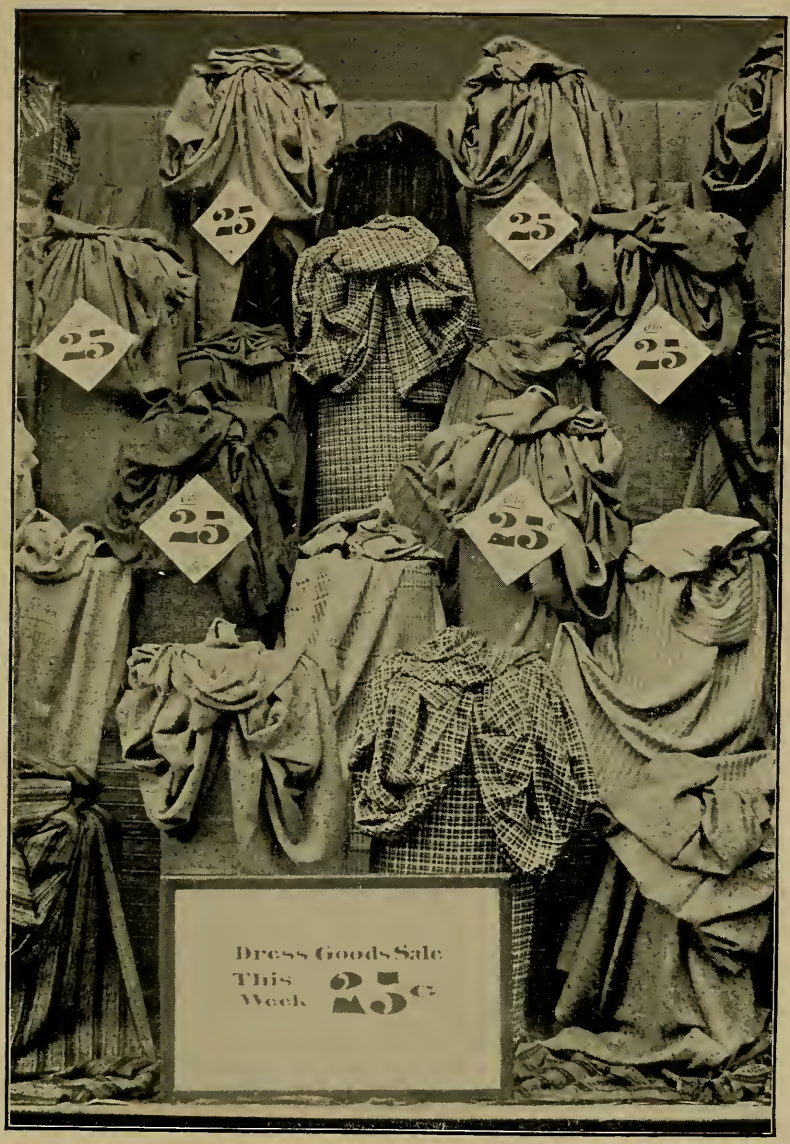
ADJUSTABLE ARM.



FANCY GOODS EASLE.

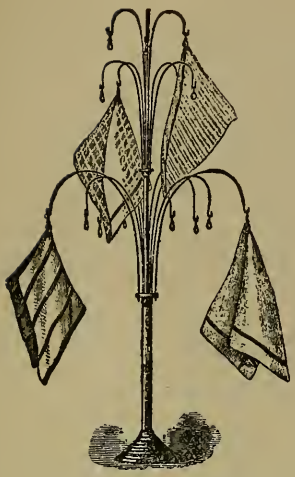


NOTION EASLE.



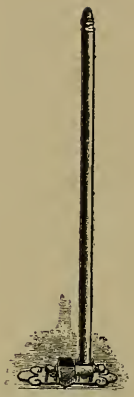
Dress Goods Drapery.

The above design is intended for a three-tier window. The dress fabrics are draped over forms as illustrated on PAGE 503. Care should be exercised to prevent the exposure of pins used in fastening the cloth to the dummy.

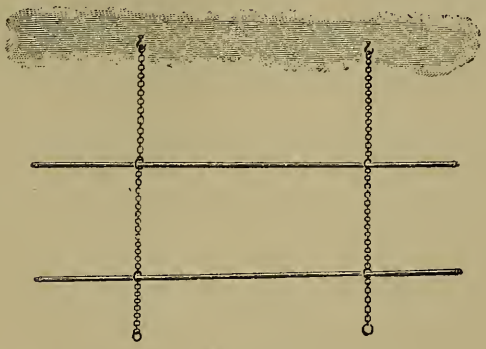


COUNTER STAND.

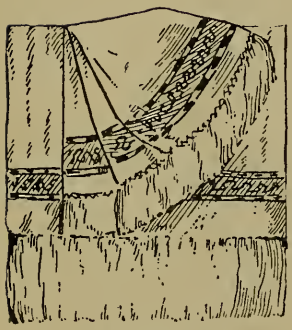
ROD HOOK.



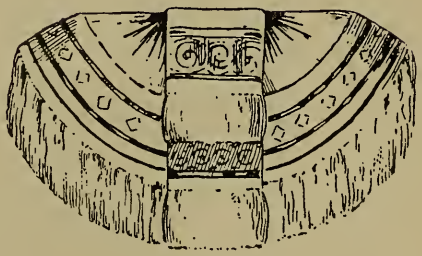
SWINGING ARM.



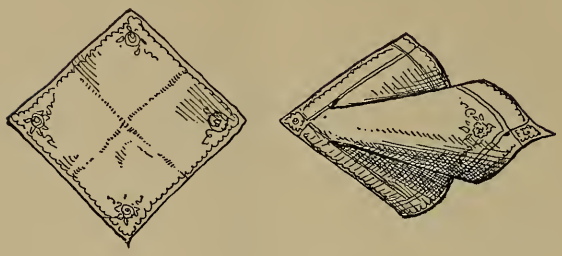
CHAIN RODS.



ARM DRAPERY.



ROD DRAPERY.



A Lily Window.

During the "heated term" pocket handkerchiefs are, as a matter of course, somewhat more in demand than at any other season of the year. The styles and patterns are now more numerous than ever, and competition is keen, especially among retailers, in the matter of meeting the demand of the public.

A very attractive mode of dressing a window with nothing but handkerchiefs is presented in the accompanying illustration. It represents two

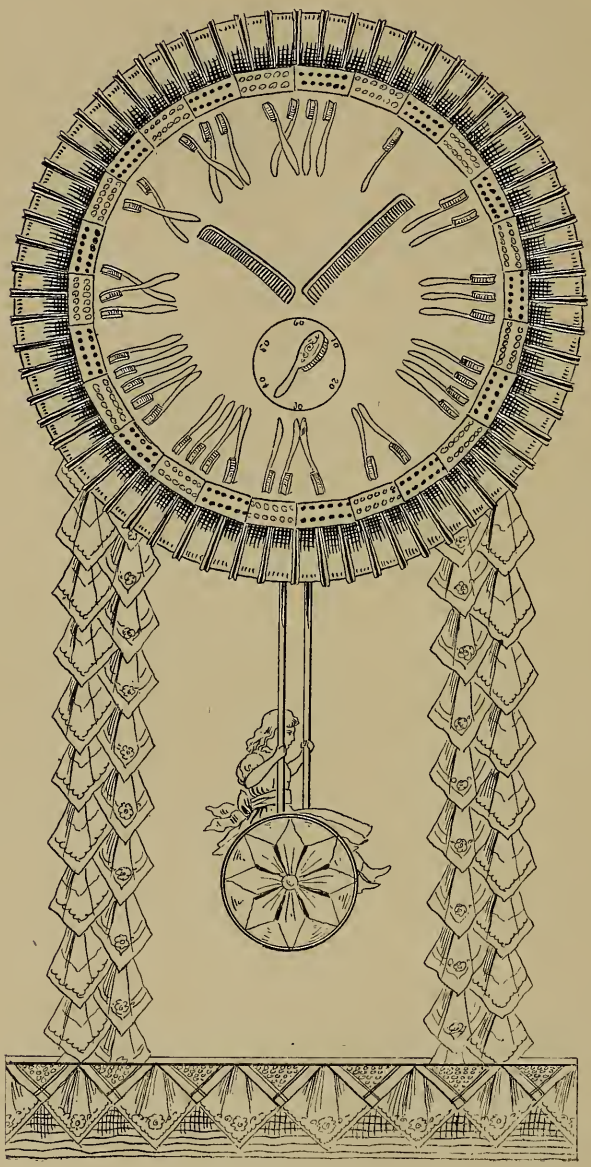
lilies growing in a pond of water, the latter being simulated by means of a large mirror placed on the bottom of a window. The stands are constituted of circular blocks of wood, supporting upright sticks about three feet high. Place them about the pond or mirrors in groups, so as to represent nature as nearly as possible. The staffs or upright stems should be wound round and round with green calico. Now comes the draping of these stands to represent the lily plant. Begin at the top by folding a lady's handkerchief in the shape of a cornucopia. This will represent a lily; then bind it to the stick with gentlemen's handkerchiefs, folded in long bands or bands of linen. Then fold more ladies' handkerchiefs to represent the leaves. This will be found simple enough by following out the diagram at the top of the cut. The part of the handkerchief at the left corner is to be turned down and bound on the stick. Bind these to the stick in the same manner until you reach the base. Then drape more leaves over the circular block of wood to hide it. Place two yellow or orange-colored pompons in each lily. This is absolutely necessary, as it gives a most realistic effect. If possible, get a lily plant and study it, and then represent nature as nearly as possible. This is also an excellent trim to put in during Easter. In a large window a number of lilies may be introduced, varying in height and amount of foliage.

Easter Lily Window.

Use a white flannel or broadcloth to cover the floor of window and background. Right in the center place a good-sized white or light cream jardiniere. Now, make a bunch of calla lilies; that is, take ten pieces of bamboo that are light enough to bend gracefully with the weight of the open lily, made of handkerchiefs. Cover the bamboo with green cambric of the color of a lily stem, or as near that as possible. Take eight or ten handkerchiefs and fold them so that by lapping them together you make the petal, and then use a bright, yet soft-colored-yellow silk handkerchief wound around a quill for the pistil. Bind the stem ends to a block, and then place same in the jardiniere. Tie the bunch with a ribbon, making the effect of lilies graceful as they spread. Have a large bow with the ends making streamers which will fall gracefully about the jardiniere to the floor. Be sure and have the stems of lilies look in proportion.

An Easter Design.

A novel curtain which is easily adapted to decorating an Easter window trim is composed entirely of brightly colored egg shells. The egg shells are first colored, and then run on strings, the different shades forming any pattern desired in the curtain. After mounting, the curtain is looped away at each side, forming a marvelously pretty attraction. For these curtains is required a "case" of eggs, the shells of which should first be drained of their contents and then colored with Diamond dyes.



A CLOCK WINDOW.

A Clock Window.

This suggestion is applicable to any line of goods, although the design calls for its construction of notions. It is made by taking boards and cleating them together, then sawing two circles, the size you can conveniently build in your window. It is only necessary to trim the face of one circle, as the other is at the back of the window and serves merely as a support, being attached to the front one by strips. This double circle is then supported by four uprights. The face of the clock is first covered with white cloth cut on the bias so as not to wrinkle. The hour numerals are made by wiring tooth brushes on as shown, the invisible wire passing through an awl hole in the board and twisted tightly on the back side. The hands are made with two long combs; a minute hand is made with a nail-brush placed on a painted dial. A border of fancy buttons on cards surrounds the dial and an edge of spools of embroidery silk or thread surrounds all. These may be strung on a stout cord until enough are had to surround the dial, then fasten to the edge by driving small staples over the thread into the edge of the circle. The supports are covered with handkerchiefs. The pendulum is a seat supported by two ribbons bearing a doll, and having circular sidepieces of pasteboard covered with handkerchiefs. An invisible wire running from the seat through a screw-eye at the side of the window back to the interior of the store, and pulled occasionally, will keep the pendulum in motion.

Hosiery.

Suspend a large hoop from the ceiling, over which pin a variety of hose, the feet meeting to the center. For the side, arrange hosiery alternating in color. Build up tiers of steps on the floor of the window and arrange hosiery from boxes in stock, merely displaying half of the hose; place price tickets on the same. The better grade of hosiery should be displayed near window pane and so diminish in style and price until the top step is reached.

A May-Pole Window.

An appropriate trim for the month of May, and one which offers a fertile field for the exercise of taste and skill, is a May-pole. In the center of the window is erected a round pole, at least seven feet in height. Twine gayly-colored ribbons barber-pole fashion from top to bottom. Fasten eight or ten ends of No. 5 ribbon to the top of the pole and allow them to reach to the floor, where they should be held by doll-figures, as if engaged in the familiar rustic dance around the pole. As May is the month of flowers, these should also form a feature of the display.

A Toboggan Slide.

With a window sufficiently large, an effective winter display can be made by covering the entire back and sides of the window with sheets of snow white cotton. Beginning at the farthest corner, construct a toboggan slide, allowing it a slant of two or three feet. At the top place a small

dummy, dressed in proper attire, with a toboggan at his feet. The cotton everywhere should be sprinkled with diamond dust.

A Ribbon Window.

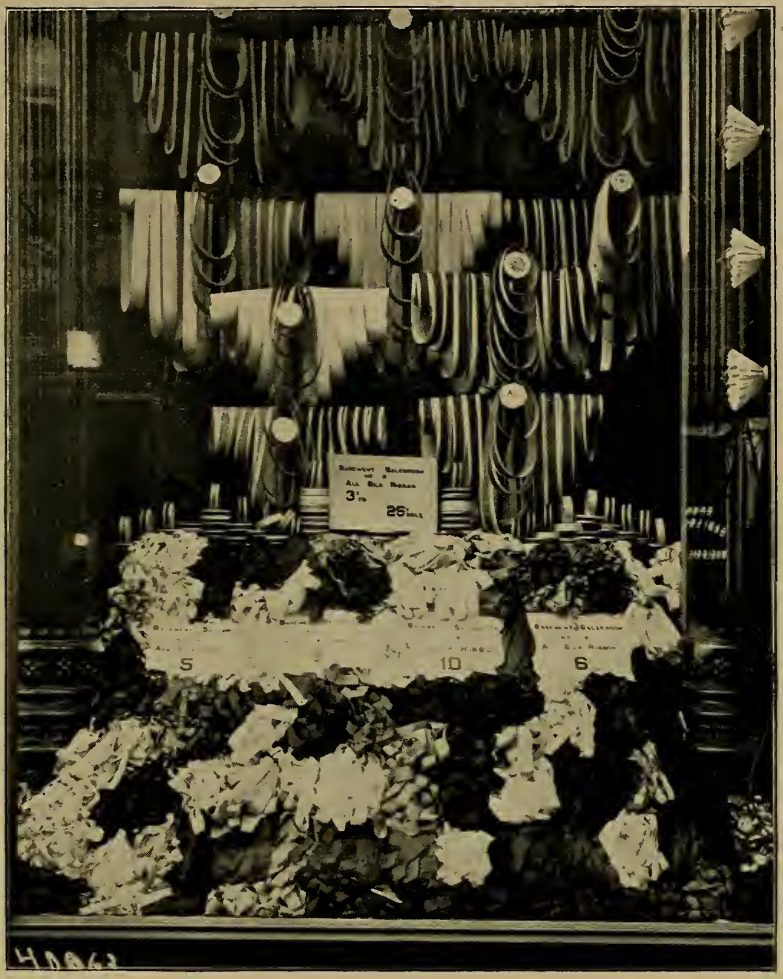
There is no line of goods carried in a dry goods stock that is more diversified in color, widths and general effects than are ribbons. A very striking window can be made by constructing of light boards a framework six feet square, or of any size which will best fill your window. Across this may be drawn ribbons of various widths and colors in such order as will make a solid wall of color, forming a handsome and attractive show-card. The loose ends may be pinned to the frame and the uncut ends so fixed as to stay in position and still not require cutting or separation from the roll. The preparation of this window will give tasteful young saleswomen a good opportunity to display their skill. If desired, other contrasting colored ribbons may be interlaced at right angles, or a little ingenuity will be rewarded by the designing of a number of beautiful geometrical figures. A very showy window can also be arranged by the use of different colored ribbons by interlacing and weaving them in such a manner as to produce a perfect checkerboard.

A Button "Wheel."

A very attractive window piece may be made by building a flat circular foundation of rough boards, making a disc about four or five feet in diameter. Cover this with black cambric. Around the outer edge drive a row of tacks far enough apart to allow each tack to come at the center of the end of a card of buttons, the cards being placed side by side. Drive another circle of tacks at a distance within the outside row equal to one inch less than the length of a card of buttons. Drive other circles the same distance apart until the center is reached. Between these tacks spring cards of buttons, the ends of the cards being slipped under the tack heads. These will form bulging circles of buttons, making a novel wheel. The use of bright metallic buttons will add very much to the appearance of the device, which is a successful one.

A Button Display.

Drape the background and side of the window with white lace curtains. Make a framework of light boards of an old castle, with a tower at one end, similar in shape to the pictures of old English castles seen in many books. After the frame work is made, cover it tightly with muslin, taking care to leave places for windows and doors at the proper places. Then take cards of buttons of different sizes and colors, and fasten them by pinning or tacking so as to cover the entire structure save the windows and doors. For windows use colored tissue paper, having previously drawn lines across same with ink to represent the window sashes, and fasten these securely from the back. The tissue paper windows can be made smoother by pasting; at night place a lamp within and the effect will be striking.



A Ribbon Sale.

The bottom of the window is formed of thin boards, slanting from against the window pane to the back of window, and elevated at the rear to a height of about two feet. Upon this bottom is arranged in pleasing color-combinations opened bolts of narrow ribbons, caught up into graceful loops and folds. The back of window is formed of short metal rods from one foot to two feet in length, upon which are fastened bolts of ribbon arranged in graceful loops, after the manner shown in illustration.

A Gingham Window.

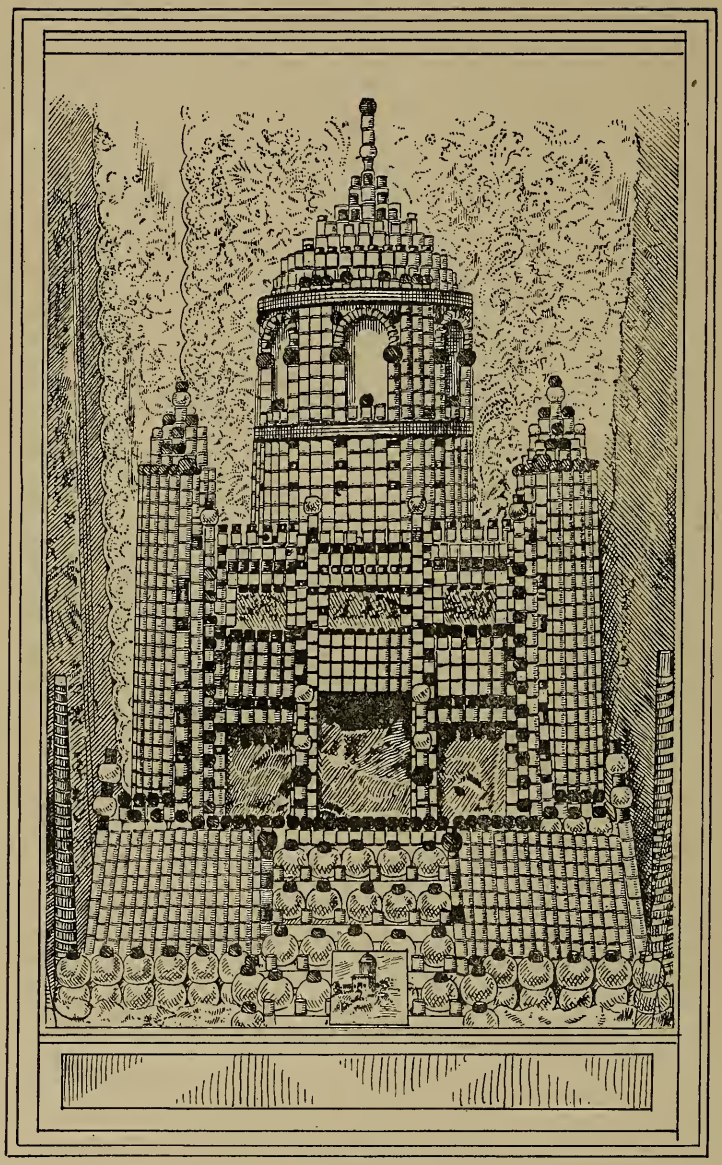
Across the *top* of the window stretch some fine spool wire or string, commencing at the glass, and placing the wires about six inches apart. Let them slant to the back. On these hang ladies' handkerchiefs. Alternate rows of white with rows of colored borders. As each row toward the back of window is slightly *lower* than the one in front of it, this will produce a charming effect and have the appearance of a prettily fringed ceiling. The next thing to do is to fill in the back of the window. For this purpose place at distances of from one to three feet apart four pieces of wood about four inches in width, allowing them to reach across the full width of the window. The second piece from the top and the bottom piece should be about a foot and a half nearer the front of the window than the other pieces. Then stretch the various colored materials across the wood and a good effect will be produced. This gives four inches over the flat pieces of wood to put show cards on.

Pins and Needles.

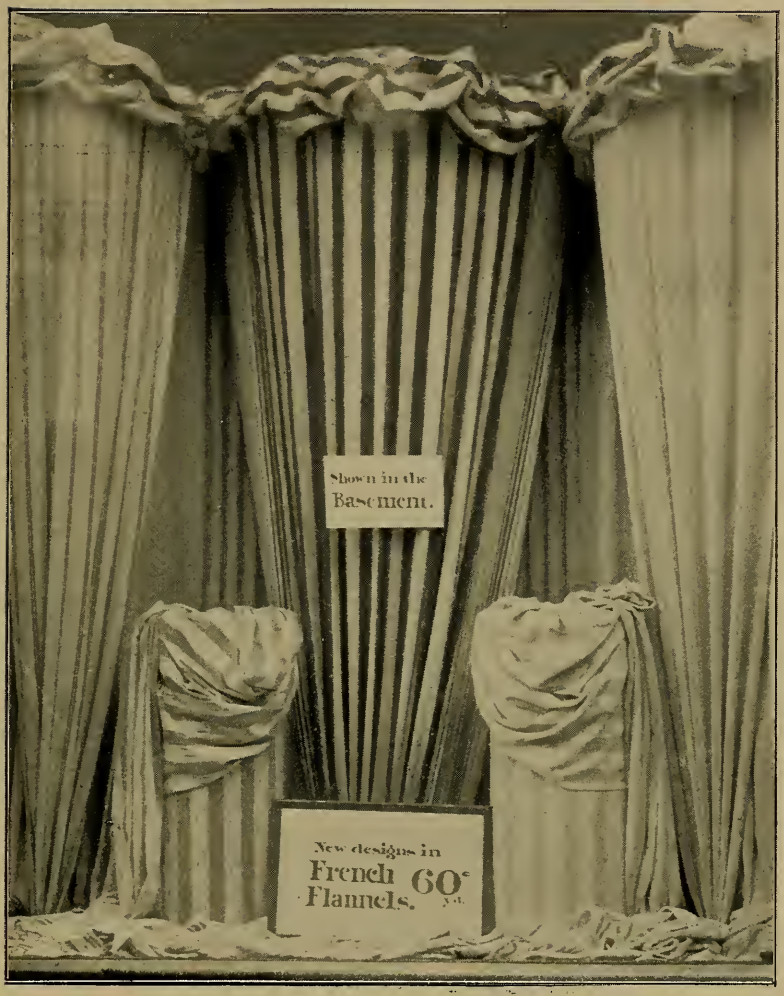
A very taking trim may be arranged by introducing into the display every article that is required for domestic sewing purposes. First construct a minature house with an ell to it from a dry goods box. Imitate the the shingles on the roof from packages of needles, and cover the sides of the house with papers of pins. The foundation on which the house rests build of vari-colored spool cotton—blues, reds, browns, etc. The supports of the steps should be composed of scissors, varying in sizes from the smallest to the largest. With darning needles inserted in the handles and papers of pins brought under from one darning needle to the other, will produce the steps. A rail fence is imitated by crossing packages of hair pins. An outside chimney to the house may also be formed from small packages of hair-pins.

An Underwear and Hosiery Window.

From front corners of the window have four arms. On same, place Swiss ribbed vests and drawers. Above these on either side have a semi-circular arm made of wire, if you so desire, and extending to back corner of window. Same can be kept in place by fine wire from ceiling. Have vests on these semi-circles. From a point half way from front to back of window, and to the right and left of center of window, build an arched frame, of a height not exceeding six feet. Cover same with fancy vests. To form an arch use same kind of semi-circle of wire or brass rod, covering same with vests. Below arch in center of window, use a three-tier stand, as indicated. Drape same with hosiery. On background use vests. The finish across top of background can be obtained by use of lace. Cover floor of window with vests, and at intervals break the monotony of same by use of hosiery. In front and on either side of central stand have undervest box, open, with undervest exposed. On background have four arms which shall come out toward the columns of arch; on same drape hosiery.



SPOOL COTTON WINDOW.



French Flannel Window.

To reproduce the above, necessitates having strong frame work at the back of window. The drapery is formed by attaching the cloth to stout semi-circles of wood, nailed to the window frame and drawn to a point at the bottom. The semi-circular board should not exceed three feet across. Those on the side should be of the same dimension. The cloth if tacked or pinned to the floor. The small pieces are draped over drums. [See PAGE 503.]

Stocking Window.

A very handsome window display can be effected by means of stockings only, with little or no expense. Arrange a false bottom to the window by the use of pine boards, letting the back be considerably higher than the front, so as to be in a sloping position. Cover these boards over with some suitable black material. Cambric will answer the purpose very well. Upon this arrange white or light colored stockings in such a way as to spell out the sentence, "Bargains in Hosiery," or such other words as you may fancy. Care should be taken in pinning the stockings that none of the pins show. By using different sizes of stockings, the wording can be arranged without difficulty, while the effect will be most excellent. It is advisable to use white or light colored stockings, for then the contrast with the black ground is more apparent and striking. Neckwear, suspenders, gloves and handkerchiefs can be arranged in a similar manner with equally good results. Another plan is to cover the false bottom of window solidly with cotton batting, spread out smooth and even. The letters for the sign are then formed by removing the cotton from the proper lines and inserting bright-colored stockings puffed to imitate the letters made of tin foil.

A Parasol Window.

Line the background and sides with yellow serge, or China silk. In the center of the window place a small wooden box covered with the same material. Upon this set a dozen parasols and sunshades, their ferules being inserted in holes made for that purpose at the base. This will allow the parasols to spread in a circular manner. On both sides place similar boxes, but lower, not over six inches from the floor of the window. Over each of these bunches of parasols (which are closed), arrange a bright colored one spread, handle downward, and with the top of cover coming but an inch or two above the handles of those inserted in the box. High above all, in the center hang a fully opened parasol of black silk from the ceiling, with two others (white) on each side. The yellow background forms a very striking contrast with the more sombre colors of the parasols.

Table Oilcloths.

Oil-cloths should always be displayed on a sample rack, and a small dealer with a small stock can do a large business in this way from the fact that every pattern represented is shown with the greatest ease. Without these facilities a salesman would be apt to consult his own taste and judgment as to what the customer would prefer, when if displayed on a rack as described, it is often the case that some pattern will be taken that had previously been considered dead property. It also helps the merchant to dispose of remnants at full price, if cleverly handled, as a customer cannot tell whether the sample represents five pieces or five yards. Breakage, which is very frequent in handling oil-cloths, is avoided, which is another point in favor of the rack.

A "Color" Window.

What is meant by this, is a display of goods composed entirely of one color. To produce the best effect with a window of this character the trimmer should be careful not to use too many goods. The fewer and more tastily arranged the better. A window of

Red Fans,
Red Parasols,
Red Belts,
Red Pocketbooks,

and a sign reading something like the following:

ANY COLOR SO IT IS RED.

will serve the purpose ten-fold better and quicker than the old-fashioned ponderous method of trying to put the whole store in the window.

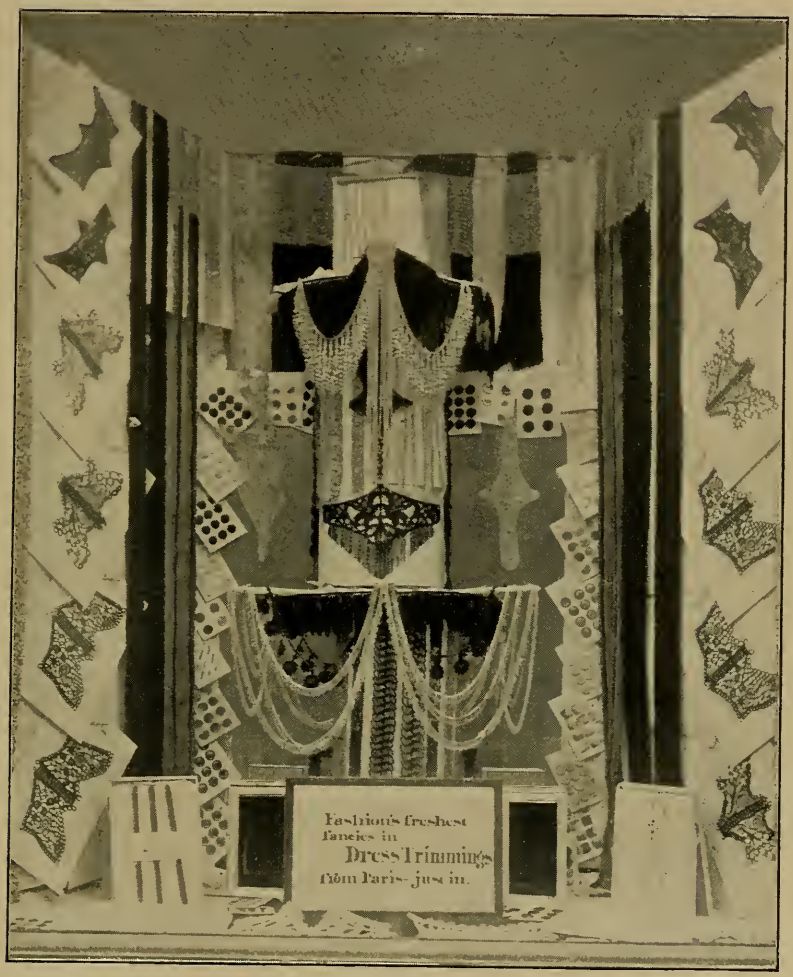
A "Canning-Apron" Window.

The retailers all over the country are always ready to supply the necessary aprons and proper fabrics for gowns for the canning season. Many a lady who seldom finds time to enter into the hardships of housekeeping, just "pitches in" during the canning season. It is taking time by the forelock simply to suggest that in this feature there is a grand opportunity for a realistic window display. Any retailer having a window large enough can have it transformed into a *representative kitchen*, and, by the aid of one or two attractive young ladies, can capture the town.

Those who may not have a window space large enough may call attention to the time and season by the use of fruits of different kinds and aprons. A window display of aprons, which are proper for such a time, and the arrangement of fruit in baskets and about the floor will be a change from old ways. These breaks from the regular and beaten paths you have followed in window decoration will make those trims which follow more effective.

Table Covers and Napkins.

To make a display of these goods it is desirable to use table covers and napkins that match, or at least nearly so. In the center of the window place a small dinner table, and arrange the table cloth and napkins as for "setting" a table. Line the background of the window with rows of tapes about six inches apart, on which pin napkins, every other row in colors. This will form itself into a solid background of napkins. Tile the floor by the use of white napkins and Turkey red doylies alternatiag as in a checker-board. This will lend to the floor of the window an appearance of a tiled dining-room floor, thus completing the design.



Passementerie Window.

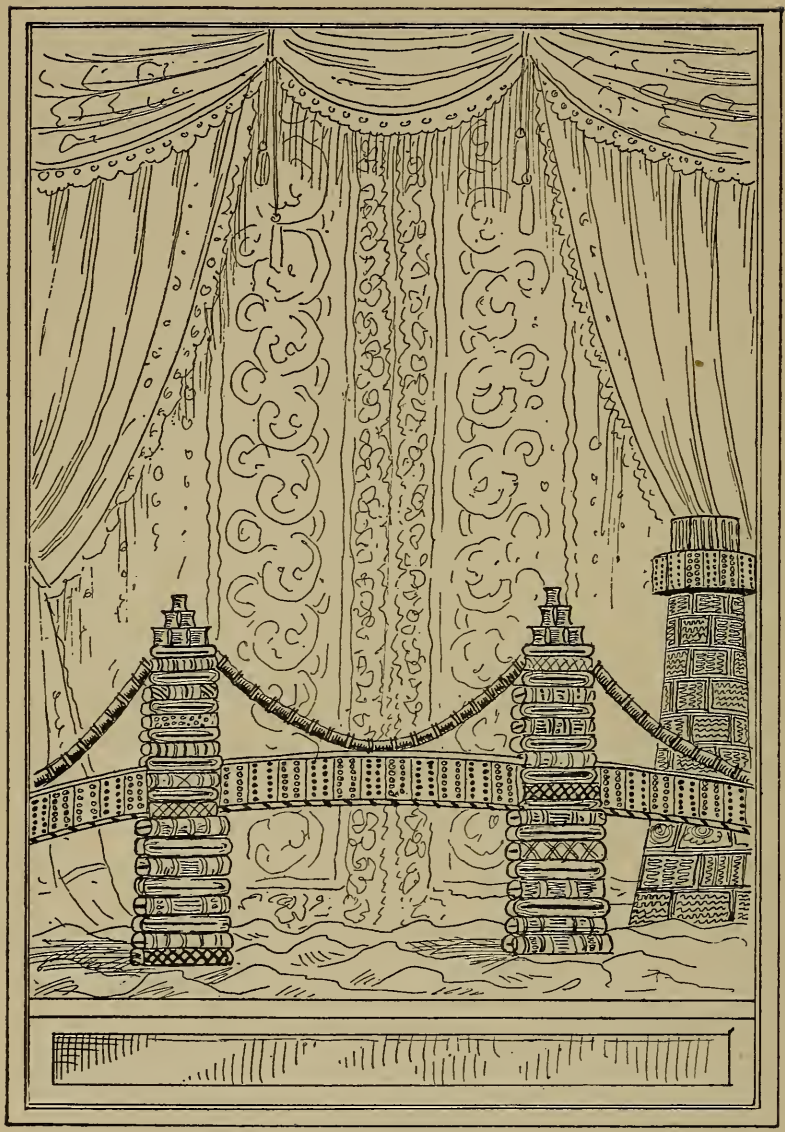
In the back of window is a mirror. In the center is a drum covered with white silk; upon this is a circular board two feet in diameter; then another drum and a circular board, the latter being but eighteen inches in diameter. The sides are decorated with jet ornaments on cards and astrakhan dress trimming.

A Lace "Fountain."

Line the sides of the window with light blue cambric, and over this festoon wide lace from top to bottom. Festoons of lace are draped from the top of the window across the entire length and brought to the center. For the back of window take laces and drape the entire length, hanging loosely. and bring them together in the center to form the shape of an hour glass To make the fountain: Take the center of the window and fasten to the floor an upright stout beam of scantling. About eight inches from the base of the window tie to the beam a large barrel hoop; then, with cheap cloth, tack to the floor, beginning from the center of the beam, and draw tightly to the outside of the hoop and cover with colored cambric. This will form the basin of the fountain. Take Hamburg edgings and form around basin in various shades to simulate rocks, and scatter loosely over them draperes of green or colored laces. Light blue cambric may be thrown loosely iaround the interior of the basin to give the effect of water. Four feet from the floor tie a much smaller hoop to the beam and pin blue cambric to it. Pin wide lace around the entire hoop and allow the folds of lace to drop loosely into basin. To give it more effect a statue can be produced and placed inside center of basin, first hoop resting on the statue's head. At a distance of two or three feet tie two other hoops to beam still smaller than the first. Pin cambric around the hoops, bring together and tack to the beam; then, with lace form the same effect as before. Pin lace in straight folds around the hoop. Allow it to drape to the first hoop. To secure a good effect, take stout wire, bend out of the basin and run the lace over the wire, draping to basin. Any number of basins can be made, according to the height of the window. As the basins gradually ascend, the laces should gradually diminish in width; as, for example, the hoop near base should be draped with wide lace; at the extreme top of the beam put very narrow lace and allow it to hang loosely.

A "Grand Army" Window.

For occasions of Grand Army encampments or re-unions a window devoted to a representation of camp life is very appropriate. This may be made by sodding the floor of the window with genuine grass sod, or, in the absence of this, any good imitation of it will answer the purpose. A little back of the center erect a small V-shaped army tent. This can be made of unbleached muslin. At convenient points imbed four or five miniature trees, say six feet in height. From beneath the folds of the tent let protrude two pairs of legs encased in army boots. Stack muskets at the sides, and knapsacks and camp requisites in convenient places for "filling." Now secure three rough sticks, about five feet in length, and cross them (standing upright) in the front center of the window. Swing from the fork of these a huge coffee kettle, hung with a chain in true army style, and place ashes and charred sticks underneath.



A BRIDGE WINDOW.

A Bridge Window.

The foundations or piers of the bridge are made of rolls of cloth, but could also be made of boxes covered with cotton dashed with paint to imitate stone work. Across these two supports, planks are laid, and faced, as shown in the cut, with cards containing ties, buttons, or anything which comes conveniently mounted. The arches are more complicated, but a description of one front will serve for the whole arch. Take the front of an arch as it faces us. The first thing is to erect a frame, which is nothing but two light pieces of wood, of two or two-and-a-half inches in width, connected at the top by a piece of similar material the width the arch is to be made. Now take undershirts or any similar article and place them horizontally one above the other up each of the side strips of the frame. The space between the two strips may be filled by piling one on the other, undershirts doubled up with the front outward, or else slats may be tacked across the frame and shirts hung across these from top to bottom. It will be observed that the width of your arch must be the width of the shirts or whatever you intend to display between. Practically, then, each side of the arch is made on this wise: a row of shirts turned about an upright pole, to the right of which is a row of white or other shirts suspended upon lath or rails so as to show the entire front. The other upright of the frame to be treated similarly with the row of shirts on the left of the upright pole. This gives you two uprights of the frame covered, and a row of shirts on each side of the inside space between the arch. The space remaining between these two rows is to be filled up by goods folded to show their greatest bulk, or goods hung to overlap from slats tacked on for the purpose. Each side of the arch is similarly treated. Of course the rear of the bridge not being visible needs no decoration. The water beneath is nothing but blue cambric dashed with white paint and picked up in imitation of waves. The tower on the left is of course only a half section needing no more than to present a brave front. The construction of the frame is suggested by the outline. The frame is first covered with stout paper, and then cards of buttons, ties, etc., are tacked on as shown in the cut. All this means work, but of course those who go to the trouble of preparing the frames will find further use for them in future windows.

A "Bridge" Window.

The piers are cuffs; the floor is four five-plaited shirts, which must be supported by a piece of heavy pasteboard or two slats; umbrellas or canes can be put in the cuffs (or piers) for a finish; the suspending wires are narrow black ties; the diagonal stays are narrow white ties; the cables are red or white silk pongee handkerchiefs slightly basted together and then rolled; the railing is carded cuff buttons; the shore-ends of cuff boxes. Some blue silk handkerchiefs underneath would make a good finish, while other features could be introduced as might be suggested by such goods are in stock.

A Bridge Window.

In the top of the window, take light-blue cambric or calico and form it into a puffy, cloudy background, which may be extended from the top down over the back to the bottom, if desired. The construction of the bridge is as follows: Take two boxes of the same height and two feet square. They should not be too high to prevent people from seeing the floor of the bridge from the outside. Cover the boxes with a foundation-cloth, to which the goods that are to form the piers are to be attached. Handkerchiefs can be pinned to the boxes, one of which forms the main foundation at each end. At each corner of the boxes nail an upright piece four feet long, these will extend two feet higher than the boxes, and will furnish the supports from which to run the upper cables. The floor is made by laying a board covered with gray cambric from one box to the other. The cables, one on each side, can be made of spool cotton strung on strong twine, the ends being tacked to the ends of the inside uprights, and the center allowed to sag. On each side of the bridge-floor should be stretched from one side to the other a lace of appropriate width to serve as railings. From the ends of the cables to the floor of the bridge an open-work lace should be stretched, to serve as braces, the picture of the bridge on Pg 504 being a guide to this. Underneath, for the water of the river, silks may be rumpled. If you have in stock, or can borrow from your neighbors, toy steamboats, horses and wagons, men and women, they may be so placed as to add to the realism of the representation. This is not a difficult design to execute and will attract great attention.

A Corset Window.

A very stocky display may be made by building in a window an archway of corsets. The frame-work is light scantling, nailed to the floor and ceiling about two and a half or three feet apart, running on a slight slant to the background. Between each scantling form an arch (of thin flexible lumber strips) the width of the corsets. The arrangement is merely to stack up boxes of corsets, one side open, in front of support, which will form an arch. This continued until the entire window is filled, makes a very imposing show. The display may be relieved by showing colored corsets *only* in the archway—the white ones forming the main body. Fill in the floor with corsets in boxes with the lid removed.

Cloaks.

To display cloaks effectively it is advisable not to show too many at once. A good plan is to arrange a pair of lace curtains at the back and sides of window; these should be draped gracefully and caught up with bright colored ribbon. In the center of window, display upon forms not to exceed three style of garments.

A Simple Suiting Window.

The center of above window is composed of a mirror, though this may be dispensed with if inconvenient or not available, and an extra center drum substituted. The main figure in the center is formed by nailing together three wooden strips in the form of a triangle and draping with dress goods as in illustration.

A Suiting Window.

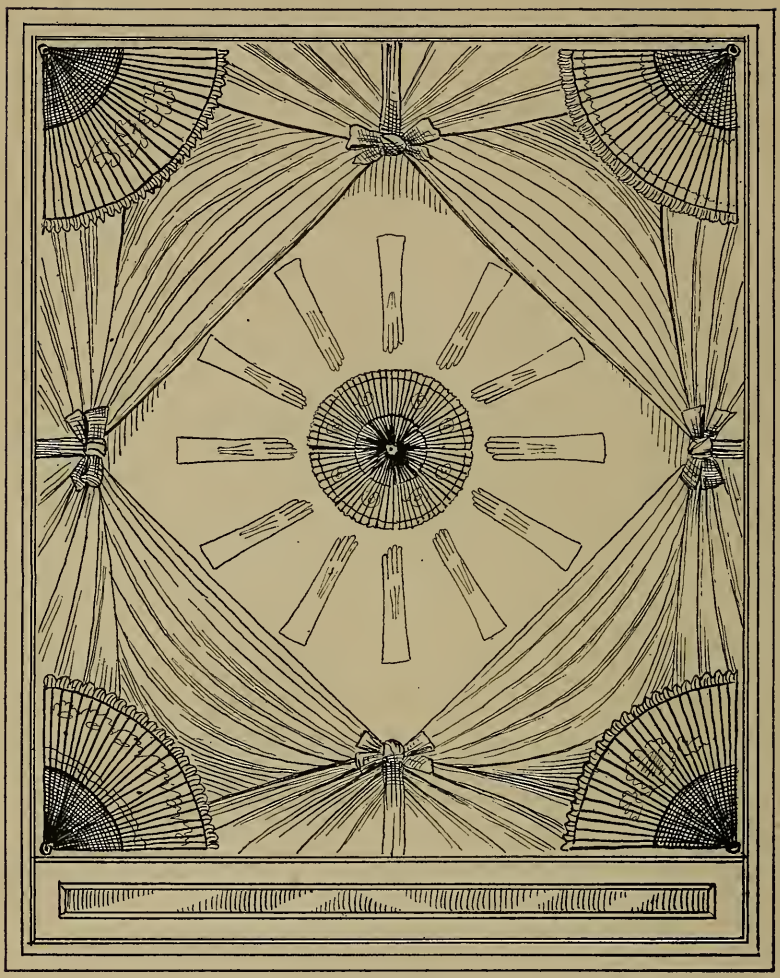
From the back of the window, near the top, hang a half hoop—so that the outer edge of the semi-circle will reach within a foot of the glass, the ends of the hoop being attached to a piece of wood running from one side of the window to the other at its back. From this semi-circular hoop drape in graceful folds goods of rather a light shade, caught back at the bottom so as to leave the entire base of the window free and unobstructed. The goods must now be brought together at the front of the hoop. The back of the draped space may be hung with any kind of goods it is desired to show, or may be left open at the upper portion. From the outer edges of the hoop drape again goods of a darker color, giving the effect of a lambrequin over curtains. Around the base of the window and under the arch of the drapery may be carelessly laid small bits of goods of an attractive appearance, such as gloves and buttons.

A "Vase" of Dress Goods.

A very tasteful trim may be formed of dress goods arranged to imitate a huge vase or goblet. The vase is formed by taking several pieces of goods with light designs and crumpling them loosely so as to form a billowy bottom. In the center is an upright scantling six feet high and nailed on its top with a *round* board three feet in diameter. To the top of this board is attached the ends of several pieces of dress goods of corresponding shades, the material being *fulled* considerably. *Three feet from the bottom* the hanging folds of goods are caught up and drawn in to the upright so as to form a bell-shapped cavity. The folds should be drawn down tightly, the fullness being forced into pleats at the base. Care must be taken not to allow the goods to sag too much in forming the *bowl* of the design. This, as the trimmer who has carefully followed the description will very readily see, forms a gigantic vase or goblet, and while it requires but little labor to prepare it, is very effective. Artificial flowers adorn its top. The back and sides of the window space may be hung with darker stuffs up to a height equal to that of the vase, forming a background that will bring the latter into stronger relief.

To Display Dress Goods Without Forms.

To drape dress goods in a window where there are no "forms," take a square board, say twenty by twenty, and nail a small strip at back for support, allowing it to slant slightly. With a dress pattern, place a length over the board. Bring the rest of the goods at back. Then pleat a number of folds, about one-quarter of a yard to each pleat, and pin at *corner* in front of board. Catch up one of the folds at the *other corner* of the board, and place the remaining goods at back, out of sight. Three dress patterns in front, and three at the back elevated on platform will make an imposing show. The sides and back of window drape with plaids and stripes.



Glove and Fan Window.

The entire window is hung with some handsome goods of any color or material preferred, and is caught back with broad bows of ribbon in the manner shown. The corners are decorated with half opened fans. Through the diamond-shaped opening a plain white background appears, upon which is arranged three fans in the shape of a circle, and around which gloves are arranged as seen in the illustration. If white fans are used, very light colored kid gloves should be used, and *vice versa.*

A Evening Dress Window.

Kid Glove Display.

An effective display of kid gloves is made by arranging around the border of the window a piece of wide lace. This can be made fast by pinning to the sash. Cover the back and sides with garnet cambric or velvet. Then arrange the steps to run up three tiers high. From the ceiling of the window to the steps run black tape or braid, on which may be arranged kid gloves of assorted colors. Cover the steps with white tissue paper. On the first step lay black kid gloves in diagonal rows; second step, tans; and the third step, drabs; here and there place a glove-hand in position.

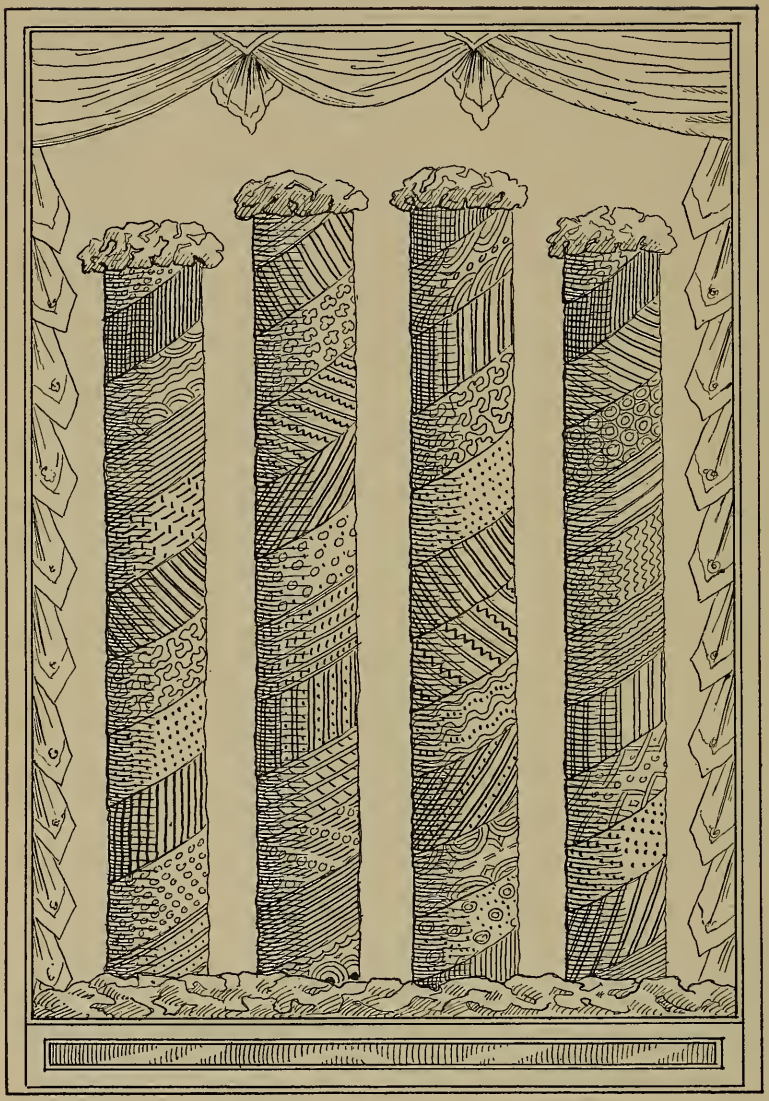
Glove Arrangement.

Rich gloves, like many other kinds of fancy articles, only require to be carefully hung or laid over the rods to show the particular feature; but two rows will always be more attractive than one, provided they are put in with uniformity. A very good arrangement for medium grades is to show alternately packets and single pairs. Draw down each band a little, and turn back the uppermost glove in the packet sufficiently to show fastenings or fashion; place them upon a rod to lean against the glass, and about four inches apart, single pairs coming between, simply laid or doubled over. A row behind should have the order reversed, so that packets (which may lean against rod or wire) come behind the single pairs. Rows of single pairs, arranged in order, two or three deep, will have a good effect; they must hang at full length.

Where stock is the object, hang single pairs close together, turning the corner or half-glove back to expose buttons. Single rows will look well when carefully put together, but two or three rows back, rising or falling in height, will be attractive, allowing plenty of space between each row. Cutting trades, by way of change, can present low goods in novel array by doubling single pairs in half, and laying or building them up close to the glass to show rows of reversed angles. The numerous fancy gloves in silk and cotton are now almost always shown in boxes.

Plush and Velvet "Drums."

By taking a stiff pasteboard drum or roll, about four feet long and twelve inches in diameter, and pinning tightly and smoothly around it bright colored plush or velvet; and then by standing six or eight of these in contrasting colors toward the rear of window, with the tops inclining toward the back (for which purpose a flat, inclining platform, should be provided); then by puffing between each of the drums dress goods of harmonizing color so that each drum is entirely surrounded, a very pleasing effect is obtained. A card of bright buttons, or a strip of silver or gilt braid, if laid uniformly on each drum will form an effective finish to the design.



DRESS GOODS COLUMNS.

Dress Goods Columns.

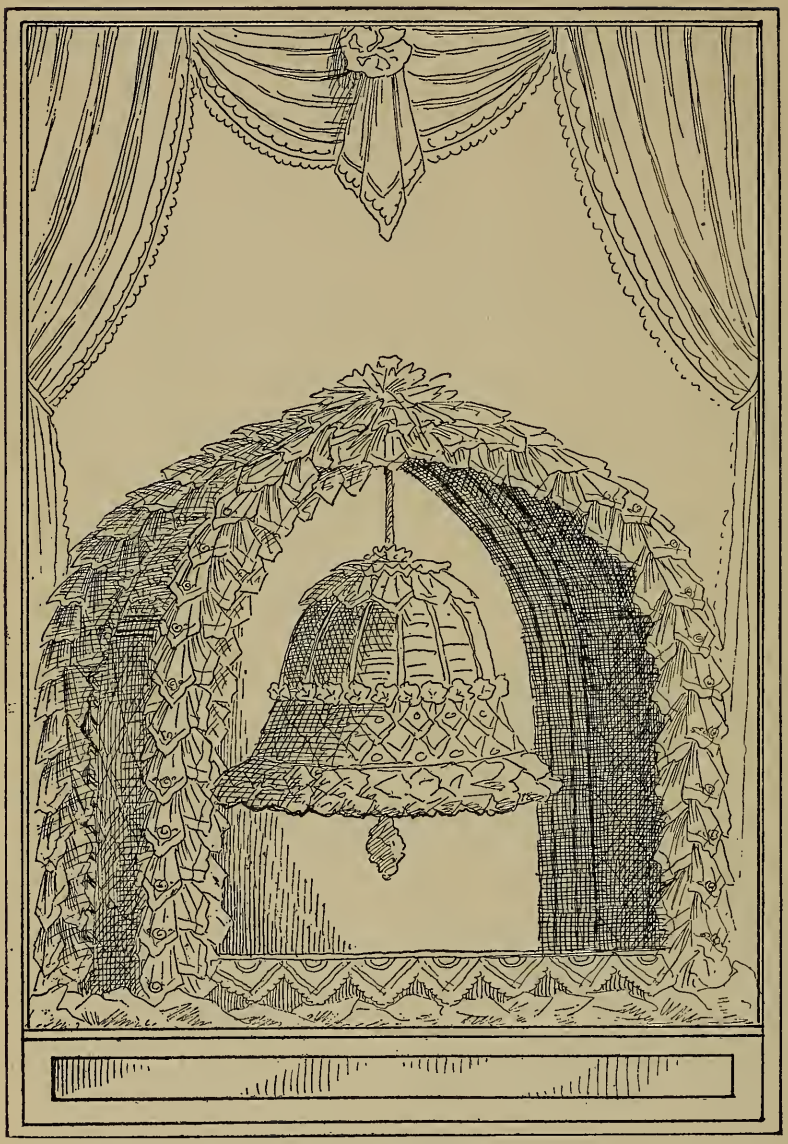
The above design is one which can be carried out with no greater expense than that of a few hours' labor. The columns or pillars can be made out of stout strawboard or pasteboard, bent into cylindrical form and fastened, or they may be sewed or tied. When made, the pillars should be tightly stuffed with paper to give them solidity, and are then ready for use. Wind the pillars spirally with dress goods, (just as the strips wind on a barber's pole,) leaving some material loose at the top, which can be arranged as in the cut. Cover the floor of the window with similar goods, picked up (as in the cut) to avoid flatness. The top of the window may be curtained with lace and the sides dressed with pocket handkerchiefs. Good taste in the choice of materials, and the use of colors in combination or contrast, will make a window dressed in this style, a great attraction.

A Fan of Dress Goods.

A favorite arrangement for dress goods is to arrange six colors of material in the shape of a huge fan, each section composed of a different color and material. There is no more advantageous way of showing these goods. The design is formed by bending in semi-circular shape a strip of thin, flexible lumber, to which the goods are attached at the top. At the bottom they are drawn in imitation of an opened fan. The sections should be pleated and not over a foot in width.

A Tent Window.

The "properties" required for this scene are a pole, a small buggy-wheel, a few short pieces of wood, and a well assorted lot of dry goods. The pole should be covered with strips of colored muslin wound round it in the manner of a May-pole. It should be small enough at the thin end to admit of its being passed through the hub of the wheel until about eighteen inches of it projects on the top side. On the lower part of the pole, nail some short pieces of wood also covered with colored material, upon which to hang the latest thing in hats, bonnets, lace, etc. Before placing the framework of the tent in position cover the bottom of the window loosely with some green cloth, placing balls of paper or something else of an equally inexpensive character underneath it in order to give the undulated effect of growing grass. After fixing the pole and wheel cover them with some delicate shade of plain goods for the interior lining of the tent, and place pieces of summer dress goods of bright and striking colors on the outside, then drape the opening at the front, tying it back with ribbons and arrange the show of goods on the cross-pieces inside and on the floor as shown in the design. To increase the effect open out one or two parasols and place on the ground outside the tent, also a few fans, gloves, etc. But do not crowd up the show too much or the effect will be lost. Any merchant who undertakes to carry out this idea carefully will be pleased, and what is still more important he will please his customers.



A CUPOLA WINDOW.

A Cupola Window.

The design on the opposite page represents a bell and cupola formed of white linen handkerchiefs. It makes a very effective show window, and is well adapted for the display of a large variety of goods. The bell is made of heavy pasteboard; the frame of light boards and heavy pasteboard, covered with kerchiefs, buttons and notions.

A Portiere Window.

In the background of window drape dark colored dress goods plainly. Across these weave No. 9 bright colored ribbon in sqares of about a foot each. In front of this three curtain poles are hung about fifteen inches apart, and each about one foot higher than the other. The first pole should not be farther than fifteen inches from the glass. Another curtain pole is now hung across the *top of the window*, six inches from the glass, and from it a pair of lace curtains are hung and draped down close to the sides until it reaches the bottom of the window. Attached to the rings of the three center curtain poles are small notions, kerchiefs, pocketbooks. On the floor of the window a small pyramid of boxes is made, covered with small rugs or bright flowered stuff. On the edges of the pyramid a variety of articles can be displayed. By exercising care to harmonize the colors properly a very charming effect may be produced.

A Pipe Organ of Ribbon.

A beautiful window during Easter-tide is formed by imitating a pipe organ of ribbons. The background, side wall and surroundings for this display should be of white lace curtains, or other light colored material arranged in such manner as the fancy and good taste of the trimmer may suggest. The display proper consists of the reproduction of a large pipe organ, the size of same being 54 inches wide, 15 inches deep and 96 inches in height. The frame is made from two ordinary dry goods boxes cut down to proper dimensions, the scroll work of heavy card board, and the pipes of ordinary carpet or building paper. For covering frame, ribbons varying in width from Nos. 1 to 22 may be used. For winding pipes use No. 9 ribbon—and for covering bottoms of pipes use gilt paper. The keys may be made as follows: First, cover key-board with plain white oil-cloth and outline with black paint and you have your white keys. The black keys may be cut out of wood and painted. The stops may be made by using wood button moulds painted black and pearl buttons of a smaller size for center. Borrow or make an organ stool, and cover and drape it with ribbons. If a large doll can be procured have her seated on stool in front of organ as if playing. Perhaps to many trimmers this display may seem difficult to make; is is, on the contrary, no more difficult than any good display of ribbons would be, while in effect it is surprisingly beautiful and will certainly attract more attention and draw more trade than any ordinary ribbon display.

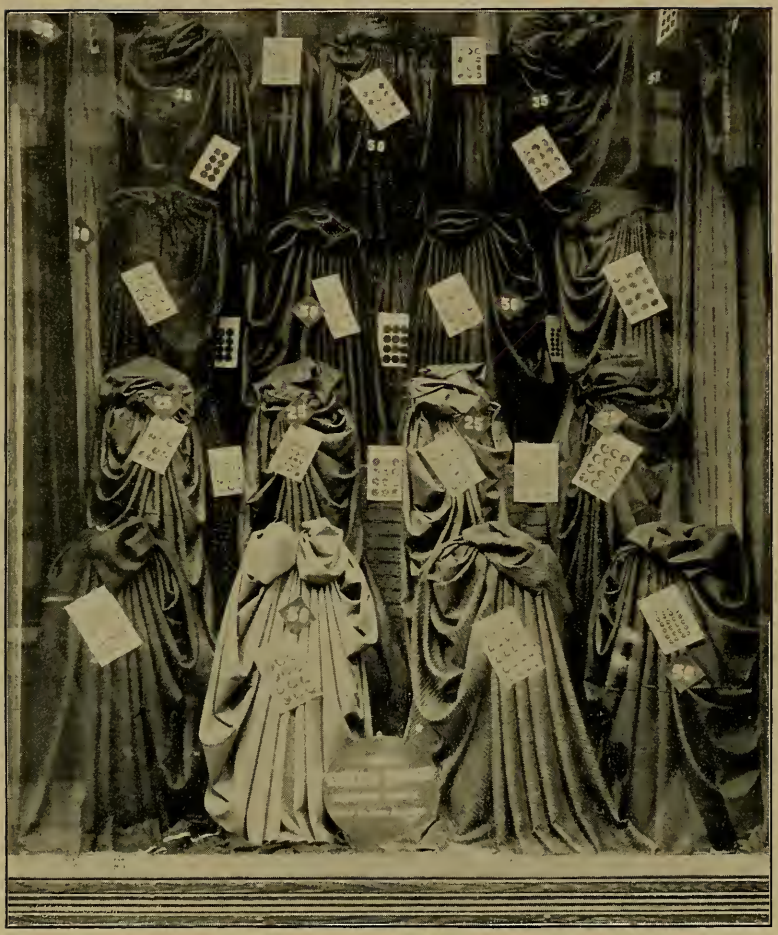
An Indian Wigwam.

The above design always proves a great attraction. The idea is to represent an Indian camp in the woods, and is executed in the following manner: Construct a tent by means of a pole inserted in the hub of a small sized buggy-wheel. Cover the teepee with red and blue canton flannel or woolen flannel. In front leave a V-shaped entrance, such as always found in Indian wigwams. From the entrance let protrude about half the body of a full-fledged Indian. The dummy may be made by taking a linen duster and stuffing it with paper, with a stick inserted in the neck on the outer end of which wrap cotton batting. Over the face fasten an Indian false face. Now carefully wrap a red blanket around the dummy, leaving only the head exposed. This dummy should be laid at the entrance to the wigwam with the lower part of the body hidden from view by the folds of the tent, and with the head pillowed by a small log of wood. In the corner construct an Indian or Gypsy camp fire. Make a tripod with three rough sticks and suspend the kettle in the conventional fashion. Underneath the kettle spread some sand, ashes and firewood in a semi-careless manner. The floor of the window should be covered with sod if available. If not, rugs will answer; or, green-figured calico puffed underneath so as to resemble grass. If any Indian curiosities or relics can be secured, or a bow and arrow or an old gun, they will lend reality to the picture. Another addition is to make a wooden frame to fit the window and cover it with shirred green calico, and place flush with the window. It may be depended upon that this display will be sure to draw a crowd.

The Fancy Dress Window.

The present is an age of great things, big stocks and striking trims. The proprietor of a vast establishment fills up his massive window with heaps upon heaps of goods, making an immense show; owners of smaller stores having but limited window space, encouraged perhaps by a spirit of rivalry, or anxious to satisfy the growing appetite for variety, heap up goods to represent large stocks. There are also a few houses who appear to vie with each other in their efforts to jumble together goods dissimilar in character; but there is little or no excuse for piling together goods from all sorts of departments in order to make what is termed a stocky show—white muslins in the midst of dull beiges; cambrics, calicoes, linens, or flannels, amongst silks &c., &c. Such mixtures represent only a heterogenous mass, without point or effect. These incongruous shows are generally the work of juniors in the trade, young men who are anxious to show everything at once—to squeeze a well assorted general stock into a small window.

The General Window has its place; among small traders it is essential, and may be made very effective by classifying the goods and maintaining the character of each distinct. The acme of window arrangement is the ac-



A Suiting Window.

Use three tiers as shown in illustration, the bottom row begining flush against the window pane. The effect of winding the piece of goods around dummy and then carelessly draping to the floor is shown in cut. It is simple, yet very attractive. The floor of window should be covered with a medium shade of goods. On each side of the window have goods hang down straight to the floor. The bottom, of course, should match the particular dress patterns to which they are attached.

cumulation and appropriate disposal, *i. e.*, that which strikes the eye as being most natural; it will be seen at once that fancy dress stuffs, silks, mantles, shawls, bonnets, ribbons, and a variety of fancy articles harmonize, as forming part of every-day costume; but the accumulation becomes incongruous when we introduce another class of goods, to-wit, houshold linens, shirting, shoes and notions.

Window-dressing, like the fashion which it represents, is subject to considerable change. A few years ago it was the custom to open dress stuffs after the manner of silks or cottons; sometimes whole windows were made up of stiff set of figures from front to back, without any break or relief. At the present time we have quite a different and opposite arrangement, doubtless owing to the soft sleazy nature of the goods in vogue. Either extreme as a set practice is unnecessary, whether it is rows of stiff puffings, having the appearance of "wooden figures," or rows of piles, which have little better effect than a number of irregular steps.

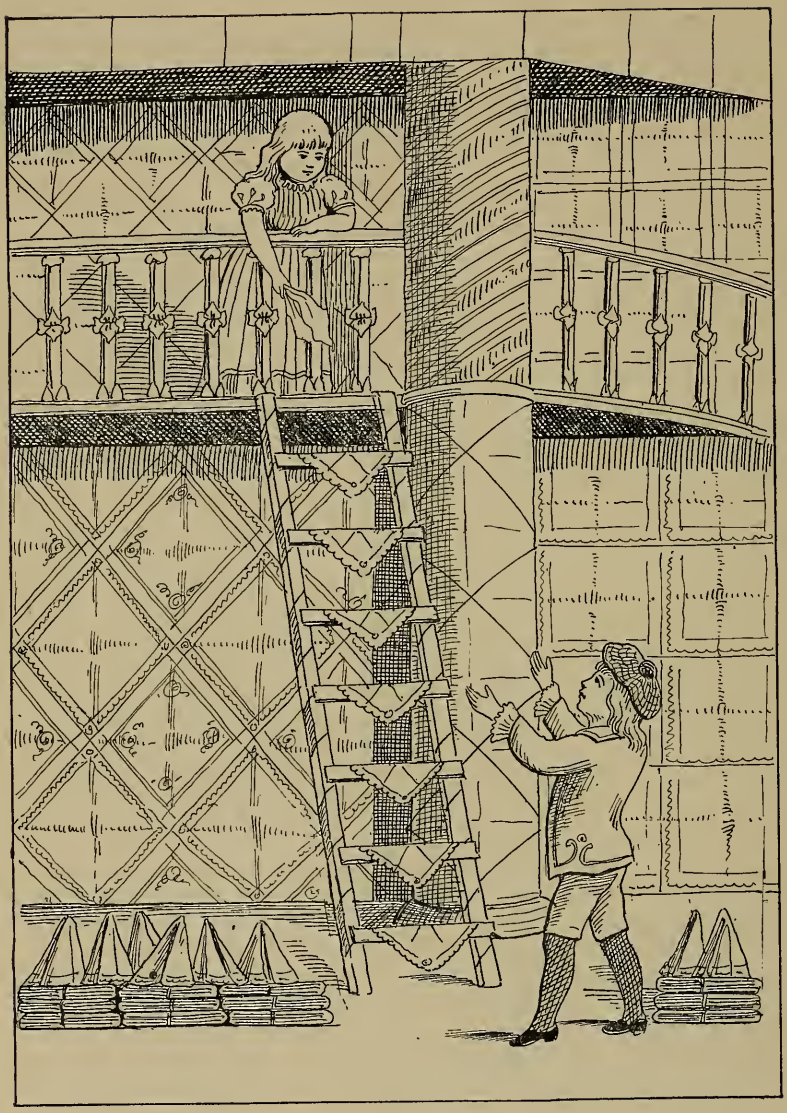
Almost all figured materials may be puffed by the aid of strong paper, or even without in some cases, to form very handsome figures which will give point or finish to the window. Whatever order is proposed, the first row should be allowed as much room as possible. Large windows are often most effective, owing to this rule being observed throughout.

A great number of fancy materials may be shown to advantage by raising to any of the figures already given for silks and cottons.

Striped and fancy skirts or skirtings, as forming part of "The Dress Window," will be found very useful in giving variety to the whole. They may be treated in many different ways. A whole window is very effective when composed solely of tiers of skirts, each skirt showing a cylindical form about five-eights of a yard long. A length of striped skirting opened upon the counter in about yard folds, and folded over into about three or four pleats running the length of fold, which, being afterwards doubled in the center, will improve some parts of the dress window

Handkerchiefs and Underwear.

To make a neat handkerchief display, cover the side of window well with blue cambric; then pin on white and colored border, in diamond shape, so arranging them that every other handkerchief has a colored border; cover the entire wall. Now about nine inches on each side near the window pane, suspend tapes from ceiling to floor and pin on your handkerchief; about eighteen inches from each side run a tape and arrange as before. The floor may be displayed with boxes of handkerchiefs, the borders merely turned over. For the back-ground drape a pair of lace curtains; a very simple way to display articles is to run a piece of scantling on each side of window, from floor near window pane to back at ceiling, and run strips across merely tying to a screw-eye at proper distance apart; on this frame may be displayed underwear, each row a color by itself: this may be changed to hosiery or such articles on the light weight color.



THE LOVER'S WINDOW.

The Lover's Window.

The above is the balcony scene from Romeo and Juliet, done in handkerchiefs. The framework, which is simple, is covered mostly with ladies' handkerchiefs, with embroidered edges. The embroidery on these is mostly in colors, as too much white would give the scene the appearance of a snow storm. The handkerchiefs which are bound around the upper section of the central pillar are gentlemen's silk handkerchiefs in rather dark colors. The handkerchiefs on the lower part of the pillar and on the background are ordinary gentlemen's white handkerchiefs.

Corset Window.

The corset window requires that the boxes should be ranged uniformly. Dressed in rows close to the glass, they look well; but a more attractive display can be arranged by forming a center with a few pairs nicely puffed out with paper, and on stands, and dressing up behind with box goods. This window may form a triangle. An upright being fixed a distance back of the center, to which the rods from either side can be fastened, and boxes of stays built up against them. Corsets may be folded to show the fronts, and so placed over two rods, or in front of pillars to look very effective.

A Lace Window.

A good window of real white lace may be made up as follows: Hang festoons from the brackets, from side to side, front to back, or center to corners, but not too close together. Place occasionally in the center of festoon a nice bunch of flowers. Arrange the groundwork in rows—for example, sets of real lace laid upon blue paper. Each row to be raised a few inches right up to the back. Two or three stands may be placed in each row displaying collarets, a few pots containing handsome table flowers, and some loose bunches here and there. This simple arrangement will make a most attractive window; but the dresser must guard against putting in too many things here; the flowers especially, being introduced to improve the show, should only be used with that object, and not in profusion. The most attractive way of dressing up to the glass is to open a dozen yards of lace into loops over a rod to form something like a square, the rod being fixed about two or three inches from the glass. Commence by folding lace over to hang about twelve inches, four or more to form the complement, according to width. Another set of four loops should fall over the last, being shorter by three inches; two other rows following, each shorter in like proportion. Thus each piece of lace will show to the window four rows, having respectively twelve, nine, six, and three inches. The loops must be full, and not pressed flat: in this way it will not be difficult to place the edge uppermost. If the squares are dressed in regular order across the window of nicely-assorted makes and shades, a very good show will be the result.

Hosiery.

Hose may be arranged in several different ways. Richly embroidered goods must hang with a good sweep to the window, but common kinds should be drawn up short, or the "laundry" is suggested at once. Good stockings will look well as follows: Place two rods one above another, distant about eighteen inches. Fix a third four or five inches behind the top one, and a little lower from this last, hang the stockings, one foot to fall forward over the rod below, the upper foot to be turned upward over the rod above. Space being allowed between each pair, others may hang plainly back, the feet resting over a fourth rod fixed behind the lowest one. Another way would be to press them out, to show the fronts in the same way that half-hose are often hung by gents' hosiers. Let the first row hang to show about ten or twelve inches. A row directly behind these to hang from back to front; that is, falling from a rod placed behind to one fully eighteen inches lower in the front. Between these hose as they now hang there will be spaces of three or four inches, and to fill them let two other rows follow exactly in the same order, and a capital effect will be produced for fully fashioned or handsome embroidered goods.

Long-ribbed hose will generally look better folded—almost to half—before being thrown over the rod, fold and feet showing to the window, But this arrangement requires to be carried back in three rows, or the effect is poor.

Christmas Window Trimming.

Although there seems to be a general impression that the Christmas tree is an outgrowth of a German custom, it seems to antedate the Christian era, and is said to have originated in the fact that a spray of the palm tree with twelve shoots on it was used in Egypt at the time of the winter solstice, as a symbol of the completed year. Its adaptation by the earlier celebrators of Christmas may have been the simple union of two contemporary customs; and as a surviving remnant of the Egyptian custom, it may be interesting to recall that Germans frequently attach a bush to a newly completed building. If a Christmas tree is used in the window it will be found best to cut off the branches on the rear side. This will permit it to be set further back in the window, and thus a larger tree may be used. A short stocky tree should be chosen of the right height to clear the ceiling. Its trimming is a matter of taste, but always permits a display of considerable merchandise. The use of decorations is recommended that are not inflammable. It is a good idea to cover the base of the window, under the tree, with packages of various sizes, apparently containing gifts, with names on them, which can be easily read from the sidewalk. The efforts some persons will make to see if their names may not be on some of the packages will show how curious many people are. The Christmas tree, with its happy suggestiveness, is a common resource of the store keeper, as well as a common delight to the purchaser.

An Easter Handkerchief Trim.

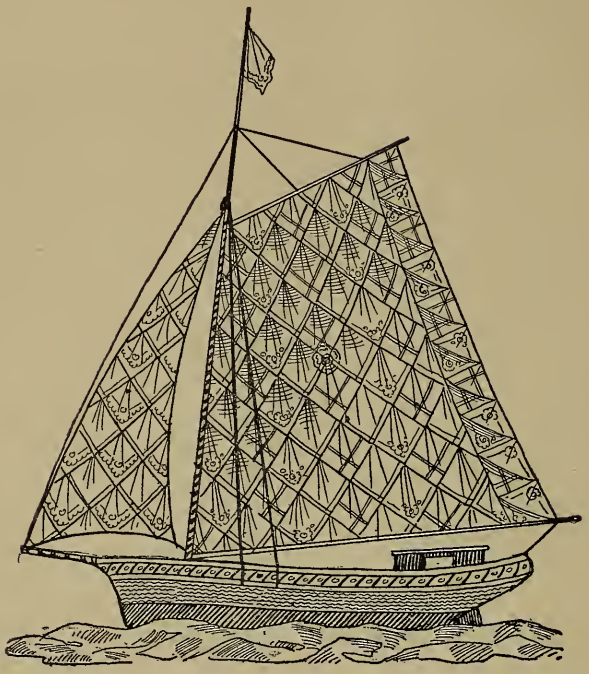
The crosses are made of light wooden strips. The bottom is composed of a piece of funnel-shaped pasteboard. The center is a round pasteboard "drum," ten inches in diameter and four feet in height, surmounted with a kerchief holder illustrated on PAGE 513. The main attraction in a handkerchief is the border and not the quality. The price of it will indicate if of cotton or linen. The fact that the centres of both linen and cotton handkerchiefs are white, makes it otherwise hard to tell the quality through a plate glass window.

Christmas Scenes.

In the preparation of windows for this festal season, the selection of winter scenes is usually attended by successful displays. It is not a difficult matter to simulate frost and snow with material at the merchant's command. The best representation of snow is cotton wadding picked out according the amount it is desired to use. It can be laid flat or made into mounds or balls, and, when accompanied with the accessories of winter, counterfeits snow admirably. The effect is heightened by sprinkling "diamond dust" or "frosting" upon it. This may be obtained at any dealer in artist's supplies, and costs but seventy-five cents a pound. The "diamond dust" is finer than the "frosting." Icicles may be made by whittling out wood forms or cutting them from heavy cardboard, dipping them in glue and covering them with the diamond dust. Sheet ice is well illustrated by laying a large mirror down on the base of the window and making snowy banks around it. It will prove very effective if you place in your window a small tree or shrub, from which all the leaves have fallen, the branches of which may be covered with snow. With such wintry scenes as a background, may be built almost any number of designs and conceptions, according to the material at the command of the merchant. If he has dummy figures or large dolls they may be made to slide down hill, skate upon the ice, build snow forts, cannonade each other with snow balls, and such other boyish sports as all have enjoyed frequently. The toboggan slide is a new and taking idea in window dressing. Another idea in snow decoration is to dress the window with seasonable goods, and string on No. 200 white cotton thread small bits of pure white cotton batting; and fasten at intervals of every two square inches to the floor and ceiling. The effect is much like the flakes falling during a heavy snow-storm.

An Interior Trim.

First secure screw-eyes to the center of the store ceiling, from front to back. These should be at equal distances apart—say from 4 to 6 feet. Take cheap umbrellas, open them, and decorate the cover with tissue-paper, which should be crushed or made into rare-colored rolls. Then with tinsel fringe droop loosely from rib to rib on the inside. Now pass a strong cord around the ferrule, and fasten the screw-eye. From each screw-eye attach wire running to shelving, on which may be pinned handkerchiefs, hosiery, gloves, and all light-weight articles; this will produce an arched effect through the center of the store. Between each of the arches, over the shelving, display the heavier grade of goods. A very pretty effect is to make a half-circle of lumber and brace to the wall, from which drape lace curtains or fancy portieres after the manner of a canopy; the interior filled in with dress patters arranged in forms, and such other articles as the dresser wishes to introduce.



A Ship Window.

The above forms an appropriate trim for the Fourth of July or other holiday, as flags and emblems may be secured to all parts of the sails and rigging. The hull should be made of boards sufficiently wide and long to suit the window. No elaborate model of a ship's hull is needed, as only one side is shown, and therefore only one section need be constructed. As this is entirely covered, the drapery can be made to hide any little defects, or so arranged as to remedy any flatness. A very simple way to make the hull is to take flat boards the required length, tack some cotton loosely upon them, and then stuff the cotton with paper or anything easily manipulated, to produce the swelled appearance of the ship's side. After the frame is made the hull is to be covered with overlapping material (silk, cotton or cambric, as the dresser chooses) so as to show three stripes, red, white and blue. For the sails a frame is first made of cotton hung between the gaff—the short piece of wood at the top of the mainsail—and the boom — the longer piece of wood at the bottom of the same sail. Upon this surface are pinned handkerchiefs somewhat as shown in the cut, though the order may be varied according to the taste. It will be found that bordered

A Loaded Cannon.

The wheels of the cannon are composed of two small buggy wheels, wrapped with pink and white cotton bunting. The carriage is of strips of wood covered in like manner. The barrel is of heavy pasteboards, sewed together. The figures upon either side are dummies, or large dolls. The frame-work at the rear of window is built around a mirror, and draped as in the illustration with cotton bunting of a bright color. Upon the floor and frame is exposed all sorts and varieties of infants' wear and white goods.

or colored handkerchiefs can be used effectively to produce designs, but white or bordered produce the best effect. The foresail is treated in a similar manner. Of course another sail can be added if desired. The gaff, boom, bowsprit and mast are wound about with colored ribbons. The cordage is composed of narrow ribbons. Additional cordage and streamers can be added to suit the taste. The circle in the centre of the mainsail is made with fans, two or four being used with contrasting colors. The water can be arranged by using light blue cambric, touched here and there with white paint, with balls of paper underneath to give the appearance of waves.

Lace Curtains.

Sometimes a very imposing show is made entirely of curtains. The paper which is inserted to show up the pattern being of various colors, may be arranged to give good effect. Sides should be hung with a number of curtains falling from the ceiling, caught back at convenient height by a bright cord and tassel, tape, or ribbon. Each curtain so hung may stand out a few inches further than the one in front. Both sides of a square window being hung in this manner will produce a very graceful effect. A pillar may be hidden by hanging a curtain directly in front, caught together toward the bottom, having behind, to throw up the pattern, some bright cretonne, Turkey red, or flannel. A curtain will sometimes look well hanging back along the ceiling, allowed to droop in the center. The groundwork can be made up of rows in small piles, showing two or more doubled lengthwise, the same standing between.

How to Dress A Christmas Tree.

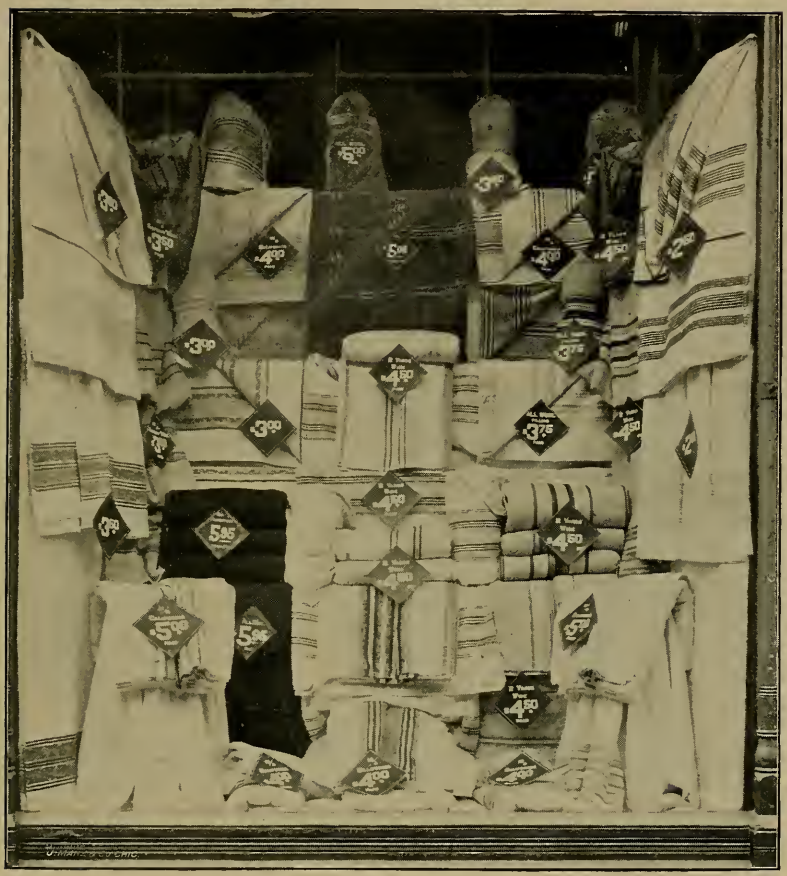
Select one with special reference to the space it is to occupy. One with branches firm and quite tall is best. The upper branches should be decorated before the tree is set up; tie upon the tips of the boughs with cotton-batting snowballs, strings of cranberries, tinsel, glittering ornaments, etc. The decoration of the tree may be more or less elaborate, as desired. To insure a brilliant effect, it is a good plan to hang the gifts so that bright contrasting colors may set off the tree. Dolls, gaily painted toys, bright silk handkerchiefs, scarfs, etc., should be placed in prominent view. When the gifts are all nicely arranged, take a liberal quantity of frosting and packages of tinsel, and ornament as much space as possible and cover lightly the front and the sides of the tree with it. Then sprinkle the glittering frost powder upon the tree branches. Under a bright light the tree becomes a veritable creation of fairyland. But at this season of the year more than this should be attempted. A few flags, some Chinese lanterns and boughs of cedar, spruce or hemlock, hung and fastened throughout the store, will be very appropriate. Do not be afraid of having your store too attractive—you can not overdo it. It is a season of rejoicing and people will tolerate a great deal of this; in fact, you must do a consid-

erable amount of it before it will be noticed at all. Appropriate mottoes, made in various ways, will be appreciated. Nice mottoes can be made from pasteboard letters, covered with cotton batting, over which should be sprinkled silver powder. Or, better still, they can be made with pasteboard, gold or silver paper, and gummed letters.

Mixed Windows.

The tendency of the time is toward exclusive displays, but the heavy and formal outlines generally so presented would form a great argument against them. An immense show of silks in stacks will convey the impression of wealth and business done. It will attract those connected with the trade, who, being familiar with parcels and wrappers, appreciate heavy piles as capital invested. But the customer, having no knowledge of parcels and wrappers, may not be able to distinguish between silk and glazed lining. Always attracted by beauty and fashion, she is most likely to pass valuable piles without notice. It cannot be denied that some exclusive windows are made very telling, but it is when the goods are most exposed, and clearly indicated by arrangement and ticket. Keeping this in mind, the window-dresser will do well to make stock subservient to fashion, studying to arrest notice by the beauty of his window, making the solid stacks as pillars to throw more important work into relief.

It follows that nearly all windows should be mixed to the extent to which different materials or articles will lend point or improvement. This has already been urged in working out the separate departments; it is an answer to the whole question, How shall I dress my window? But we will now consider mixed or general windows, so called. The first and best illustration would be found in the evening dress show. Here we find it almost universal to introduce materials and fancy articles from every department so far as consistent, and generally in the smaller houses of the trade there are very extensive preparations for this exhibit. Sidebrackets are hung with handsome shawls, cloaks, or wraps, centers festooned with white or pale colored lace, and center brackets decorated with ribbons and ties. The first row on the floor will perhaps consist of two or three lengths of light material opened and puckered, with trimming or lace falling gracefully over them. Between each a good table plant will form the center, having on either side a pair of rich stockings, gloves, or length of sash ribbon. Another row will show grenadines opened as before, but behind the fancy goods, a fan being placed between upon a stand with perhaps another table plant. Immediately in the rear of this row two or three costumes will be displayed upon high stands, intermediate positions being occupied by whole pieces of silk standing erect, having rich lace trailing over them. Sprays or sets of flowers dropped in conspicuous places, or suspended, lace sets upon stands, dress caps and a piece or two of sash ribbon falling from brackets: this will represent a good window if arranged



A Display of Blankets.

A three-tier window is necessary for the reproduction of the above design. The blankets are made fast upon each side by tacking. The principal difficulty in arranging blankets is to make the folds lie flat and smooth. This can best be accomplished by pinning from the underneath. It will be observed that the borders form the corner of a perfect square if folded at the proper angle. This adds much to the neat appearance of the display. The two side pieces in the illustration are made by draping a blanket (opened half) over a dummy, and then capping with another having merely the first fold thrown back.

with taste and care; the articles may be varied, positions altered, and materials, including tarlatan, tulle, muslin, stuff, or silk may be used. It is a Mixed Window, but only as skill is exercised in blending color and material will the mixing be a success.

The Mixed Fancy Window, offering the choice of so many departments, requires especial care; and although almost any articles contained in the long list of haberdashery or trimmings may be included, it is essential that suitable divisions should come in contact. Balls of worsted, or tapes, would not look well mixed up with frillings or lace, but from divisions of haberdashery we may work through braids and trimmings, to ribbons, lace, and flowers. Hose and gloves will not always look well following flowers and feathers, but linen collars and cuffs or ribbons will sometimes offer change. Some white goods will so improve colors as to make the admixture occasionally desirable; festoons of lace amongst choice flowers, ribbons or ties; and so, while a window may be filled with every kind of small goods, the divisions can be so arranged as to please the eye and attract customers. The object is the same in all mixed windows—to group together the greatest variety of goods consistent with harmony; and as a matter of fact this is the secret of all successful window-dressing.

Sameness is not pleasing; and so, while ignoring the strict rules and jealousy of departments—which would confine the goods available for show within narrow and unreasonable limits—and guarding against the inconsistency of incongruous mixtures so often found in what are called General Windows, we have endeavored throughout these descriptions to give such clear and simple suggestions as may lead to a closer study of this necessary art.

How to Keep Windows from Frosting.

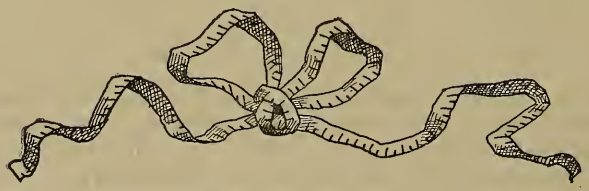
One of the most reliable ways to prevent windows from frosting is to cut a space through the window frame at the bottom and another at the top of the windows that front on the street. Then close up the back of the window from the store proper. In this way you keep a currant of cold air circulating inside of the show window, making the interior of your display window the same temperature as the street all the time. The cold air constantly passes in and out, keeping the glass just as cold inside as it is on the outside. Another method frequently adopted is to run a tin or other metal tube about one inch in diameter set along the bottom of the pane. This is pierced with holes along the top and one end is extended downward and shaped like an inverted funnel. Under this a lamp or gas jet is kept burning, the heat from which passes along the tube and out of the perforations up against the window and prevents the formation of frosts.

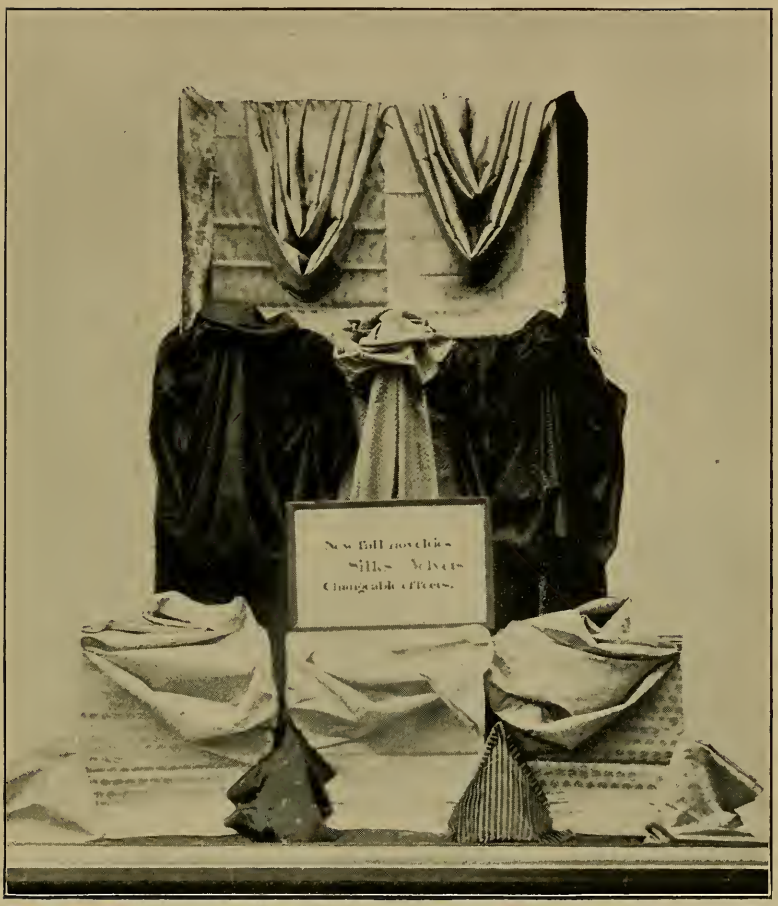
It is also stated this difficulty can be entirely obviated by rubbing both sides of the window two or three times a week with a cloth dipped in glycerine.

How to Have Bright Windows.

There is a knack even in washing windows. They should be kept clean and thoroughly clear for the display of goods. Choose a dull day, or at least, a time when the sun is not shining on the window, for then it causes it to be streaked, no matter how much it is rubbed. Take a painter's brush and dust the windows inside and out, washing all the woodwork inside before touching the glass. The latter must be washed simply in warm water and diluted ammonia—do not use soap. Take a small cloth with a pointed stick to get the dust out of the corners; wipe dry with a soft piece of cotton cloth—do not use linen, as it makes the glass linty and dry. Polish with tissue paper or old newspaper. This can be done in half the time taken where soap is used.

To polish plate glass windows and remove slight scratches, rub the surface gently, first with a clean pad of fine cotton wool and afterwards with a similar pad covered over with cotton velvet which has been charged with fine rouge. The surface will, under this treatment, acquire a polish of great brilliancy quite free from any scratches.





A Silk and Velvet Window.

Select shades that harmonize, as described on PAGE 474. The back ground for dark silks should be formed of light colored China silk; for light silks, of dark plush. The three lower puffs are draped over small wooden racks of the width of the silk. The three center pieces are draped over drums, three feet in height. [See PAGE 503.] The top puffs are arranged upon a rack, built up from the bottom of the window.

ADVICE TO SALESMEN.

The future kings and princes of the Dry Goods trade must come out of the army of clerks and salesmen, and those who prepare and fit themselves to fill high positions of credit and honor to themselves and benefit to their employers are ones that have the best chances of attaining eminence. The clerk who graduates with honor from the country store is well equipped for the large marts of trade in any part of the world. He is possessed of a practical knowledge that can be turned to good account in any department of business, no matter where he may be placed.

This individual, in his capacity as salesman behind the counter, has it in his power to create or destroy trade, and it is for that reason why every employer should exercise the closest scrutiny as to the character of those they employ, particularly as to the temperament and disposition of employees. A man may be an early riser, attentive to business, industrious and sober, and yet a most undesirable salesman. One of the most important matters to be taken into consideration when employing a salesman, is whether or not he is good natured and obliging. If he lacks these two very essential qualifications, then he lacks the principal ingredients that go to make up a successful salesman.

The disobliging, sour-faced and ill-natured clerk will wreck any business if he is employed long enough, and all the advertising in the world will not help matters. If there is one thing more than another that irritates and annoys, it is to be waited upon by an ill-natured clerk. One such experience is enough for the average person, when they invariably go elsewhere for supplies. The majority of persons will never say anything or make any complaint, but they transfer their patronage elsewhere.

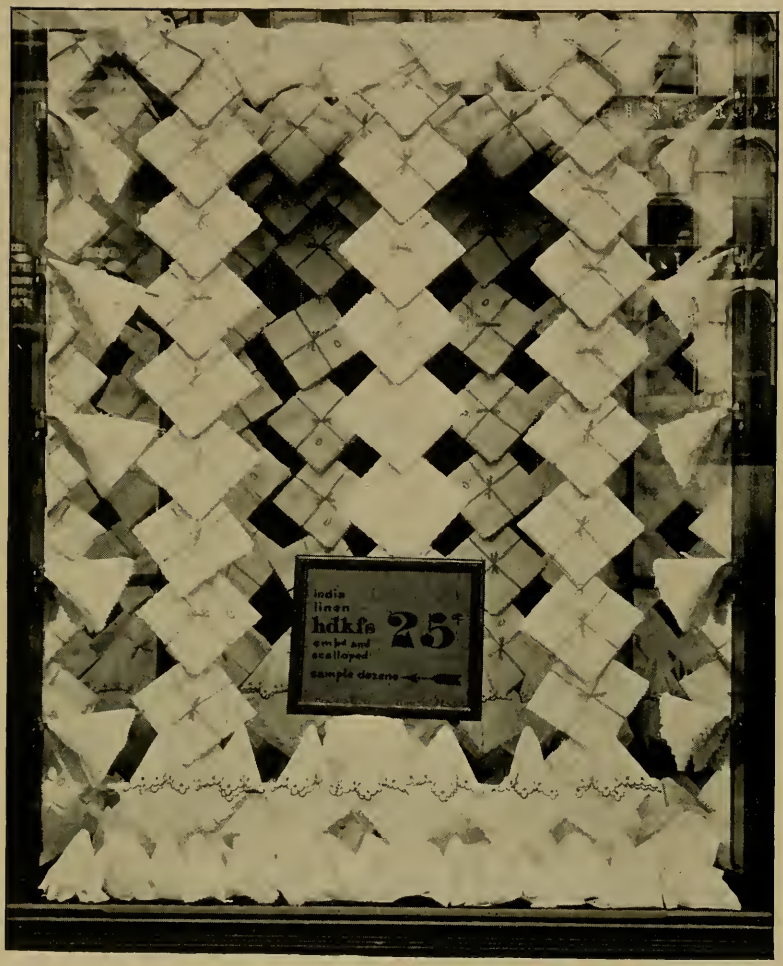
In looking through the prosperous retail Dry Goods stores of any town or city, and meeting the clerks — both ladies and gentlemen — one is impressed by the manner and deportment of the polite, urbane, respectful gentleman or lady salesforce, many of whom have mingled in refined society and largely with the world. This class stand in an attitude of respectful attention when not engaged in showing or selling goods, waiting for you to suggest what they should show you, greeting you with a pleasant

smile, and when you did not ask to be shown any goods they would say, "What can I show you ?" in such a cheery, easy manner, that it at once seems to inspire one with confidnece. We often hear ladies remark, "I like to be waited on by so-and-so; they are always so pleasant, agreeable and polite; ready to show me anything, and do not consider it any trouble." On the other hand, one often hears, "I don't like to have such-and-such a man or woman wait on me; they have too much to say; they are sneering; they are above their business, and too quick to give advice as to what I shall buy." In waiting on a customer, a clerk should make every effort to serve that customer properly; if any special bargains are offered, call their attention to the same; if there is a defect in the goods tell them of it; give them the information they require, but do *not* be too talkative; listen with attention to what the customer has to say, as if you were really interested in the purchase of the goods; when your opinion is asked give it in a frank and honest manner.

Salesmen in dry goods stores have all classes of people with which to deal; some are cranky, some ignorant; others think they know it all, but in all cases a pleasing demeanor, a kindly greeting and a silent tongue will do more to please than anything else. Clerks must be good judges of human nature, must have a thorough knowledge of the goods they are handling. While it is well to be educated, yet politeness and uniform kindheartedness, with a disposition to please, always wins its way and holds a customer. When a customer enters a store you should never be talking about this picnic or that party, or how Smith or Jones danced; never be chattering; it is very annoying to the customer; people, when they are buying goods, care nothing for your personal affairs; their time is valuable; they pay for your attention, and they are entitled to it.

How to Show Goods.

Selling goods is something like making a speech. Both depend upon how you begin and how you end. First impressions are always lasting. In your first minute with a customer you give her an impression, not of yourself but of the house, which is liable to determine whether she buys of you or not, and also whether she becomes a customer of the house or a talker against it. If you are indifferent she will detect it before you see her, and the first impression is made before you have uttered a word. At the outset you have to guess what grade of goods she wants, high priced or low priced. Guess low enough. If you do not guess low enough be quick to discover your error and right yourself instantly. It is impertinent to insist on showing goods not wanted; it is delicately polite to get to exactly what is wanted adroitly and on the slightest hint. Do not try to change a buyer's choice except to this extent; always use your knowledge of goods to her advantage if she wavers or indicates a desire for your advice. The worst blunder you can make—the most offensive to her and in-



Fancy Handkerchief Window.

Place three broad strips, say four inches wide, at equal distances apart in front, and four of the same width back, and five back of these, providing there is room. Lay the handkerchiefs flat on the strips, either in quarter or half dozens. Each side is filled in with the goods doubled over arm-brackets. The ceiling should be dressed over wires or rods, as shown in the illustration. The floor should be dressed lightly, with full dozens, with here and there a few fine handkerchiefs folded in four corners and a few pyramids dressed similar to the posts. Particular care must be used in pinning the handkerchiefs to the upright posts. The least uneveness will spoil the entire effect.

jurous to the house—is to intimate in as upercilious manner that we do not keep as low a grade of goods as she asks for. Show goods freely to all customers; be painstaking to match samples; be as serviceable as you can be to all, whether buyers or not. In speaking of goods use correct names; say what they are made of, if you have occasion; if you do not know and cannot find out, consult the DICTIONARY OF DRY GOODS. Sell nothing on a misunderstanding if you know it exists; make no promises that you have any doubt about the fulfillment of; and having made a promise, do more than your own share toward its fulfillment.

Sell Good Goods.

In selling goods never talk price, but always quality. Quality is what after all, makes or loses a customer. Price has nothing to do with a customer's palate. We are all, more or less, slaves to appetite, and know no other law than self gratification. The pleased palate is wedded to the sources of its gratification, and does not stop to compare prices. If an article is offered cheaper by some competitor, the pleased customer says it is because the service is inefficient, or that a low price on one article is only an excuse for an extravagant price on another, and therefore he becomes the steady patron of the store where quality is the first considered, and where a fair price is the rule.

The Different Classes of Customers.

It is next to impossible to sell two customers in the same way. Each must be attacked differently. One is brought to the point of buying by a fair argument on the merits of the goods as compared with other similar articles; another comes to his conclusion to buy entirely through extraneous influences, because the salesman or proprietor is a "good fellow." Another is like a child, needs to be told his wants. Another class are the suspicious ones, who see a mountain in every molehill, who can be neither led, coaxed or reasoned along. Again, another buys just what he needs or comes after—nothing more. There is still another class which every retailer long in trade will have noticed, those who know so much, or think they do, that rarely buy any article he recommends. Some customers prefer not to be asked to buy; they prefer to ask for what they want, and any urgency or diversion from what they were looking at drives them away.

It is not best to throw out too many goods at one time to one customer, as it frequently confuses the eye and distracts attention. It is usually best to take down as requested, or to show some striking novelty at first. When a woman doesn't know just what she wants, it is rather a difficult thing to satisfy her by throwing down a large variety of goods, and not giving her time to consider any one particular style or coloring.

A most frequent fault of salesmen is that they show too high priced goods to start with. Study your customers; size them up, so to speak; if

you know them, consider their means and resources. Sometimes, the reverse is the case; in that event correct yourself at once, and get at what is desired adroitly and as quickly as possible. Another thing: Salesmen should not call or sing out the price of every piece of dress goods as they take them off the shelves. Why? Because every customer has the idea that the piece of goods they like and really want is higher in price than they can afford or want to pay. A lady, looking at goods, will be certain to ask the price of the piece she is likely to buy just as soon as she sees it. Generally your price is lower than she anticipated, and the sale is easier made. Instances have occurred where a salesman has shown up and talked up a piece of black cashmere, without mentioning the price. The goods look so fine and attractive to the customer that they are actually afraid to ask the price. Not being judges of the goods they think anything looking as fine as these goods must be beyond what they wanted to pay. When the price is finally given the ladies are usually perfectly delighted to think the goods can be purchased so cheap.

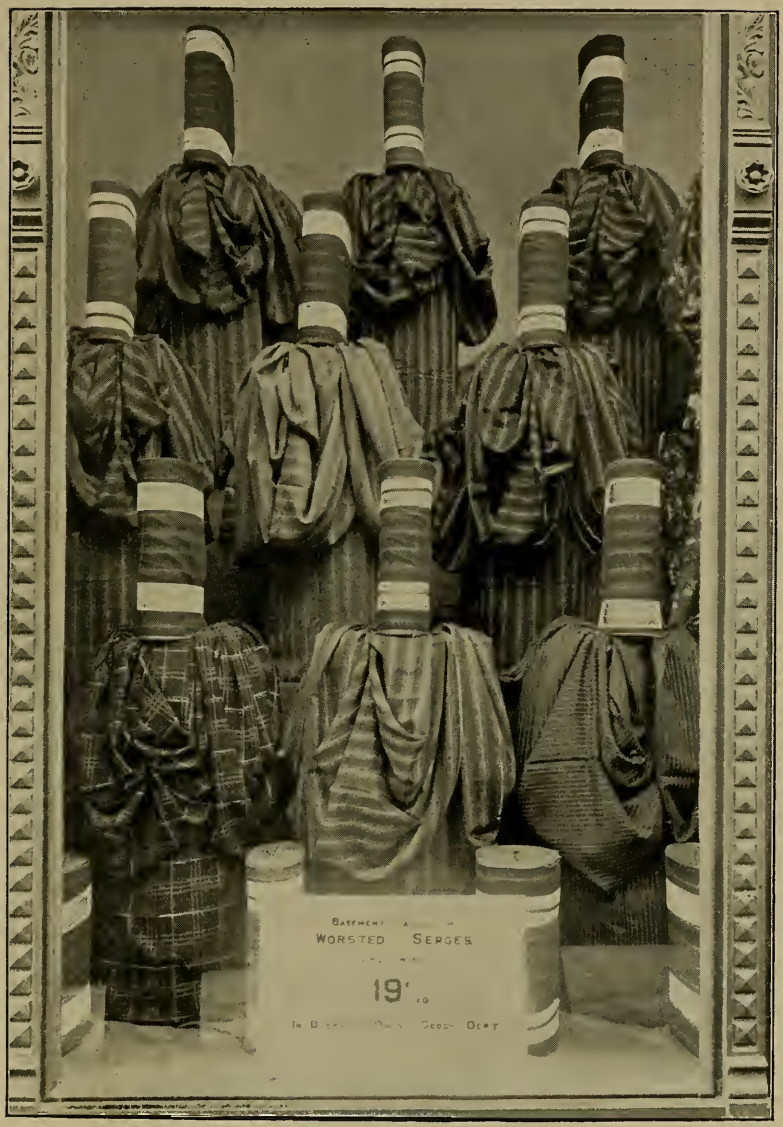
Another great fault of some salespeople is that they will say too quick, "We have not got that." If an article is sold out of stock and you know it, give rather an evasive answer like, "I will see; I think we have it," and make some effort to get something. Show that you are willing to do something for your customer; possibly you can interest with something else.

Good salesmanship can be acquired by keeping the eyes open, adopting good points from others and avoiding mistakes which you may have made or have seen made.

A salesman should always fully understand and personify that one trait which is far-reaching and effective—good humor. Of course, occasionally there are very trying people to meet; do not dispute with them. Get their good will if you can. If a seller wants to make a success of himself, he must be able even to bear a slight injury or injustice from someone, who may take advantage of his position. There is nothing degrading in it, it belongs to his experience and school of life. Sometimes angry parvenu women (luckily their numbers are few) attack salesmen until patience ceases to be a virtue, and still those same customers will perhaps come around all right after awhile, and become the staunchest and best supporters the salesman possesses. Moralize on this and try it.

How to Wait on Two Customers.

It is always in order to impress on the first customer, if a lady, that you wish to show her everything, and fully satisfy her, and while you are doing same, the question to waiting customer, "What will you like, please?" will give you the chance to make No. 2 feel she has been recognized, and will receive attention soon. You must always return to No 1, and if anything is wanted which you have not already shown, when you go to shelves for that, you have a good chance also to take out the box containing something for No. 2 to be looked over.



A Stocky Dress Goods Display.

To duplicate this trim requires but little explanation. The most important point lies in the selection of harmonious color combinations, rules for which will be found on Pages 474 to 481.

Now, having both interested, you have a chance to settle matters with No. 1, and while making her check, speak a word of explanation of stock already shown to No. 2, and others you will show at once. Thus, it is the fitting-in of every move that counts.

After No. 1 is served and waiting for change or package, always say: "Excuse me." This delicate touch of politeness and no show of peevishness will make your contact with 1, 2, and 3 satisfactory to all, and be fruitful of gaining time and promptly attending to all customers. It is rarely safe to go by a fellow-clerk to wait on No. 2, as it will have too much of the appearance of inattention and haste to be rid of No. 1.

Always bear in mind No. 1 has the strongest claim to your best service, and you only notice No. 2 to keep her from being nervous about having time to get all her things.

Rules for Handling Customers.

First—Be ready to receive customers with a gracious, cordial and friendly address; not too forward, but in a quiet, easy manner cause your customer to feel that he has come to the right place and in the right time. Do not be backward in introducing business, but in carefully, delicately chosen words find as soon as possible, the wants, wishes or requirements of your customers.

Second—Never, under any circumstances, assume to know the business of your customers better than they do; seek in every way to build up pride in your customer as well as maintaining a dignified amount of genuine pride yourself as a salesman. It matters not how well you can judge, you will many times be mistaken as to the final result if you place much reliance on the *appearance* of your customer.

Third—Treat your customer with respect, in fact, honor him in every way possible, since he has honored you by calling.

Fourth—Use diligence and perserverance in showing goods and their merits in a scientific manner; also at the same time humoring your customer until you have gained so much of his confidence that he will tell you just what he wishes; or he may allow, at this juncture, a selection to be made for him as to style, color, etc.

Fifth—Then the crowning point is to fill the bill with a true artist's eye and sober, candid judgment. Fill the bill to the very letter, or to the very best of your ability, as to quality and price, for future sales are at stake.

In conclusion—Thus with frankness, honesty and uprightness in every particular, with native ready wit to adapt itself to the wants of each individual customer, the ambitious salesman will have gained lasting customers, well satisfied, as well as the reward of having sold far more than at the commencement he had anticipated.

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