



WAFFLE-WEAVE. *See Weave, Jacquard.*

WAISTCOAT The waistcoat, or vest (as it is known in the United States), is a close-fitting sleeveless garment originally designed for men that buttons (or occasionally zips) down the front to the waist. Produced in either single or double-breasted styles, the waistcoat is designed to be worn underneath a suit or jacket, although it does not necessarily have to match. Similar garments are worn by women.

History

Originating in Persia, waistcoats first became fashionable in the middle of the seventeenth century. The new style was noticed by Samuel Pepys in 1666: “The King hath ... declared his resolution of setting a fashion for clothes which he will never alter,” he wrote in his diary. “It will be a vest.”

King Charles II was persuaded that, after the Great Plague and the Great Fire of London, a much more sober form of attire should be worn by gentlemen, particularly in view of the gross extravagance displayed in the French court at the time. The vest was a knee-length garment that would follow the cut of the coat but would be much tighter in fit. It was designed to discourage the use of lavish materials (such as lace) by covering much of the body in plainer and cheaper material. By 1670, vests had become one of the most important European fashion trends of the time, particularly among nobility who would soon forget the notion of sobriety in favor of opulence and excessive decoration.

1700 to 1900

By 1700, many waistcoats became much shorter, with skirts reaching above the knee, and few had collars or sleeves. Waistcoat styles designed for sporting purposes did away with any skirt almost completely. As the waistcoat became short it also became more and more cut away in a curve at the front to reveal the wearer’s breeches. Whereas elaborately embroidered waistcoats were fastened with hooks and eyes, the majority were fastened with buttons that would match those of the coat being worn.

Double-breasted waistcoats were the most popular style during the first few decades of the eighteenth century and featured small pockets with flaps. By the middle of the century, rather than following the older style of having cuff-length sleeves, the majority of waistcoats were sleeveless; skirts were much shorter and by 1790 were cut square to the waist. Toward 1800, decorated single-breasted waistcoats with small lapels became fashionable; fabrics with horizontal or vertical stripes were particularly favored, especially if the waistcoat was finished with a silk trim.

By 1800, the waistcoat had become an increasingly decorative and flamboyant addition to the male wardrobe. Through various style trends at the time, the overriding principle was that as long as a waistcoat was highly conspicuous, ostentatious, and embroidered, it was deemed fashionable. Single-breasted, double-breasted, waist-length, square-cut, roll-collared, low stand-collared and flap-pocketed styles all were worn. Dandies at the time even took to wearing two waistcoats at once. One would be as elaborate as the other, with the upper unbuttoned to show the one underneath.

Generally speaking, after the mid-nineteenth century, waistcoats became much more sober. The majority were produced to match the jackets or suits they would be worn with, rather than being outward expressions of originality and wealth.

The 1900s and Onward

Although the waistcoat was still deemed fashionable at the beginning of the twentieth century, its popularity soon began to wane. Rather than being worn as a show of wealth or decadence, the waistcoat was considered little more than a functional item to house a pocket watch or to finish off a formal evening wear outfit. With suits becoming softer and men opting for the growing trend of the wristwatch, the waistcoat was deemed less than essential for the male wardrobe.

That is not to say that the waistcoat simply died. Many men continued to wear a knitted waistcoat in the winter and a lighter version in the summer; however, it was now seen as an item simply to accompany and harmonize the rest of the outfit.

After World War II, few businessmen were wearing waistcoats to work, and right up to the Peacock Revolution in the 1960s, they had become all but extinct except with the more conservative dressers and those of an older generation. The waistcoat began to revive among fashionable young men, however, who associated themselves with style tribes such as Neo-Edwardians and Teddy boys.

The 1960s also saw the waistcoat move away from being a formal item when it was adopted by the hippies and incorporated as part of their ethnic-inspired or countrified look. The hippy version of the waistcoat still followed the contours of the body, but it tended to be longer than the waistcoat of a business suit; some were knee-length and featured heavy floral embroidery, fringing, and patchwork; some were tie-dyed (a look that would be recreated for the spring/summer 1993 collection by Dolce & Gabbana).

In the early twenty-first century, the waistcoat is seldom worn, except by businessmen trying to show some form of individuality or personality with a suit. Among conservative members of some professions, such as corporate law and banking, a three-piece suit (i.e., trousers, jacket, and matching waistcoat) is still regarded as the most appropriate business attire. But aside from designers such as Jean Paul Gaultier and Dolce & Gabbana reviving waistcoats for men during the 1980s and early 1990s, they are now more likely to be worn as novelty items than to be part of a classic tailored look.

See also **Dandyism; Jacket; Trousers; Uniforms, Occupational.**

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WATCHES Watches are portable timepieces, used to measure time and intervals. Historically, watches were worn as decorative pendants or carried in the pocket. In modern times, they are branded accessories most frequently worn on the wrist.

A Period of Decoration

At the beginning of the eighteenth century, watches were still considered to be primarily decorative objects because of their poor functionality. Men who could afford them typically wore pocket watches, which hung from a short chain and easily slipped into a waistcoat pocket. Women's watches were traditionally more embellished and visibly worn as a pendant or on a chatelaine.

The century marked a period of rapid technical development. Pioneered by organizations and guilds in Germany, France, England, and Switzerland, inventors introduced new types of springs, encasements, and bearings that allowed for better accuracy and performance under vacillating temperature and position. They also replaced the key-winding watch with self-winding movement. Some English and Swiss watchmakers, who utilized jeweled bearings and newer escapements to control the rate of wheel movement, were able to equip watches with a minute hand, which until then was impossible.

These advancements influenced the design and stylistic components of watches, which became much smaller and slimmer. Greater attention was also paid to the protection of the watch, as they became more useful. Circular or oval faces were encased on either the front or back, sometimes both, by a hinged cover. These covers, made from brass, gold, or silver, often displayed intricate engravings or enamels of pastoral scenes, portraits, or other related designs. Fob watches, which were attached on a short chain or ribbon and often held other gold charms, became popular around this time as well. Although watches still lacked the accuracy they had in later years, they sometimes had calendar, moon phase, or alarm functions.

Advancements in Accuracy and Production

As innovations in springs and bearings continued, watches became more accurate. Watchmakers now tried to make very complicated pocket and pendant watches incorporating calendars, timers, dual time zones, and moon phases. As such, dials became larger and the watches heavier.

The development of mass-production practices and interchangeable parts made it possible to produce watches by machine and in volume. These practices made watches significantly less expensive. In 1892 Timex (then called Waterbury Watch Company) and Ingersoll introduced the Dollar or "Yankee" watch that eponymously expanded the ownership of watches. Although decorative, luxury watches were still popular for women during this period, the functionality and usefulness of the watch increasingly became the focal point of fashionability.

Wristwatches and Alternative Power Sources

There is evidence that watches adjusted for the wrist existed in the late 1500s in special creations for royalty, yet wristwatches were not used in large numbers until the

early twentieth century. The first designs were military in nature—they were introduced as chronographs offering multiple-timing capabilities. These wristwatches were used during the Boer War, and later during World War I for their practicality on the front lines. It was easier and quicker to glance at a watch on one's wrist than to rummage through pockets during battle operations.

Despite the wristwatch's legacy of military use, the style spread first to civilian women. Designs for women during the early twentieth century were jewelry-inspired. Art-deco faces, inlays of onyx and marcasite, and straps of black silk or satin joined the more traditional existing designs of silver and gold braceleting.

By the end of World War II, however, wristwatches were worn by both men and women. Pocket watches were now considered outmoded. Simpler and sleeker designs predominated, epitomized by the Movado Museum watch, which consisted of a black dial free from markers or numbers, characterized only by gold hands and a gold dot at the twelve o'clock position. The importance of fashionability continued into the 1960s with young, pop art designs influencing watch case and face designs. Triangles, octagons, and hexagons accompanied standard round cases, and straps came in a greater variety of colors and fabrics.

Simultaneously, technology dominated the accessory, and much of the development during this time centered around new sources of power. In 1957, the Hamilton Watch Company introduced the first battery-powered wristwatch, and in 1970, the use of quartz crystals to produce an integrated circuit resulted in a watch that was infinitely more reliable than mechanical versions. Omega was one of the first companies to bring the battery-operated watch to market, soon followed by the Hamilton Watch Company's introduction of the Pulsar LED digital watch, an expensive innovation in line with the Space-Age obsession dominating the later 1960s and early 1970s. Swiss watch manufacturers, who had long held a reputation in the industry for manufacturing high-quality, precision, mechanical watches saw integrated circuitry as a temporary fad. It was not until the early 1980s, when the Swiss-based Swatch Group embraced quartz technology, and paired it with designs that responded to consumers' desire for accessories that conveyed lifestyle and personality, that the Swiss industry regained its vigor within the watch-making market.

The Brand Speaks

Technological innovation remains an important component of the watch industry. Manufacturers market solar and kinetic watches, and some have introduced models equipped with global positioning systems, or those that link to computers or other portable electronic devices. Yet the wristwatch is also a fashion accessory for which aesthetics and brand are paramount. Fashion watches are associated with lifestyle, and many of the leading watch

companies have positioned themselves to appeal to certain segments of the consumer market. Luxury companies such as Rolex, Cartier, Movado, Tissot, Patek, and Breitling, who market through word-of-mouth, high-end event sponsorship, or specialized high-end fashion and lifestyle magazines, still appeal to wealthy consumers. A Cartier watch may cost more than \$10,000 and Rolexes or Movados are counterfeited as often as Gucci or Prada handbags. Mid-range watches, such as Fossil or Swatch, continue to sell in mid-priced jewelry and department stores, and Swatch remains well known for its wide range of strap and face styles. These companies have been joined by diversified companies, such as Nike, entering the watch market and promoting wristwatches designed for specific uses such as running or swimming. Lower-priced watches proliferate. Timex was one of the first companies to build its brand on selling through mass-market drugstores and stationery stores. In the early 2000s budget watches can be found almost anywhere: street markets, toy stores, and even inside fast-food kiddie meals. It is as uncommon not to own a watch in the twenty-first century as it was to own one at the beginning of the eighteenth. The watch has truly seen a revolution in time.

See also **Bracelets; Jewelry.**

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WATERPROOFING. See **Performance Finishes.**

WEARABLE ART Individual, often extremely personal, and generally conforming to no unifying aesthetic criteria, wearable art is by its very nature difficult to define. It could be called artwork for the body, but this does not acknowledge its complex relationship to the art world, the fashion world, and the world of craft. Wearable art is separate from mainstream fashion, yet remains related to it. Although wearable art takes varied forms—sculptural or flat—and employs diverse techniques such

as knitting, leather tooling, weaving, dyeing, and sewing, it shares a spirit of fantasy, craftsmanship, and commitment to personal vision.

The Wearable Art movement emerged at the close of the 1960s, flowered in the 1970s, and continues in the early 2000s. It is no accident that wearable art crystallized at the end of the tumultuous 1960s. The social, political, and cultural upheavals of that decade provided fertile ground for personal expression and explorations into body adornment.

During the 1970s “wearables” were generally unconventional works that celebrated the intimacy of creation through a highly individual artistic language. This intensely personal and narrative nature of wearable art distinguishes it from the earlier manifestations of artist-created garments that appeared beginning in the nineteenth century. Although it was not a direct linear development, wearable art owes its emergence to the climate of artistic expression cultivated by earlier avant-garde dress movements beginning a century before.

Nineteenth Century

The Pre-Raphaelite Brotherhood, formed in 1848 by John Everett Millais, William Holman Hunt, and Dante Gabriel Rossetti, was one of the first collective efforts by artists to create alternative dress. In response to an increasingly industrialized society and mass-produced, cheap goods, the Pre-Raphaelites deliberately sought inspiration in Medieval and Renaissance art; they encouraged their wives, mistresses, and models to wear clothing modeled after earlier styles. These historically inspired garments appeared in their paintings and provided a sharp visual contrast to the prevailing Victorian fashions of tightly corseted bodices with full, bell-shaped skirts suspended over petticoats and hoops.

Sharing in this disdain for the voluminous and constricting fashions of Victorian England was William Morris, the man most closely associated with the British Arts and Crafts Movement. Like the Pre-Raphaelites, Morris sought to revitalize art and dress through a return to simplicity and hand craftsmanship inspired by historic models. Morris admired the paintings and decorative arts of the Middle Ages and advocated simple, picturesque attire, which he felt was more complimentary to a woman's natural form. His wife, Jane, was known to have adopted a form of plain dress without corsets or hoops.

Efforts to create alternative dress for women without the armature of hoops, bustles, and corsets had been at the forefront of the concurrent Dress Reform Movement. This movement emerged in the mid-nineteenth century and concerned itself primarily with health and comfort, rather than the appearance of dress. In contrast, a number of artists linked to the Aesthetic Movement of the 1870s objected to contemporary fashion on the grounds of taste rather than health. In the 1870s and 1880s, advocates of Aesthetic Dress championed a nat-

ural line in dress formed from soft, drapable fabrics without corsets or bustles. Rejecting the garish colors produced by the aniline (synthetic) dyes prevalent in contemporary fashion, advocates of Aesthetic Dress preferred muted earth tones in moss greens, browns, yellows, and peacock blues.

Aesthetic dress took a variety of forms. Some garments incorporated smocking and puffed sleeves in vaguely Renaissance styles, while others suggested “classical” drapery. Another strong influence on artists during the late nineteenth century was Eastern art, particularly Japanese woodblock prints and stencil-printed fabrics. Fascination with Eastern goods went along with this Japonism. Alternative dress in the form of kimonos and caftans became a popular form of anti-fashion for artists and intellectuals. James McNeill Whistler had a strong hand in designing the fashion of his sitters and, in fact, created the Japoneseque dress worn by Mrs. Frances Leyland in her 1873 portrait entitled *Symphony in Flesh Color and Pink*.

Aiding the efforts of the Aesthetes was Arthur Lazenby Liberty, whose emporium on Regent Street became a mecca for artists and enthusiasts seeking imported decorative arts from the Near and Far East, as well as fabrics in the soft greens, yellows, and browns so favored by Aesthetic dressers. In 1884, Liberty appointed the architect Edwin Godwin to direct a dress department thereby making artistic dress available to the public. Liberty's created a line of their own dresses with high waistlines and loose, puffed sleeves reminiscent of the Regency period of the early nineteenth century—a forecast of the direction that mainstream fashion would take in the early 1900s.

In the 1880s artistic dress gained a certain level of acceptance in mainstream fashion. Widespread acceptance of the tea gown, a loose, uncorseted informal gown worn at home, was one of the crowning achievements of Aesthetic Dress advocates. Moreover, the increasing influence of the British Arts and Crafts Movement led to efforts to expand reform and artistic dress. In 1890, The Healthy and Artistic Dress Union was formed and included Walter Crane, Henry Holiday, G. F. Watts, and A. F. Liberty. Their journal *Aglaia* featured several dresses designed in the classical mode by Walter Crane. The British Arts and Crafts Movement had a strong impact in America and stimulated a call for dress reform there. Gustav Stickley, chief spokesman for the American Arts and Crafts Movement, advocated beauty, comfort, and simplicity in dress in the journal *The Craftsman*, which had broad appeal to middle-class Americans.

A number of progressive artists and architects associated with art nouveau and art moderne espoused the belief that costume was the final frontier, an extension of the artistic effort to create unified interiors and exteriors. The Belgian architect Henry van de Velde designed dresses for his wife, as did the American architect Frank Lloyd Wright. In Vienna, Secessionist painter Gustav

Klimt collaborated with his wife, Emilie Flöge, herself a dressmaker, to create costumes. Wiener Werkstätte co-founder Josef Hoffmann was known to design not only the interiors of his clients' homes, but also their clothing.

Early Twentieth Century

In the early twentieth century, unconventional artistic dress had achieved a certain level of acceptance. Wearing of artistic dress had even become a badge of distinction, bestowing upon the wearer an aura of progressive ideals, intellectualism, and good taste. These attributes were particularly accorded to the wearers of Fortuny dresses. Mario Fortuny y Madraz, born into a distinguished family of Spanish painters living in Venice, created Renaissance and medieval-inspired printed velvet gowns, as well as a simple columnar pleated silk dress inspired by ancient Greek sculpture. The latter dress, called the *Delphos*, was patented in 1909 and was produced, with slight variations, through the 1940s. Fortuny dresses became synonymous with simplicity, elegance, and timeless beauty and were favored by members of artistic and intellectual circles.

As the century progressed, a number of avant-garde painters also turned to the medium of fashion for artistic expression, viewing garments as the perfect form of kinetic, visual tableaux. Simultaneist and Rayonist artists Sonia Delaunay and Natalia Goncharova tried their hand at fashion design and worked for the Parisian couture houses of Heim and Myrbor, respectively. Even more extreme were the 1913 dress designs of Italian Futurist Giacomo Balla and the mass-produced work clothes created by Russian Constructivists Varvara Stepanova and Alexander Rodchenko. Jean Cocteau, Pablo Picasso, and even Ferdinand Leger took turns designing garments in the first quarter of the twentieth century.

Greenwich Village, New York, became the epicenter for avant-garde thinking and dressing during the 1910s and 1920s. Poets, writers, artists, socialists, feminists, and philosophers flocked to this shabby neighborhood to share their progressive ideas on life and art, that found expression in the clothes they wore. Greenwich Village became synonymous with bohemian and alternative fashion that included uncorseted, straight tunic dresses, loose jackets, and bobbed hair for women. Greenwich Village artists appear to be particularly associated with the revival of the batik technique that became a popular form of artistic dress decoration during the late 1910s and 1920s. This "anti-fashion" provides a link with the European artistic dress movements of the previous century and set the stage for avant garde experiments in dress later in the twentieth century.

In the 1930s, a renewed interest in handweaving led to a revival in that and other textile crafts in America, particularly after World War II, and is linked to the wearable art movement of the late 1960s and 1970s. This weaving revival was particularly accelerated by the arrival

of a number of Bauhaus-trained European émigrés in America during the 1930s and 1940s, such as Anni Albers and Marianne Strengell, who joined the teaching staffs of the Black Mountain College in North Carolina and Cranbrook Academy in Michigan, respectively. A generation later, their students pushed the boundaries of textile arts even further through their radical, off-loom woven sculptures of the late 1950s. Exploring the power of weaving, plaiting, dyeing, embroidery, knitting, and crochet, these fiber artists imbued the ancient techniques with new, expressive possibilities. Their creations paved the way for the wearable art movement that emerged ten years later. Wearable art carried on the exploration into textile techniques of the larger, inclusive fiber art movement.

Late Twentieth Century

Wearable art was also the product of a unique climate of cultural and social change that occurred at the end of the 1960s. It came during a period that witnessed the flourishing of performance and body art concurrent with the rejection of traditional haute couture in favor of more democratic fashions inspired by hippies and street style.

Makers of wearable art in the late 1960s and 1970s did not attempt to influence universal trends in fashion. Rather, they chose to express a singularly personal vision of dress—a notion that separates them from earlier artistic dress movements of the nineteenth and early twentieth centuries.

With New York City and San Francisco as hubs, artists engaged in wearable art pursued works that fused aesthetics with function. At the heart of the wearable art movement was the rejection of traditional hierarchies in art that elevated fine art over craft. In the 1970s, wearable art incorporated materials that had traditionally held craft associations, embracing the formerly "women's work" of textiles as fine art. Paramount to wearable art in this early phase was the utilization of traditional techniques in unconventional ways. In the 1970s, ancient techniques such as sewing, leather tooling, weaving, knitting, and dyeing were suddenly enriched by the dimension of storytelling, such as in the fantastical, painted and tooled-leather garments of Nina Vivian Huryn. Other artists such as Janet Lipkin, Sharon Hedges, and Norma Minkowitz reinvigorated traditional crochet and knitting, producing new, voluptuous, and organic wearables.

One of the most pervasive forms of wearable art that emerged in the 1970s was that of the kimono. With its wide, untailed panels it provided the ideal surface for showcasing two-dimensional treatments. Eschewing structure for surface effects, Katherine Westphal was one of the first to exploit the T-shape kimono form, creating complex visual collages by the photocopy heat-transfer print method. Tim Harding is another artist who has excelled in this format in the past three decades, producing rich garments from sandwiched fabrics, manipulated to reveal layers of color and texture.

Validation of this nascent art form arrived with the landmark exhibition “Art to Wear: New Handmade Clothing” held at the American Craft Museum in New York City in 1983. This came ten years after Julie Dale’s had established her Artisan’s Gallery in New York as the premier gallery for displaying and selling wearable art. Artisan’s Gallery continues to showcase excellence in wearable art.

In the 1980s, wearable art became less organic and freewheeling. In keeping with concurrent developments in the visual arts, wearable works exhibited greater refinement in technique and a greater emphasis on surface imagery, rendered in a more controlled, graphic style. Crocheted and knitted garments by Jean Williams Cacededo illustrate this progression from the organic, sculptural works done in the 1970s to more graphic, flat appliqué works in the 1980s. Other artists such as Ana Lisa Hedstrom continue to explore and refine dyeing techniques inspired by Japanese traditional methods.

Wearable art in the 1990s and early twenty-first century continues to expand and gain greater acceptance in mainstream fashion. The exuberant and unwieldy forms of two decades past have been replaced with recent works that not only celebrate surface patterns, but also acknowledge the importance of comfort, drape, and fit. The work of Erman of Miami, Florida, embodies this new trend in wearables. Trained at several fashion houses on Seventh Avenue, Erman brings artistry and exquisite tailoring to his unique designs.

To some, the wearable art movement of the early 2000s is a splintered and unrecognizable entity, lacking the spirit of inquiry, exuberance, and integrity of the heady days of the 1970s and early 1980s. To others, wearable art has merely evolved into a larger, more diverse entity. Artists making wearables in the twenty-first century continue to explore techniques, but also show a new interest in computers and other technology. Moreover, wearable art has moved closer to mainstream contemporary fashion, revealing a stronger shared vision. As haute couture designers such as John Galliano and Alexander McQueen move increasingly into the “art-for-the-catwalk” realm, so wearable artists have exhibited greater practicality and business acumen in their garments, thereby appealing to a wider audience interested in craftsmanship, quality, and uniqueness in garments.

See also **Art and Fashion; Haute Couture.**

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Lauren Whitley

WEAVE, DOUBLE Double weave is a family of weave styles in which the face of the fabric is effectively disengaged from the back except at specific connecting interlacings, yet with each side maintaining sufficient individual structural integrity to be identified as distinct fabrics in themselves. Fabrics in this category include the matelassés and tubular fabrics. These fabrics are encountered in both decorative and utilitarian roles and occupy interesting extremes at either end of those spectra.

The matelassé types of fabrics are decorative in nature and may be found in use as bed clothings and upholstery. Utility double fabrics have been employed in roles as diverse as common garden gloves to highly technical, specialized end uses.

Double weaves are characterized by harness floats in paired or greater combinations on a face and different paired or greater float combinations on the back. The sets of floats are maintained as a distinct single fabric by warp yarns that alternate at long intervals between front and back of the cloth.

The simplest representations of double weave interlacings utilize both a point diagram and the filling cross section diagram to show alternations between top and bottom. In such diagrams, the warp yarns may be represented by each end to permit easier visualizations. Multiple repetitions of each end weaving pattern combine to permit the double face of a fabric.

Further considerations in double weaves include whether shuttle or shuttleless weaving techniques are used and whether simultaneous weft insertions in top and bottom sheds occur. If shuttle weaving is employed, a continuous loop of weft yarn is inserted across the width of the fabric. This technique permits the weaving of an unbroken, sealed tubular fabric. Technical uses of this fabric type include vascular grafts and spacesuit joints. In the latter role, a double weave tubular fabric was developed at Georgia Tech in the 1970s and 1980s by Dr. Howard Olson for elbow and knee joints as the first solution to prevent vascular destruction of astronauts’ arms and legs during bending motions.

If shuttleless weaving techniques are used, discontinuous segments of weft are being inserted and therefore tubular structures cannot be made on these machines. On the other hand, multiple simultaneous insertions of weft by rapiers is easily practiced by these machines, so top and bottom shed formations and independent insertions are possible. A subtype of these

double weaves are velvets, which are formed with a migrating binder warp that is cut after weaving to form a pile on the surface of either fabric base.

See also **Loom; Weave, Pile; Weave, Slack Tension; Weave Types; Weaving.**

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Howard Thomas

WEAVE, JACQUARD Jacquard is a style of “figure weaving.” It can be used to create elaborate designs and detailed images of objects such as flowers and birds. This is done on a Jacquard loom, a device invented in Lyons, France by Joseph-Marie Charles Jacquard in the early 1800s. Before that time, figure weaves could only be made by more labor-intensive techniques such as tapestry, adding extra yarns to the surface of another weaving by hand (supplementary weft), using different sizes of yarns to make parts of the pattern stand out (dobby weaving), or by using a draw loom.

Draw looms were invented more than two thousand years ago in China and are operated by two people. The weaver sits at the front of the loom, adds the filling yarns, and beats them in place. An assistant sits at the side of the loom and lifts combinations of dozens (or even hundreds) of harnesses. These are frames with “heddles” that hold one or more yarns in place. Joseph-Marie Jacquard modified the draw loom by replacing harnesses with individual heddles attached to small weights. He also used a series of metal punch cards that could tell the loom the order and number of heddles to lift, replacing the need for a human assistant. Until the invention of computers, Jacquard looms were the most complicated pieces of machinery in the world. In fact, the punch cards used by early computers were based on the Jacquard system. In a reversal of fortune, Jacquard looms now use computers instead of cards to keep track of the pattern.

Appearance and Use

Jacquard fabrics have a distinct front and backside. The front shows the design in crisp detail, but the back is covered with long “floats.” These floats are yarns that were carried on the back of the fabric whenever they were not needed to form the design. Because the floats are easily snagged, the back of a jacquard fabric must be lined or hidden. An easy place to see floats is on the back of a clothing label—labels that are not printed are generally jacquard weavings.

As the design becomes more complex and the number of colors increases, more and more yarns have to be carried on the backside. This can make the cloth very heavy. For this reason, many jacquard fabrics are restricted for use in home furnishings. Brocade, made from silk or a synthetic material such as polyester, is one of the few figure weaves light enough for clothing. Although the mechanization of jacquard weaving has made it much less expensive to produce, brocade is still worn primarily for special occasions. Other figure weaves used in clothing, such as piqué and waffle weave, have a small textured pattern created by using a series of different yarn sizes. These patterns are less complicated than brocade and do not necessarily require a Jacquard loom.

Damask is a one-color, relatively lightweight cotton or linen jacquard fabric (originally produced on a draw loom) that is used for elegant curtains and tablecloths. Small floats on the surface are ironed or pounded flat (in a process called beetling) to make the cloth very smooth and lustrous. Heavier jacquard fabrics are used for upholstery and accessories such as shoes and handbags. Although these are sometimes called “tapestry,” real tapestries are extremely expensive and are made by a very different process.

See also **Tapestry; Weaving; Weaving, Machinery.**

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WEAVE, PILE Pile weave is part of a family of woven fabrics created to produce pronounced or obvious protrusions of the constituent warp yarns within one set of the warp while a base structure of warp yarns maintains the tensile and structural integrity of the fabric in the machine delivery direction. The family of pile weaves includes terry cloth, velveteen, plush, and similar weaves in which a portion of the warp is extended to form an elongated, extended path from the flat plane of the fabric. Terry weave fabrics are traditionally used as houseware items for bath towels, mats, washcloths, and robes, but are occasionally used for apparel items such as beachwear. Other pile weave fabrics are usually associated with winterwear clothing items because of their softness and warmth.

The pile is defined as that set of yarns within the warp that is manipulated to allow large variations in the yarn interlacing lengths. The base structure of the warp that maintains a conventional mode of interlacings with

the weft and provides structural binding and load integrity is known as the ground.

Ground warps and pile warps are provided to the shedding and weft insertion sections of the weaving machine in separate deliveries. Conventionally, the ground and pile yarns are wound separately onto warp beams, but direct delivery of the pile from package creels is also possible in specialty weaves such as carpets.

Pile formation is executed by formation of floats on either the face, back or both sides of the fabric. During this float formation, the interlacing frequency of the warp in the ground direction is much more frequent, creating higher tension in the ground warp than in the pile. The fabric take-up is actuated based on the ground warp advance rate, so the pile warp length becomes necessarily greater than that of the ground. The extra length of the pile is utilized to create loops, long floats, billowed structures, and similar protrusions from the fabric surface. In the case of terry pile weaves, the advance rate of the pile exceeds that of the ground to such an extent that relatively long loops are formed that are manipulated to form alternatively above and below the surface of the fabric during weaving.

Pile weaves may be further enhanced or manipulated by variation in reed beating motion or variation of the position of the cloth fell during beat-up. In the first case, the reed sweep motion is restricted after some insertions and occasionally driven fully forward to allow maximum pile loop formation. In the case of variable fell position, the reed position and motion remain constant through each pick insertion; the cloth support, which determines the fabric fell location, is maintained in a position further away from shedding motion and closer to the take-up until loop formation is required. At loop formation, the fell is advanced simultaneously with and in opposite direction to the beat of the reed. The combination of the opposing reed and fell motions form the pile loop.

See also **Loom; Weave, Double; Weave, Slack Tension; Weave Types; Weaving.**

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Howard Thomas

WEAVE, PLAIN Plain weave (also known as tabby weave) is the most basic structure for producing cloth. When done by hand, the technique is like basket weaving: one filling (a crosswise or weft) yarn is drawn over, under, over, under, and so forth, through a series of warp

(extended lengthwise) yarns. The next filling yarn takes the exact opposite path (under, over, under, over, ...) and the whole pattern is repeated. When using a loom, a weaver alternates between raising all of the even-numbered warp yarns and all of the odd-numbered warp yarns, laying down successive filling yarns in each opening (shed) to create the same pattern. Although this technique has been in use since the late Stone Age, *Fairchild's Dictionary of Textiles* estimates that 80 percent of all woven textiles are made using plain weave.

Simple Variations

The continuing popularity of plain weave is due to its simplicity as well as to the many possible variations in color, texture, and yarn count. Plain weave is the least expensive fabric to produce. At the same time, weavers often purposefully use this pattern to avoid visual competition with other aspects of the cloth: textured fibers (such as linen and silk dupioni); novelty yarns (such as tweed, chenille, and bouclé); printed patterns (on fabrics such as calico and chintz); and dyed patterns (on fabrics such as batik, ikat, and tie-dye). Textiles that have a specialty finish, including flannel (napped), organdy (parchmentized), ciré and moiré taffeta (embossed), are also frequently plain weaves.

Georgette, chiffon, and voile (sheer fabrics that are used for scarves, bridal veils, and decorative overlays on full skirts and dresses) are plain weave fabrics made with tiny, highly twisted silk or manufactured yarns. The twisted yarns create minute spaces in the fabric allowing light or another color to show through. Softer fabrics used for dresses and skirts, such as cotton lawn and rayon challis, are made with yarns that have a very light twist. This helps make the surface of the finished cloth feel very smooth. China silk, a popular fabric for women's blouses, is a fine cloth with a high yarn count (large number of threads per inch). Buckram and crinoline, plain weave fabrics with a low yarn count, are used as stiff linings in the construction of elaborate hats and dresses. Muslin is a cheap, medium-weight plain weave fabric that is often used by tailors and designers to make a test garment before working with more expensive material.

Striped and plaid fabrics, such as tartan, madras, and gingham, are made by changing the color on sections of filling and/or warp yarns. Gingham, for example, usually has thin stripes of red and white or blue and white threads in the warp and identical stripes in the filling. In the finished cloth the stripes create a checkerboard pattern. This look can be imitated by printing the same pattern on a plain weave fabric. Chambray, a popular cloth for button-down shirts, is made with filling yarns that are one color (frequently white) and warp yarns that are a different color. When the filling and warp have a high color contrast, the overall fabric seems to shift color as it moves on the body. This is known as iridescence. Ikat fabrics have a multicolored warp that is dyed before the weaving process begins. When the weaver uses plain weave

and a neutral-colored filling yarn, the color and pattern of the warp yarns are allowed to stand out. A similar technique is used to produce fabrics such as tweed and chenille, where the goal is to highlight the texture of the novelty yarn. These bulky or fluffy yarns are usually in the filling. Simply using fewer yarns per inch in the warp and vice versa can also emphasize filling yarns.

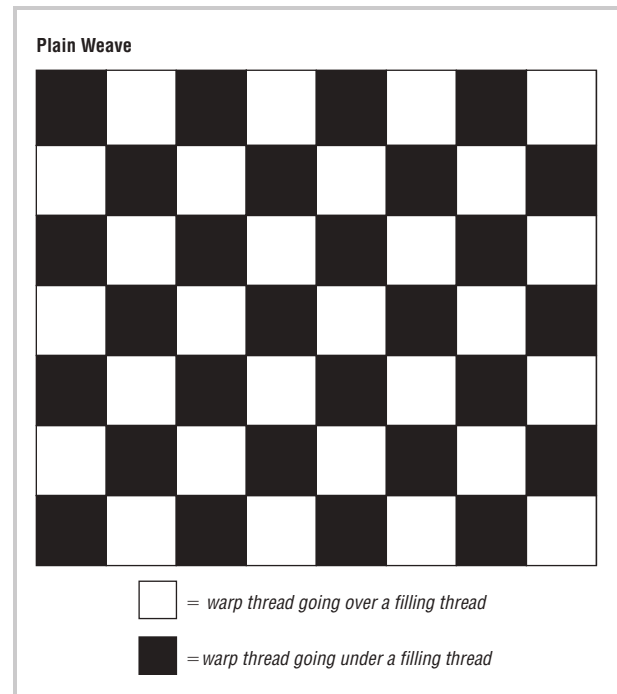
Medium-weight plain weave fabrics are sometimes called “print cloth” because they’re often used for printed fabrics such as chintz and calico. The smooth surface of plain weave is excellent for printing. These fabrics are also low-cost, which balances out the expense of printing a textile. One drawback to plain weave, however, is that other structures such as twill weave and double weave are much stronger. Plain weave fabrics are best used for clothing and household furnishings that do not take much abuse (such as curtains) or are periodically replaced (such as underwear and bedsheets).

Rib and Basket Weave

Changing the size or number of certain filling and/or warp yarns allows the creation of other variations of the plain weave. When several yarns are grouped together or larger yarns are used, a straight raised ridge called a rib or cord is formed. Poplin is a cotton or polyester fabric with very tiny ribs in the filling direction. This added thickness makes the cloth very crisp. Taffeta and faille, made of silk or a synthetic material such as acetate, are crisp fabrics with a slightly larger rib. Taffeta is often used to make ball gowns because the ribs make an elegant swishing sound when the fabric rubs together. Grosgrain ribbon is another fancy material with ridges in the filling direction. Bedford cord is a heavy fabric made as a lengthwise ribbed weave that resembles corduroy and is used for pants. Rip-stop nylon is a very strong fabric with noticeable ribs in both the filling and the warp direction. In this case, the ribs help prevent the fabric from tearing. Rip-stop is often used for sports gear such as windbreakers and athletic shoes.

Basket weave fabrics are made by having one or more filling yarns go over, under, over, ... more than one warp yarn at a time. This can be used to create a fabric that has a better drape and luster than standard plain weave, but the exposed yarns are more likely to be snagged. Oxford cloth, a popular fabric for men’s dress shirts, is a basket weave that has one filling yarn going under and over two warp yarns at a time. Heavier basket weaves, such as canvas and sailcloth, have been used for shoes and outdoor clothing such as jackets and overalls for construction workers, sailors, and hunters. Monk’s cloth, a very soft basket weave fabric that is easily damaged, has four yarns running together in both the filling and the warp direction.

See also **Batik; Calico; Chintz; Crinoline; Dyeing, Resist; Ikat; Muslin; Silk; Tartan; Tweed; Weave, Double; Weave, Satin; Weave, Twill; Weave Types; Weaving; Yarns.**



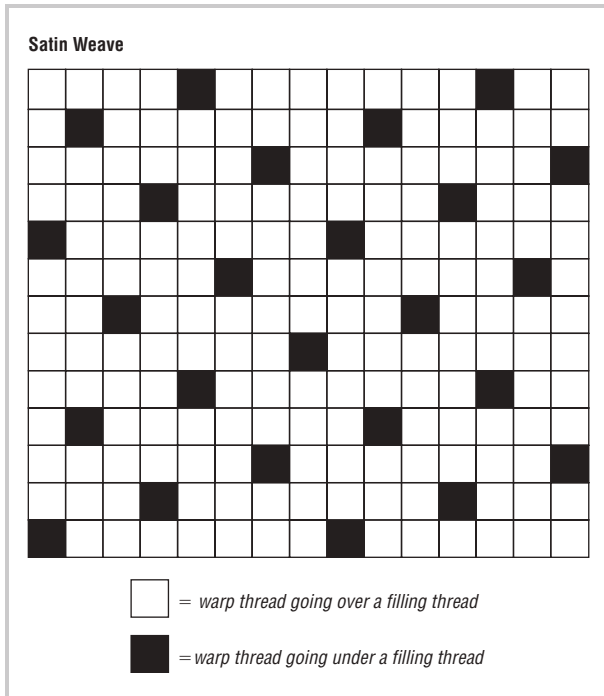
Plain weave. The most basic structure for producing cloth, the plain weave technique is known to have been in use as long ago as the Late Stone Age.

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Heather Marie Akou

WEAVE, SATIN Along with plain and twill weave, satin is one of three basic weave structures that have been in use since ancient times. Associated with luxury, romance, and sensuousness, satin and sateen fabrics are made of fine silk and cotton yarns as well as manufactured fibers such as rayon, acetate, and polyester. Satin weaves have a smooth, lustrous surface and possess the best draping qualities out of all the weave structures. The pattern of a satin weave is similar to a twill, but the floats (yarns that go over multiple warp or filling yarns before they dip under the surface) are very long—covering up to eleven other yarns. Satin must be woven on a loom with at least six (and more commonly eight) harnesses. Instead of having diagonal lines, the floats are usually staggered to make the surface look as smooth and seamless as possible. This property is enhanced by packing the floats very close



Satin weave. The staggered floats in the satin weave help to create a seemingly smooth surface, with a structure that can be difficult to see even under magnification.

together. Even under magnification, it can be difficult to see the structure of a very tight satin weave.

A History of Satin Weaving

Until the invention of manufactured fibers, satin fabrics were generally expensive to produce because they required large quantities of silk or very fine cotton yarns. (With yarns any thicker, the floats would be so long that the cloth would be too fragile to wear.) In the mythology surrounding silk weaving, the original source of the name for satin has been lost. One suggestion is that it comes from the ancient Chinese port of Zaytoun. Another is that satin was “called *sztum* until the Renaissance; then the Italian silk manufacturers changed the term to *saeta* to imply *hair* or *bristle*, a term which can be applied to fabrics of this type since they show a hairline and glossy surface” (American Fabrics, p. 198).

Satin weaving was invented in China more than two thousand years ago. Although elaborate textiles such as brocade (a figured satin produced on a draw loom) were expensive and in many cases restricted to the upper classes, the cultivation of silk was widespread. By the late second millennium B.C.E., “Ordinary peasant women were expert in the special techniques associated with silk weaving; silk was produced in quantity and worn, at least on some occasions, by a wide range of people, not just the aristocracy” (Steele and Major, p. 22). Silk weaving was a treasured secret, but eventually the technology

spread to Japan, Korea, India, Thailand, and other parts of southern Asia. Limited amounts of silk fabric were exported to the West as early as the time of ancient Greece, but satin was not produced in Europe until the Middle Ages. The scarcity of silk restricted the use of this material to the church, nobility, and upper classes.

During the late Renaissance, silk weaving expanded from Italy to Spain, the Netherlands, France, England, and the American colonies. Variations of satin acquired several new names including *peau de soie* (literally “skin of silk,” a matte fabric with tiny diagonal lines) and *charmeuse* (a lightweight, pebbly satin, sometimes called crepe-backed satin). *Sateen*, made of finely spun cotton threads (often long-staple Egyptian cotton), has floats in the filling instead of the warp. These sideways floats drape in the opposite direction from a standard warp satin; when used for an elegant ball gown or full skirt they help the fabric stand away from the body. Slipper satin, a strong, compactly woven material is mainly used for footwear.

Uses of Satin in the West

Modern uses of satin in the West have been sacred and profane—it has been sewn into everything from bridal gowns, ballet slippers, and evening dresses to sexy corsets and lingerie. A contemporary book, *The Wedding Dress*, describes “silk, tulle, satin and lace” as the “heart of a romantic dream” (McBride-Mellinger, p. 9), but satin was not commonly used in bridal gowns until the late 1800s. Because the long floats on the surface of this fabric are easy to snag, it can be difficult to maintain the appearance of satin through repeated use. This was the first time that women outside of the upper classes could afford the luxury of a dress worn only for a single day. Before that time, dresses were used over and over again as “Sunday best.”

As manufactured and synthetic fibers such as rayon (originally called “artificial silk”), acetate, and polyester were invented beginning in the 1920s and 1930s, satin gradually became available to an even larger number of women. *Duchesse satin*, a blend of rayon and silk, was invented as a less expensive, lightweight alternative to 100 percent silk satin. In the early 2000s, all varieties of satin are used for bridal gowns and bridesmaid dresses, evening gowns, prom dresses, and accessories at many different levels of price and quality.

Satin also made an appearance in the late 1800s in the undergarments of fashionable Parisian women. The sensuousness of satin—a prelude to the nude body underneath—was considered very erotic. Although colorful satin was first associated with prostitutes, “fashion journalism and advertising increasingly emphasized the importance of luxurious and seductive lingerie, including colorful, decorative corsets” (Steele, p. 133). In the early 1900s, satin became popular in other styles of lingerie as corselettes, girdles, brassieres, and panties were accepted as replacements for the petticoat and corset. “By 1910,

brassieres were available in cotton tricotine [a knit fabric], silk, satin; in 1920 *Vogue* advertised one in tulle; and in the 1930s sateen was particularly popular” (Carter, p. 89). New materials such as rayon, nylon, and polyester made it possible for women from nearly all walks of life to purchase sexy lingerie. These fabrics were rationed during World War II, but advertisements and pin-ups pictured women dressed in lustrous satin camisoles.

Satin has continued to be very popular. In the 1970s, the corset came back into fashion as members of punk and goth subcultures “began to reappropriate the corset as a symbol of rebellion and ‘sexual perversity’” (Steele, p. 166). In her “Blond Ambition” tour in the early 1990s, Madonna wore a light pink satin corset designed by Jean-Paul Gaultier. An obvious symbol of her sexuality, the corset was not only flaunted as outerwear but had padded, cone-shaped breasts. Partly for reasons of nostalgia, these styles have come back into high fashion at the beginning of the twenty-first century.

See also **Cotton; Polyester; Rayon; Silk; Weave, Plain; Weave, Twill; Weave Types; Wedding Costume.**

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Heather Marie Akou

WEAVE, SLACK TENSION Slack tension weave is part of a family of weaves that rely on a variation in tension between top and bottom sheds to produce design effects on the surface of fabrics. Broadly speaking, terry, plisse, and pile fabrics fall within this definition, but other many other fabrics make use of the principle as well.

Fabric formation by weaving requires a tension balance between the top and bottom sheds of the warp prior to warp insertion. Common fabrics such as many twills, satins and plain weave variants utilize differences between top and bottom shed tensions to produce more dramatic face or back effects on a fabric surface. These types of shed geometry variations are sometimes colloquially known as “weaving in a sack” because the tension differences are reminiscent of a sack held open at the top while the bottom is allowed to be slack.

Slack sheds are produced by a smaller displacement from the horizontal or closed shed position by one shed

opening than the other. Usually it is the top shed that is allowed to be slack while the bottom shed is held tight. The limiting factor to the tension in the tighter shed may be determined by one of two rules. In the first rule, the tightest shed may be no more than 10 percent tighter than the base tension of the warp during closed shed. By the second rule, the individual ends of the tighter shed should bear no more than 15 percent of the average single end break load of that warp yarn type.

Within the initial modulus region of the yarn’s load-elongation profile, there is direct proportionality of the yarn tension to the shed opening angle. That tension or load may be determined either by dividing the base warp tension at closed shed by the cosine of the appropriate opening angle or it may be found by using the Pythagorean theorem to find the yarn extension during opening. It is important to note that the opening point of the rear shed is determined by the position of the stop motion and not by the whiproll of the weaving machine.

Since warp let-off is governed by reaction of the whiproll or tensioner rolls, the slack shed is advanced by the same length as that demanded by the more heavily loaded shed. As a result, longer floats are generated in the fabric than would be present in symmetrical shed weaves. These long floats create structural variations on a fabric surface that are utilized by designers to produce billows, waves, rows and similar textures.

Other variants of slack shed weave designs require the use of multiple warps advancing at different rates from different warp beam let-off systems on the same machine to produce pile and loop effects on the surface of a fabric. Such systems require exact feed measuring for the warps and often require variable beat-up systems to compact the picks into a warp of deliberately varying lengths.

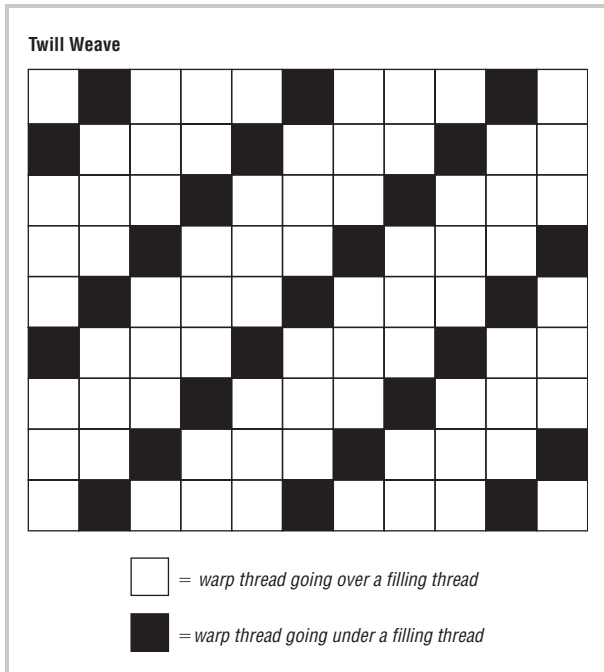
See also **Loom; Weave, Double; Weave, Pile; Weave, Plain; Weave, Satin; Weave, Twill; Weaving; Weave Types; Weaving, Machines.**

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Howard Thomas

WEAVE, TWILL Twill is an ancient weaving technique used to produce durable fabrics that have characteristically diagonal patterns called “wales.” Twill fabrics are woven on looms using three or (more typically) four harnesses—frames with “heddles” (loops of string or wire) that hold individual warp yarns in place and are used to lift up every third or fourth warp yarn in a repeated pattern. On a four-harness loom, the weaver can



Twill weave. The twill weave technique produces fabrics that are stronger, thicker, and more durable than those made by other techniques. This is largely because the filling and warp yarns interlace less frequently.

alternatively lift up sets of two harnesses at once (1+2, 2+3, 3+4, ...). This creates an even sturdier and more balanced twill weave.

Because the filling and warp yarns in a twill weave do not interlace as many times as they do in a plain weave, the yarns can be packed more tightly together. This makes the fabric stronger, thicker, and better able to hide soil than a plain weave made from the same materials. It also gives the fabric a better drape and resistance to wrinkling. Lightweight twills are commonly used for dresses, scarves, and neckties. Heavier weights are used for blue jeans, jackets, and outerwear for work such as carpentry and construction. Elegant variations of twill weave, including houndstooth and herringbone, are used for high-quality professional clothing.

Basic Twills

Lightweight twill fabrics for men's neckties are commonly called foulard or surah. Foulard is literally the French word for a necktie or scarf. These fabrics are made of silk or a manufactured material such as polyester. They can also be used for lingerie, slip dresses, or linings in other garments. Although the fabric is thin, the strength of a twill weave makes the final product fairly durable. Challis is a light- to medium-weight twill made of wool or rayon. This fabric has a luxurious drape, is resistant to wrinkling, and is often used for women's apparel.

A heavier twill known as serge has a smooth surface and is frequently used for stylish outerwear such as trench coats. Thicker versions made of wool and cotton are used for work clothing. Serge de Nîmes (serge from the city of Nîmes in southern France) was, some argue, the original name of denim, the heavy cotton twill now used for blue jeans. Levi Strauss, the inventor of blue jeans, was initially using tent canvas (a plain weave), but switched to denim because of its superior strength. For similar reasons, in 1908 the U.S. Army began to issue soldiers denim work uniforms. These were popular and widely used until they were phased out during World War II.

Denim generally has blue cotton yarns (dyed with indigo) in one direction and white cotton yarns in the other direction. A cheaper version can be made by substituting polyester for the white yarns.) This color difference emphasizes the diagonal wales of the cloth and gives denim its characteristically worn look. Trendier versions of denim can be woven with other colors of thread or dyed later as a whole garment. The strength of denim allows the garment to undergo harsh finishing treatments such as acid- and stonewashing, abrasion, and slashing. A lighter fabric that looks very similar is known as jean and is often used for casual button-down shirts, children's clothing, and home furnishings.

Other twill weaves that are frequently made into work clothing include drill (a heavy cotton fabric), cavalry twill (a smooth wool fabric with distinct diagonal lines), and chino (a relatively lightweight cotton fabric). Chino had its origins as a material for summer-weight military uniforms during World War I. Popularized by "casual Fridays" as well as Gap advertisements in the late 1990s, chino became a popular choice of fabric for casual pants, capris, and skirts. It was also part of the "Ivy League look" in the 1950s and early 1960s. Gabardine, an elegant material made from wool instead of cotton, is a common choice for professional suits and dress slacks. This fabric has distinct diagonal wales created by using many more warp threads per inch than filling threads. Different colors of thread in the warp and filling, such as brown and camel, can emphasize these lines further.

Variations

As with plain weave, there are many ways to alter the structure and appearance of a twill weave. Houndstooth is a classic twill fabric with a small, distinctive pattern that looks like a four-pointed star. This is created by alternating two different colors of warp and filling threads, often black and white to emphasize the pattern. Herringbone twills have diagonal lines that periodically change direction, creating zigzag patterns that look like subtle stripes from a distance. This pattern is made by changing either how the harnesses are threaded or the order in which they are lifted. Herringbone twills are generally made from smooth, medium-weight wool yarns and are used for professional clothing.

Other decorative twills that do not have specific names are called broken twills, pointed twills, or undulating twills. These patterns are created by using more harnesses and more complex systems of threading and of lifting the harnesses. Textile designers have an almost unlimited number of ways to change a twill pattern. These fancy twills are not very common and are generally used for either expensive home furnishings or couture apparel.

See also **Cotton; Denim; Gabardine; Indigo; Jean; Levi Strauss; Neckties and Neckwear; Polyester; Rayon; Silk; Weave, Plain; Weave, Satin; Wool.**

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WEAVE TYPES Names given to fabrics differ depending on who is naming them. One only has to walk through a museum collection and read the labels, to find out that even within the same institution, there is often no agreement on how to categorize a cloth. At different times, lampas, diasper, and tissue have all been used to describe the same type of cloth. Depending on when or who entered the piece into a collection, the label will reflect the terminology of that period. This can be confusing when one is standing next to two fabrics that appear to be similar, but have different labels (i.e., lampas for one and diasper for the other).

In a different textile circle, contemporary hand weavers might be heard talking about weaving using the Theo Moorman technique. The listener won't know, as the weavers themselves might not know, that this structure is identical with lampas, diasper, and tissue. Theo Moorman had the awareness to state that she suspected her technique had been used elsewhere, but since she didn't know where or when, it was not unreasonable for her to call it her own technique. Sometimes the magazines for handweavers have quite imaginative names for types of weaves that are invented by the authors, based only on their own sense of labeling.

The confusion increases when one looks at magazines and articles for the fashion or interior design market, where names are often created for marketing strategies rather than for clarification of terms. Marketers

often want to obscure the facts, making something very mundane appear exotic. It is much more exciting to label a cloth as microfiber than it is to remind the public of the negative connotations of polyester, even though they are, in fact, the same.

So it is important to realize that different constituencies in the world of textiles will use different labels for cloth. Even when the same word is being used, it may have a different meaning, depending on the viewpoint and education of the speaker. An interior designer might speak to another designer using the word "tapestry" to describe a wall hanging, and they understand they are discussing a pictorial textile, not necessarily referencing how the work was made. A weaver, however, who thinks in terms of weave structure for classification, overhearing their conversation, might take exception to this usage, unless the work being discussed was specifically a weft-faced plain weave using discontinuous wefts to create the pictorial elements. Thus, it is important to recognize that the classification of weave types reflects the needs and concerns of the group using the terms.

Codifying Weave Types

Perhaps textile historians, archaeologists, and curators are the most rigorous group trying to codify and clarify the labeling of weave types. After all, their need for clear communication is critical; their research is used by others, and perhaps spurs on further research. Thus textile scholars began an international movement to standardize terminology through the establishment of the Centre International d'Etude des Textiles Anciens (CIETA) in 1954. If one attends a symposium of scholars presenting papers on woven textiles today, or reads an exhibition catalog for a contemporary exhibit of historical textiles, most of the classification will try to follow the conventions of CIETA.

Another influential study on textile classification is Irene Emery's *The Primary Structures of Fabrics*, first published in 1966. Although she covers more than woven cloth, most of the book is focused on the structural classification of weaves (not on the process of making). Weaving falls under the heading of constructions using two or more elements, composed of the interlacement of vertical (warp) elements and horizontal (weft) elements. With concise language, clarified by magnified photographs of the structures, Emery details plain weave, float weaves, compound weaves, crossed-warp structures (gauze), twining, and weft wrapping.

Since Emery limits her discussion to structure, she does not include fabric names, which can take into account other characteristics such as fiber, color, finish, and texture. This type of classification, however, is critical to the worlds of fashion design and interior design. Thus taffeta, poplin, grosgrain, cheesecloth, ottoman, and broadcloth are just a few of the varieties of cloth sharing the same weave structure (plain weave), but each evokes



A weave draft documents the different components of a specific woven cloth. A diligent weaver can express, diagrammatically, all the pertinent information for another weaver to exactly re-create their fabric. Written for a shaft loom, these elements include the threading draft, which records the sequence used for threading each warp thread in a shaft; the tie-up, which records what shafts are connected to each peddle of the loom; the sequence of treadling, which documents the order in which the peddles are used; and the cloth diagram, which is the sum of the parts, and is another term for the weave structure. (The draft for a dobby loom assumes a direct tie-up [as if one shaft is tied to one peddle] and the ability to raise multiple shafts. The draft has one area called the liftplan, which combines the information that tie-up and treadling sequence give for a shaft loom.) Diagrams can also include the color sequence used for both warps and wefts; notations of different sizes of yarn used; and notations for denting instructions (how threads are clumped in the reed).

a distinct fabric with specific characteristics for the designer who uses these names. Cheesecloth is very open and soft (more open than gauze), and is a balanced plain weave, while broadcloth is of medium-weight with a ribbed effect caused by the warp being more dominant than the weft. These names can also refer to specific yarns being used; for example, taffeta is traditionally made with filament yarns and is very shiny, while broadcloth is traditionally made from cotton or a cotton blend.

Weave Types by Structure

The term weave structure refers specifically to the interlacement of the vertical and horizontal elements in a weave. As the vertical element, the warp, traverses the cloth, it dives over and under the horizontal element, the weft. Conversely, one can speak of the path the weft takes, moving over and under the warp ends, as it travels horizontally across the cloth. Structural diagrams of cloth can show slices of the cloth, depicting the paths of warp and weft in three-dimensional diagrams called cross sections. These diagrams are particularly helpful to remind the weaver that cloth, usually thought of as a flat, pliable plane, is really a three-dimensional form. More often, though, the diagram of a weave structure is rendered as a two-color grid format. Combined with other information needed to recreate the cloth, this diagram is called a weave draft.

The three most well-known categories of weave structure, using one warp system and one weft system, are plain weave, twills, and satin weaves. Each has a dis-

tinct type of interlacement that distinguishes it from the others. The path of a warp in plain weave is always over one weft, under one weft. The path of a warp thread in a twill can vary (for example, a 2,2 twill goes over two wefts and under two wefts, while a 5,3 twill would go over five wefts and under three), but it always has adjacent warp threads, in either the right or left direction, lifting, and following the same sequence of over and under. This causes distinct diagonal lines in the fabric. Satin structures, however, never have adjacent ends (warps) go under the same weft, and their appearance is of a smooth, unbroken surface.

These three weave types have been used throughout the history of textiles in all parts of the world. Whether on backstrap looms, draw looms, or floor looms, the majority of textiles created have used one of these three structures. Of course the sett of the warp (the density of the warp), the type of yarn used, the color of the warp and weft threads, and the texture of the yarn will affect the look of the fabric, and thus the classification of fabrics by name.

Weave structure can look different in the cloth. Since all weave structures can be modified in appearance through changes in sett, or yarn size, or color, using weave structure as the classification for weave type only tells part of the story.

Compound weave types. Weaves can also be classified in terms of dye processes done to the warp—thus ikat textiles, or painted warp textiles. Or they can be classified by finishing processes, such as fulled, felted, or shrunk; or stamped, incised, or watermarked. Whatever the classification, if one looks carefully, one can probably find a different name for the same weave type some time during the long and varied history of textiles.

See also **Polyester; Tapestry; Weave, Plain; Weave, Twill.**

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Bhakti Ziek

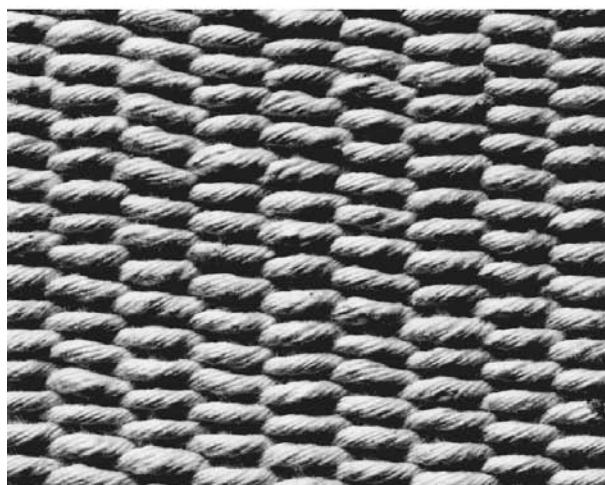
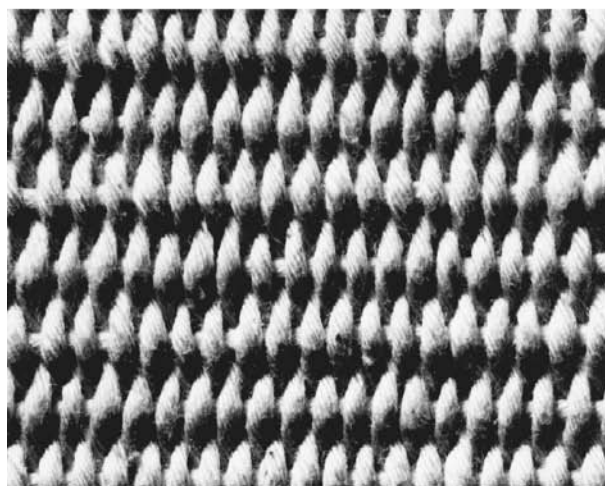
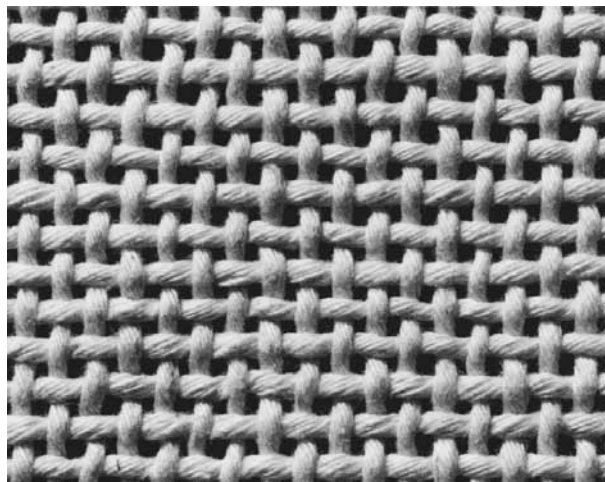
WEAVING Weaving, one of the oldest technologies practiced by humans, is the interlacement of two or more vertical and horizontal elements. The result of this action is that the individual elements form a shallow three-dimensional plane, which is usually flexible. In its simplest form, known as plain weave, the first warp (the vertical element) goes over and under each weft (the horizontal element); the second warp goes under and over each weft; and this sequence is repeated throughout the cloth. When the warp and weft are similar in size, and show up in equal amounts in the fabric, the cloth is known as a balanced plain weave. However, the scale of the elements and their density can vary, creating fabrics that show more warp or more weft.

The path that the interlacement of the threads takes can also vary. Weavers, historians, and others interested in weave structure, have developed systems for describing the various forms of interlacement—plain weave, twills, satins, and double cloth are some of the most common families of weave.

The first weavings were probably done through manual manipulation of the elements. Mat weavers in Nepal still create products using their hands and working on the ground. Looms were developed in all parts of the world to make the process of weaving easier and quicker. A loom holds the vertical warp threads under tension so the weft threads can be inserted with ease. The pot-holder loom that children use is such a device. The wefts are then inserted by manually going over and under the tensioned warps. Eventually looms were modified to aid the separating of the warp threads so the weft could easily be inserted in the resulting triangular space, known as the shed.

In most instances, when looking at a woven cloth, one will see the warp and weft crossing each other in a perpendicular manner. There are structures, however, where the 90-degree intersection is modified and leans one way or another, such as in the group of weaves known as deflected warp or weft. There are other processes that make planes of cloth, such as beating bark fibers or meshing animal fibers together (felting), that do not have the interlacement of elements found in weaving. Even when woven cloth is modified (shrunk and matted in a process called fulling or felting) until it loses the appearance of interlacement, the structure is still embedded in the fabric.

Some planes of fabric are made through the looping of single elements, using processes such as crochet, knit, and knotting. There are other two-element processes (including plaiting or braiding, macramé, and twining,) that differ from weaving in the manner of the interconnection of their elements.



Weave types. *Top:* Balanced plain weave, warp and weft equal in size, spacing and count. *Center:* Warp-faced plain weave. *Bottom:* Weft-faced plain weave. PHOTOGRAPHS OF BALANCED, WARP-FACED AND WEFT-FACED PLAIN WEAVE FROM THE PRIMARY STRUCTURES OF FABRICS, BY IRENE EMERY, WASHINGTON, D.C.: THE TEXTILE MUSEUM, 1966, FIGURES 85, 86, 87, PAGE 76.

Weaving, which can have more than one vertical or horizontal element, usually results in a plane of fabric that looks two-dimensional, but is actually a three-dimensional form. The strength and flexibility of this plane make it perfect for creating clothing, shelter, and furnishing fabrics. In recent times it has also been used as an art form.

See also **Loom; Weave, Plain; Weave, Twill; Weave, Satin; Weave Types; Weaving, Machinery.**

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Bhakti Ziek

WEAVING MACHINERY The history of mechanization in the weaving industry is replete with stories of inventors whose ideas were untimely or impractical. The perseverance of inventors is a testimony to the importance of cloth in our culture and of the lucrative nature of the business. Mechanization of the weaving process began in earnest in the eighteenth century. Prior to developments in automation, one weaver was needed to operate one loom, and an assistant was necessary if a complex pattern was being woven. There were a few developments prior to 1700, but none of significance or permanent influence. One problem that inventors faced was violent opposition from textile workers who resented any innovations that would speed an individual's production capacity and therefore reduce the numbers of weavers needed. Improvements in the speed of weaving during the eighteenth century were given impetus by the invention of spinning machinery for the production of yarn necessary for weaving. Until mechanical spinning came into use, the output of three to four spinners was necessary to keep one weaver fully employed. Acceptance of advances in loom technology was also aided by continuing improvements in spinning and cloth finishing technologies. The first significant move toward automated weaving occurred when John Kay invented the flying shuttle in 1733. The flying shuttle was set in motion by the weaver pulling a cord or handle that propelled the shuttle across the width of the textile. Not only did this speed weaving by as much as four times, it also allowed a weaver to produce cloth wider than his arm's reach.

In 1785, a clergyman named Edmund Cartwright patented the first power loom. It was initially powered by an oxen, then by the new steam engine patented by James Watt in 1769. Cartwright's loom was slow to be accepted, but by the 1830s versions of his loom enabled

one weaver and an assistant to operate four looms simultaneously. This machine was limited to producing plain textiles.

The automation of patterned fabric production began with the 1804 invention by Joseph Marie Jacquard. His so-called Jacquard mechanism could be mounted on any loom and controlled the lifting of the warp yarns that create the fabric's pattern. Previously, complex patterns had to be set up in advance on a loom and required an assistant to operate, but the Jacquard attachment allowed one weaver to control the shuttle and the pattern mechanism alone. Punched cards controlled the lift of the warp pattern yarns and a design could be changed very quickly by changing the punch cards that correspond to a particular design. This basic system remains in use in the early twenty-first century.

In 1835 the first automatic shuttle change machine enabled weft yarns of different colors to be inserted automatically in the weaving. 1895 saw the invention of the automatic pirn (weft supply) change in the shuttle, introduced by J. H. Northrop. Not until the 1950s did automatic weft winding directly on the weaving machine become commercially viable. It was introduced by the Leesona Company and known as the "Unifil" system.

Shuttleless looms appeared in the mid-twentieth century and employed various systems: grippers, rapier, and jets of water or air. Gripper machines use a small projectile that picks up a weft from a supply on the side and carries it to the other side; rapier machines use a long thin rod which travels from one side and grabs a weft which it pulls across as it returns (there are single and double rapier looms; the double rapiers meet in the center and pass off the weft thread); jet looms use a jet of air or water to propel the weft from side to side. Jet looms have the advantage of being particularly fast and can weave widths up to 85 inches. The rapier loom has the oldest history as the concept appears in a patent of 1678; the modern rapier loom was launched in 1963 by Dornier of Germany. A forerunner of the modern air jet loom first appeared in England in the 1860s, but the idea was finally commercially successful in the 1950s, introduced by Max Paabo of Sweden. The projectile (gripper) loom was invented in Switzerland by the Sulzer Brothers in 1924 but did not come into commercial use until 1953.

Fabrics from shuttleless looms do not have a selvage, as the weft is not a continuous yarn. The edges can be sealed with heat or resin. Until recently, these machines were limited to high volume weaving. Shuttle looms are still used for weaving basic constructions in low-wage economies and for specialist fabrics, which still comprise a large part of the market.

In the 1970s, the multiphase loom, in which all the actions of the loom take place simultaneously, was introduced. There are two types of multiphase looms: wave shed looms, in which the shed changes across the width of the textile as the weft travels, and parallel shedding, in

which multiple sheds are formed along the length of the warp. One of the latest multiphase looms can produce 1.5 yards of fabric in one minute. In the early 1980s, computer-aided design and manufacture (CAD/CAM) became available and the design process, which could take weeks or months could be shortened drastically to as little as a twenty-four-hour period, if necessary. Computer generated design samples can also replace actual woven samples and can therefore be produced almost immediately and transmitted electronically to any point on the globe. This technology has also enabled designers to become partners in the manufacturing process, as changes can be introduced “virtually” without the cost of loom set-up and production time. Computers can also monitor the weaving process itself and can detect and automatically correct numerous mistakes.

Currently, designers have the possibility of working directly on systems where designs created on a computer screen are transferred directly to the controls of a computerized loom with the corresponding technology. The reaction to CAD/CAM has been mixed, as the ease of technology can lead to a disintegration of design.

See also **Loom; Weave, Double; Weave, Jacquard; Weave, Pile; Weave, Plain; Weave, Satin; Weave, Slack Tension; Weave, Twill; Weave Types; Weaving.**

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Melinda Watt

WEDDING COSTUME A wedding dress is apparel used in conjunction with wedding ceremonies, including accessories that may differentiate nonmatrimonial dress from that worn specifically for weddings.

Contemporary Overview

As of the late twentieth and early twenty-first centuries, the global, urbanized standard of wedding apparel has followed the Western tradition of a bride dressed in white or off-white, with a head-covering, whether a veil or headpiece, and carrying flowers, a book, or some other object. The groom is attired in keeping with the degree of for-

malty of the bride. Attendants are generally present, the number, gender, age, and dress of whom being peculiar to each culture. Family members usually attend, playing a prominent role, and are dressed in equally formal, but generally more subdued styles of clothing than the bridal party. Other accessories have become standard, some of which are mandated by religion or culture, and others of which are remnants of folk practice. The former may include specific types of headgear, for both bride and groom, and possibly all attendees. These range from yarmulkes at Jewish weddings, to crowns held over the heads of the bridal couple in Orthodox Christian ceremonies. Anglophone folkloric touches suggest the inclusion of “something old, something new, something borrowed, and something blue,” as well as a single garter, a remnant of the days when the public removal of one’s garters was a significant symbolic gesture. The throwing of the garter to the male attendants serves more or less the same function as the tossing of the bridal bouquet to the females: that of determining the next to wed, although the previous stipulation that all attendants be unmarried having disappeared, this old “good luck” charm is vitiated.

In contemporary non-western industrial societies, the situation is complex. There are generally local or national traditions, based on religious and/or societal norms that have developed over time to provide identifiable wedding apparel. This can range from Japanese kimonos to long body- and face-concealing robes in Islamic cultures, to elaborate saris in India, to hand-embroidered and metal-encrusted Hmong dress. However, the primacy of the “western wedding style”—that of a bride dressed in a white gown and a groom in typical western formal attire, has supplanted many local traditions, at least for the middle and upper classes. Even in countries with strong local traditions, if there are no specific religious strictures that would prohibit them and the economic resources are available, couples may opt to hold two ceremonies, one in the tradition of their own country and one of the western variety. This has been particularly popular in Japan and Korea, where the couple dresses according to the religion and architecture of the wedding chapel, or holds two separate ceremonies, and might change ensembles five to seven times during the course of the celebrations. Even in Islamic societies such as Saudi Arabia, this doubling up of wedding attire has proven popular among the upper classes.

History

It is not possible to determine from archaeological evidence whether or not prehistoric societies celebrated marital unions in a specific manner or marked those celebrations through the use of special garb. Information is nearly as scarce for the first great urban societies, where nothing is known of the wedding dress or practices of the bulk of the population and only dynastic marriages survive in the written record. However, it appears that even at the dynastic level, dress for weddings was

less occasion-specific than a matter of showing off one's best garments and accessories.

The first clear references to specific wedding apparel, in the form of bridal crowns and veils, come from the Hellenistic period of Greece. These too, while specified for use in weddings, and ranging from simple flowers to elaborate metal tiaras, were accessories. It is not until many centuries later that most cultures adopted recognizable ensembles to mark the occasion. This stems, in part, from simple economics. In pre-industrial times, the idea of ceremony-specific clothing, particularly for a one-time event, was beyond the means of the vast majority of the population. Even at the court level, wardrobe inventories discuss the fact that royalty and courtiers alike tended to wear their most fashionable garments, with no real consideration of one-time use or symbolism of color or style. Again, it is the use of accessories that gives the garments their meaning.

It was during the long rule of Queen Victoria (1837–1901) that the Western notion of what the bride and her party should look like solidified, first in Britain, and subsequently the rest of the industrialized world. However, certain aspects, such as identically dressed attendants, appeared in many other cultures for more symbolic reasons than simply to honor, support, and, perhaps impress. The generation previous to Queen Victoria's introduced the white wedding gown, when Victoria's cousin, Crown Princess Charlotte, was married in 1816. According to reports, and a controversial garment in the collection of the Museum of London, her bridal gown consisted of a silver tissue and lace overgown worn over a white underdress. That this probably had more to do with the Regency fashion of white dresses than any symbolic intent did not stop it from exerting the same fashion influence of twentieth-century "royalty" such as Princess Grace of Monaco; Diana, Princess of Wales; or Carolyn Bessette Kennedy. The ideal of a white wedding dress was codified in 1840, when Queen Victoria wore a creamy white Spitalfields silk satin and lace gown. It was endlessly reproduced in fashion journals, setting a fashion standard for some appreciable time.

With the advent of industrialization in the West, the combination of readily available and comparatively cheap fabric meshed with the aspirations and needs of a no-longer self-sustaining population to acquire more garments, particularly those for festive occasions. Improved communication, in the form of newspapers, magazines, and their delivery methods of roads, railroads, and improved shipping speeds, as well as the establishment of dependable rural postal delivery at the turn of the twentieth century, allowed even isolated or working-class women to aspire to new fashion trends. However, economics and practicality continued to play a significant role, particularly among these populations. Societal norms decreed that appropriately formal dress be worn for significant occasions, from confirmation, to weddings, to church attendance, to funerals. Frequently, such a dress

was presented to a young woman at her coming of age; if funding permitted, another was obtained for her wedding. However, this dress would be expected to serve, not only for the festive occasion for which it was purchased, but also for all others in the foreseeable future, including funerals. It tended toward a conservative cut for this reason, and often had large seam allowances that could accommodate pregnancy and possible weight gain. With the long-standing tradition of black for funerals and mourning, most of these "good" dresses were black, and often worn for the first time at the woman's wedding. This tendency continued into the late nineteenth and even early twentieth century among rural women. Women of the higher classes wore colors; frequently, but not invariably, white. After a death in the family, when the period of strict mourning was over, marriage could take place, but the bride would wear either gray or lavender. Among the working classes, as soon as it was economically feasible, colors were adopted, although the white, one-time only dress was still a rarity. Even the more affluent often assumed their gowns would see use more than once, and colored wedding dresses were still common into the first decade of the twentieth century, after which the ideal of a white, often anachronistic gown, meant to be worn only once, was only supplanted by extraordinary conditions, such as war.

With nods to changes in silhouette and length, the now-immutable tradition of the bride in white, surrounded by equally formally dressed family and attendants, became the norm, not only in Western culture, but wherever Western fashion was emulated, and frequently in the face of centuries-old local tradition. Occasional vagaries of lifestyle, including nude hippie weddings and thematic concoctions ranging from period or folk evocations to camouflage in honor of a deploying soldier, did not dislodge the basic formal make-up of the wedding party, or its concentration on white or off-white and a fairly conservative cut. However, in the 1980s, this began to change, first among the attendants and guests, who began to wear colors such as black, previously considered taboo for twentieth-century weddings. New materials began to appear, including leather, sequins, and even tattoos, as part of the wedding ensemble which itself frequently displayed significantly more flesh than had previously been considered appropriate. Now even brides were sporting colors such as red and black, and indeed, even getting tattoos for the occasion.

The symbolism of both color and cut for the wedding party, solidified over the nineteenth century and even earlier in the case of many of the accessories, is accepted in the early 2000s with no understanding of origin or is ignored by many modern brides. The idea of wearing a one-time only dress is more prevalent, as most medium-priced gowns have their beaded or pearl decoration glued on rather than sewn. Alternatively the bride simply rents her gown, a tendency common in Japan, but that is making inroads in Europe and the United States.

Accessories and Their Symbolism

It is often the accessories that historically have provided clothing with bridal significance. Some can be traced to specific time periods while others appear to predate written records. One example of this is the headpiece. Depending on the culture, both men and women may have a specific type of head covering, but it is most unusual for the bride to be bareheaded. The earliest were undoubtedly simple wreaths of plant material: flowers, grain, or leaves, most of which appear to have had fertility symbolism, and possibly served to identify the wedding party. Later, head ornaments of cloth, metal, gems, and even wood began to be used. These were often accompanied by an additional piece of cloth, which might simply cover the hair or be draped over the entire head of the bride, obscuring her features. Certain religions dictate this kind of modesty, historically as well as in the early twenty-first century. However, in European culture, the veil also served as a disguise, a pre-Christian remnant of hiding the bride lest she be attacked by the forces of evil. Identically dressed attendants served not only to assist her, but to also confuse demonic presence.

Bouquets or other objects, such as fans or books, are also important accessories and are symbolic on several different levels. The carrying of flowers or other plants, such as wheat, is not only decorative, but refers to the fertility of the union. Flowers have been accorded symbolism in nearly every culture, but they also express wealth and taste in their choice and cost. In the early 2000s it is most common for Western brides to carry expensive flowers, with only very religious or economically prudent women opting for a prayer book. However, in earlier times, the owning and display of such a luxury item as a book would have lent the bride additional status, and frequently formed one of her betrothal gifts. The wedding ring, a token of affection, an exchange of property in the form of precious metal, and a none-too-subtle warning of future unavailability, is not a universal accessory. This is even more true of the engagement ring, a staple in North America, but not as common in other cultures, even in the West. Additionally, the finger or hand on which the rings are worn vary from culture to culture, as well as historically. Sixteenth-century examples of wedding portraits show the bride wearing a ring on her thumb.

Color symbolism did not play a role in weddings until relatively recently in the West, although now it signifies virginity, and, as mentioned above, the primacy of the white wedding dress flies directly in the face of many other cultures' norms. White is the color of mourning in most Asian cultures. Red, the one color still forbidden to most mainstream Western brides, due to its connotations of immorality ("scarlet woman," "red-light district"), is completely appropriate in other cultural settings. In India, it is the color of purity, and is often worn by brides. In much of East Asia, it is the color of celebration and luck, and therefore appropriate for bridal attire. How-

ever, the tendency toward adopting the Western white wedding, established only in the mid-nineteenth century, seems to be continuing throughout the world, sometimes alone, and sometimes in conjunction with local traditions. At the same time, the white wedding in the West is proving to be far less static than previously thought, evolving as fashions and societal norms do.

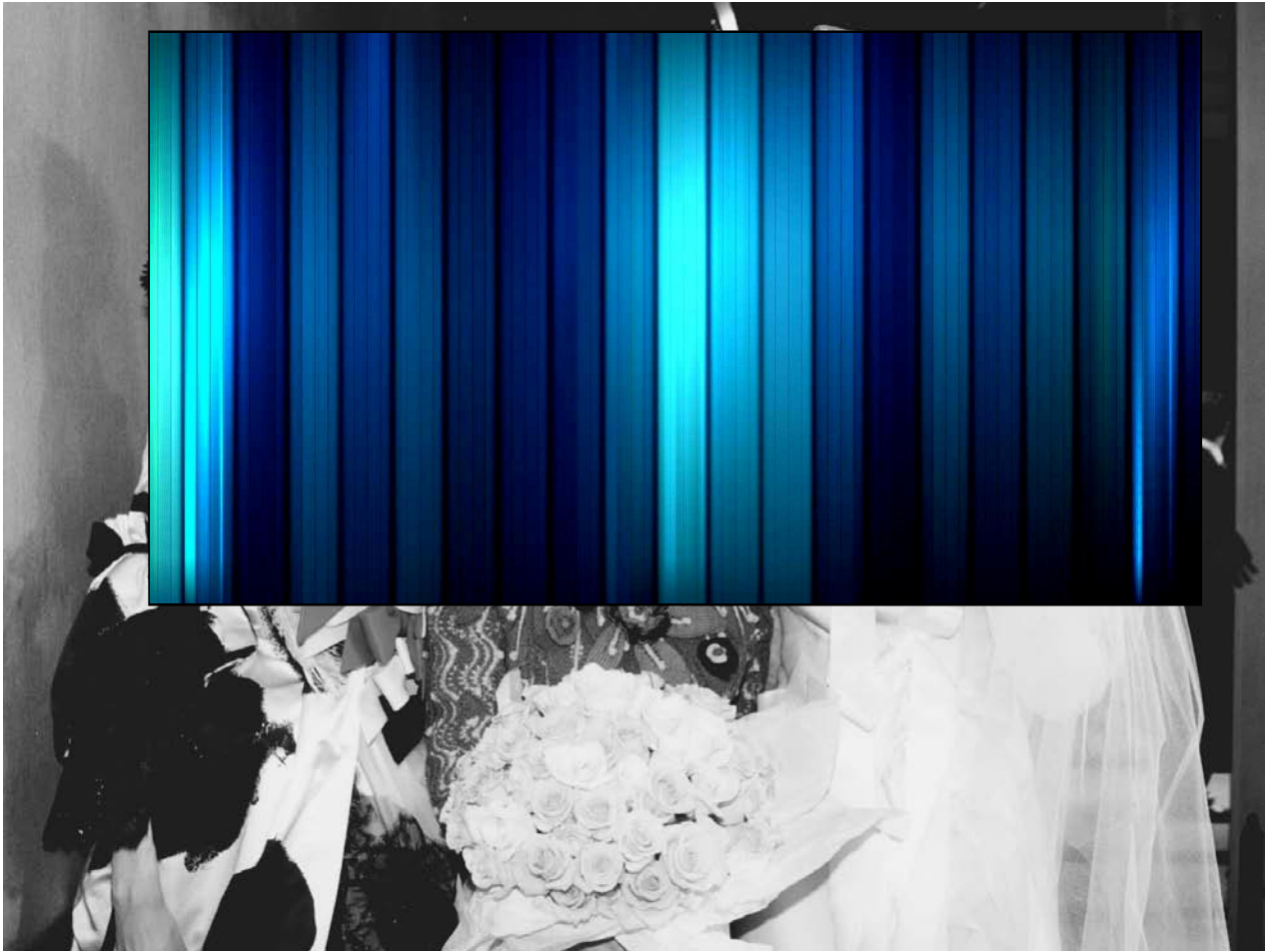
See also Ceremonial and Festival Costumes; Religion and Dress.

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Michelle Nordtorp-Madson

WESTWOOD, VIVIENNE Born Vivienne Swire in Glossop in Derbyshire in 1941, Vivienne Westwood originally set out to become a teacher. She married Derek Westwood in 1962; her first child was born a year later and she seemed destined to lead a quiet, suburban life. However, in 1965 she met Malcolm McLaren, a publicist and impresario, whose subversive ideas and alternative



Vivienne Westwood. Two models flank designer Vivienne Westwood, displaying her designs for the 1996 spring-summer pret-a-porter collection. Westwood's unconventional fashions often reference historical and traditional dress. © B.D.V./CORBIS. REPRODUCED BY PERMISSION.

lifestyle gave Westwood the opportunity and momentum to break free from her former life and embark on a highly successful career of fashion.

Vivienne Westwood's designs are a reaction against traditional British standards of morality—against petty bourgeois notions of etiquette and propriety. Since her early street style-based collaborations with McLaren, Westwood has defied the ideal of polite, anonymous clothes that express the wearer's ascribed social status. She seeks to transcend definitions of class, gender, ethnicity, and sexual orientation and create outfits that are dramatic—that encourage wearers to carry themselves confidently as they masquerade in theatrical assimilations of eighteenth-century aristocratic dress or traditionally tailored suits adorned with fetish bondage buckles. Westwood is a utopian. Through her work and the ideas she expresses in interviews, she strives to construct new personae for future cultures that draw upon idealized visions of the past inspired by portraiture and film.

During the early to mid-1970s, she and McLaren merged tough biker leather jackets with pornographic imagery and traditional tartans to produce the DIY (do-it-yourself) aesthetic that expressed the antiestablishment spirit of punk. Based in London's King's Road, they changed the name of their shop from time to time to enhance the current collection's ideals, from *Let It Rock* (1971) to *Too Fast to Live, Too Young to Die* (1973) to *Sex* (1974) and finally to *Seditionaries* (1976)—a name and anarchic style that coincided with the increased notoriety of the Sex Pistols, a punk rock band that McLaren managed. Punk enabled Westwood to break free from the suburbs she had felt trapped in and experiment with fashion's power to shock and challenge. Her sex shop-style plastic miniskirts worn with ripped fishnet stockings, buckles, and chains, fractured traditional notions of femininity and beauty. Along with her straggly-knit sweaters, Karl Marx portrait print shirts, and bondage trousers, they became emblems of pop cultural revolt.

Westwood's subsequent work with McLaren was just as closely linked to youth culture, music, and clubs. As her King's Road shop settled into its final incarnation as World's End in 1980, she embarked on a series of collections that explored historical construction techniques. One example was *Pirates*, presented at her first catwalk show in 1981. She continued to play with the relationship between body and fabric in the multilayered bulk of the Buffalo collection of 1982–1983 and the *Witches* collection of 1983–1984, which used sweatshirt fabric cut to pull away from the figure. These collections have inspired other designers; for example, punk was revisited in the early 1990s by Jean-Paul Gaultier and Karl Lagerfeld. Westwood's asymmetrical sportswear-based designs, highlighted with the neon colors that she used in her last collections with McLaren between 1983 and 1984, were seen on catwalks and in such High Street stores as Topshop and H & M in 2002–2003.

Westwood's split from McLaren prompted her shift away from pop culture and street style toward a more thorough exploration of history and tradition. She no longer wanted to be seen as a creator of subcultural dress, but rather as a designer of high fashion posing serious questions about culture, art, and identity. While her standing as one of the most significant British designers of the period was already established in mainland Europe, America, and Japan, she remained an outsider in Britain itself. It was not until the late 1980s that such high fashion magazines as *Vogue* began to feature her work on a regular basis. Before that time, her clothes were seen mainly in style magazines like *The Face* and *i-D*.

Westwood's first post-McLaren collection, *Mini Crini* (1986), indicated the direction she was to take, with its juxtaposition of eighteenth-century corsets, the "crini" (abbreviated 1860s-style crinolines), and huge curved wooden platform shoes that laced up the leg and rocked forward as the wearer walked in them. This collection was fashion created to make an impact; Westwood wanted to distinguish her wearers through references to grandeur, royalty, and the Establishment. In 1987 this dramatic aura was tempered by Westwood's ironic wit and her expertise with rich traditional fabrics: Harris tweed, John Smedley fine knits, and wool baratheia were enlivened with such flourishes as a tweed crown worn with a tiny cape and crini. "You have a much better life if you wear impressive clothes," she remarked at the time (Jones, p. 57).

Westwood's philosophy, a mixture of contempt for late twentieth-century casual dress and reverence for the eighteenth-century Enlightenment's use of classical references, was encapsulated in her collections from 1988 through 1991 under the broad title *Britain Must Go Pagan*. These collections, like the punk fashions before them, sought to challenge existing ideas of status, gender, and display. In this case, however, Westwood strove for refinement and education rather than youthful rebel-

lion. She used togas to add grandeur to traditional suiting, and contrasted light, floating chiffons that evoked both ancient Greece and prerevolutionary France with thick Scottish tweeds and corsets photoprinted with Boucher paintings of rural idylls. The clothing that resulted from these combinations relied heavily upon an idealized vision of the past and required its wearers to take on new personae that suggested their awareness of the fine arts.

Westwood appropriated emblems of aristocratic status and elitism for their power and theatricality. She encouraged people to dress up in princess-style coats like those the Queen wore as a child, or in delicate silk coats with rose-strewn edges like an eighteenth-century gentleman's garment. She has continued to draw on these themes of heritage and culture in her subsequent work. While Westwood is always considered inherently British, and has undoubtedly drawn upon her own country's past, she has been equally transfixed by French art and style. This attraction was summarized in her autumn–winter 1993–1994 collection, *Anglomania*, which harked back to Parisians' fascination with Englishness in the 1780s.

Westwood has consolidated her label since the late 1990s. In 1993 she diversified her collections to appeal to different audiences: the Red Label for ready-to-wear styles, the Gold Label for made-to-measure garments, and in 1998, and the diffusion line *Anglomania* (a less expensive collection aimed at a younger market), which reinterprets such staples as the pirate shirts from her earlier collections. Along with her perfumes, *Boudoir*, launched in 1998, and *Libertine*, launched in 2000, this diversification has enabled her to widen her market and build upon her previous successes.

See also **Extreme Fashions; Gaultier, Jean-Paul; Lagerfeld, Karl; London Fashion; Perfume; Punk; Vogue.**

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Rebecca Arnold

WIGS Wigs are artificial heads of hair, either cunningly concealing baldness or glaringly obvious fashion items in their own right. The Jewish *sheitel*, for instance, is worn for religious reasons where a woman's natural hair is shielded from the gaze of all men who are not her husband. The Talmud teaches that the sight of a woman's

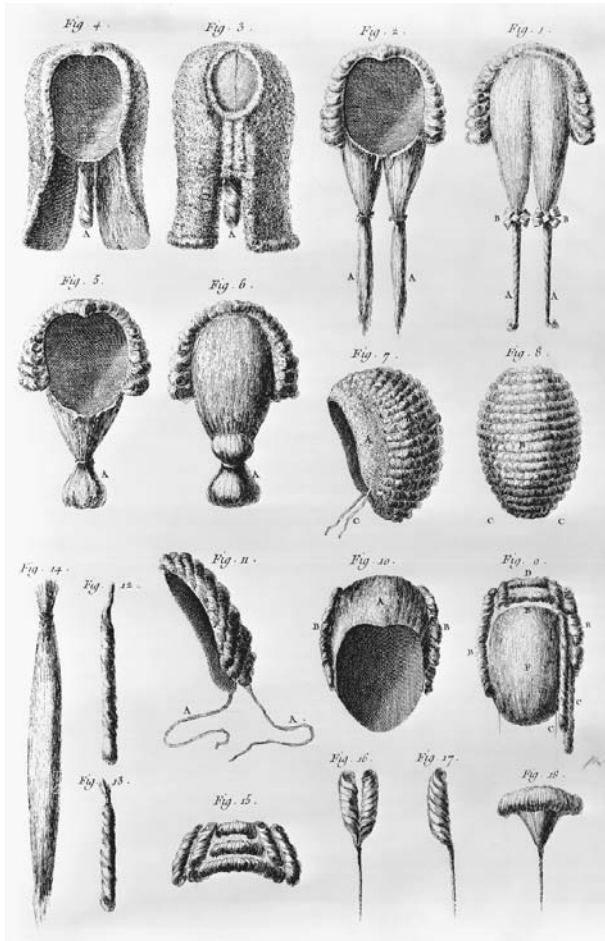


Illustration of eighteenth-century wigs. An engraving from the book *The Wigmaker III* shows the different styles of wigs popular during the eighteenth century. White wigs were most popular and were maintained with plaster of paris and starch.
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hair constitutes an arousal or sexual lure; thus a woman hiding her hair helps protect the fabric of Jewish society. The entertainer Elton John's obvious ginger weave is, of course, completely different, worn to retain an air of youth and as a disguise for baldness.

Early Wigs

The earliest Egyptian wigs (c. 2700 B.C.E.) were constructed of human hair, but cheaper substitutes such as palm leaf fibers and wool were more widely used. They denoted rank, social status, and religious piety and were used as protection against the sun while keeping the head free from vermin. Up until the 1500s, hair tended to be dressed as a foundation for headdresses, but by the end of the century hairstyles became higher and more elaborate constructions in which quantities of false hair were used to supplement the wearer's own. Hair was gummed and powdered, false curls and ringlets were in fashion,

and, in some cases, a complete head of false hair called a *perruque*, was worn. The French *perruque* was colloquially known as a peruke, periwyk, periwig, and eventually the diminutive *wig* by 1675.

Seventeenth and Eighteenth Centuries

The seventeenth century saw the complete resurgence of the wig and it became the height of fashion for both men and women, with many shaving their heads beneath for both comfort and fit. Hair historian Richard Corson sees the ascendance of Louis XIV to the French throne as pivotal. The king supplemented his thinning hair with false pieces until "eventually he agreed to have his head shaved, which was done daily thereafter, and to wear a wig." (Corson, p. 215) By the eighteenth century, those who had the finances had a large wig for formal occasions and a smaller one for use in the home. The larger or more "full bottomed" the wig, the more expensive, thus they were also a mark of class and income and the target of wig snatchers. If one was unable to afford a wig, one made one's natural hair look as wiglike as possible. By the mid-eighteenth century, white was the favored color for wigs, and they were first greased then powdered with flour or a mixture of starch and plaster of paris in the house's wig closet using special bellows. Lucrative trades were constructed around their care and maintenance, such as hairdressing, so-called because hair was dressed rather than cut. Women's wigs were particularly high, powdered, and bejeweled, and the subject of much caricature. To achieve the look, hair was harvested from the heads of the rural working classes. Richard Corson noted that the full wig was disappearing by about 1790, however, "when there was a good deal of natural hair in evidence" (Corson, p. 298).

Nineteenth and Early Twentieth Centuries

After this brief period of respite during the French Revolution, when a natural look and thus natural hair was fashionable, the elaborately dressed hairstyles of the Victorian and Edwardian era demanded a myriad of false pieces or fronts and transformations. As the feminine ideal in the Edwardian era required enormous hairstyles, the natural bulk of the hair was padded out. Lady Violet Harvey recalled,

Enormous hats often poised on a pyramid of hair, which if not possessed, was supplied, pads under the hair to puff it out were universal and made heads unnaturally big. This entailed innumerable hairpins. My sister and I were amazed to see how much false hair and pads were shed at 'brushing time.' (Hardy, p. 79)

The building of massive hairstyles was dependent on the use of *postiche*, the French word for "added hair" and styles included fringes, fronts, switches, pompadour rolls, and frizettes. All hairdressers had a workroom in which postiches were made for sale wherein the posticheur prepared hair. Hair combings were saved and then drawn through a hackle (a flat board with metal teeth sticking

upward) to straighten them. Hair was sorted into bundles ready to be curled into false pieces or curled by a device called a *bigoudis* made of wood or hardened clay. Sections of hair were rolled up on the *bigoudis* and then dropped into water mixed with soda. After being boiled for several hours the dry hair was then unwound and stored—a method that dates back to the Egyptians. If too little hair was obtained from combings it came from other women. It was a commodity to be exploited and one famous source was the Hair Market at Morlans in the Pyrenees, one of a number of hiring fairs where dealers literally bought the hair from women's heads. Much hair was also imported from Asia Minor, India, China, and Japan and boiled in nitric acid to remove the color and vermin. Men wore wigs, too, but this was to hide baldness.

1920s to Present

With the introduction of the new bobbed hairstyle in the 1920s, wigs fell out of favor and were worn by older women who were not interested in the newly shorn look. Their use returned in the 1950s, but only as a way of having temporary fantasy hairstyles. The most renowned wigmakers and hairdressers in Europe were Maria and Rosy Carita. In black hairdressing, though, the wig was of supreme importance allowing for fashionable styles without undergoing the time-consuming, and in some instances painful, process of straightening. Black stars such as Diana Ross were known for their stylish wig collections in the mid-1960s. It was not really until the late 1960s that wigs underwent a massive renaissance in white hairdressing practices. Rapidly changing fashion, a space-age chic and the vogue for drip-dry clothes in new man-made fabrics led to a vogue for the artificial over the natural. By 1968 there was a wig boom and it is estimated that one-third of all European women wore what hairdressers called a “wig of convenience.” Men still tended to wear wigs differently moving further toward the naturalism that many women were rejecting. Until the early 1950s, all wigs were made by hand. However, the invention of the machine-made, washable, nylon and acrylic wig in Hong Kong led to cheap, mass-produced wigs flooding the market. The novelty fashion wig or hairpiece became one of Hong Kong's fastest growing exports and by 1970 the industry employed 24,000 workers. In 1963 British imports of wigs and hairpieces from Hong Kong was worth £200,000 (\$350,000); by 1968 it was almost £5 million (\$8.78 million). By 1969 around forty percent of wigs were synthetic and the leading companies in wig development were the American firm Dynel and the Japanese Kanekalon, who both used modacrylics to create wigs that were easy to care for and held curl well. In the late twentieth century, many false forms of hair are used and the change from a long to a short hairstyle can be completed at a whim with extensions that have moved from black hairdressing to white hairdressing. Singers such as Beyoncé and Britney Spears use weaves of all styles and colors openly.

See also **Acrylic and Modacrylic Fibers; Caricature and Fashion; Hair Accessories; Hairdressers; Hairstyles; Head-dress.**

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Caroline Cox

WILDE, OSCAR Oscar Wilde (1854–1900) was one of the most prominent and influential figures of the fin de siècle. Playwright, author, journalist, dandy-aesthete, wit, and homosexual social critic, his life and work foreshadowed many of the features of twentieth-century popular and creative subcultures, not least their obsession with the cult of celebrity and the act of self-fashioning. Wilde's constant concern with surface appearance and its power also ensured that his distinctive and constantly changing personal image became a style-template for those who wish to dress in extravagant and innovative ways, from actors and artists to pop stars and clubbers.

Born in Dublin in 1854, Wilde was the second son of a leading surgeon, Dr. William Wilde, and Jane Francesca Speranza Elgee, an Irish nationalist poet and translator. Following the traditional route for a boy of his social background and aptitude, Wilde studied classics at Trinity College, Dublin before winning a scholarship to Magdalen College, Oxford in 1874. In photographs of this period Wilde appeared quite the student “masher” in loudly checked suits and bowler hats. There was little to indicate his later espousal of artistic fashions, though his hair was a little longer than the norm for the 1870s. During his time at Oxford Wilde immersed himself in the ideas of Walter Pater and John Ruskin, honing an acute appreciation of ancient and renaissance art on study visits to Greece and Italy. He graduated with a first class degree in 1878. Having established a reputation as a promising poet with the award of the Newdigate Prize for his poem “Ravenna” in the same year, Wilde launched himself on the London social and literary circuit, where he skillfully adapted the learned theories of Ruskin and Pater for a less erudite audience. His talent for self-publicizing soon earned him notoriety as the “Professor of Aesthetics” in such satirical publications as *Punch*, where his flowing hair, loosely tied collars, floral accessories, and velvet suits formed an obvious target for the caricaturists.

By 1881, Wilde's reputation was such that he found his opinions and appearance lampooned in the Gilbert and Sullivan operetta *Patience*, whose libretto ridiculed the current metropolitan taste for “aesthetic” clothing, interior design, and amateur philosophizing. Wilde turned this critique to his advantage by spearheading a promotional



Oscar Wilde. Wilde was recognized during his time for his literary works as well as for his outrageous fashion sense. PUBLIC DOMAIN.

lecture tour for the operetta in the United States and Canada during the following year. Dressed in extreme aesthetic garb—which now included breeches, stockings and pumps, fur-trimmed overcoats, cloaks, and wide-brimmed hats—he delivered talks to American audiences on such subjects as “The House Beautiful.” Wilde had his image from this period immortalized in a series of striking portraits by the society photographer Napoleon Sarony that idealized him as a romantic bohemian.

Back in London, Wilde married Constance Lloyd in 1884, setting up an elegant home with her in Chelsea where they raised two sons, Cyril (born 1885) and Vyvyan (born 1886). For the remainder of the 1880s, Wilde had a successful career as a reviewer and editor of the progressive magazine *Woman’s World*, while honing his talents as an essayist and writer of exquisite short stories. During this time, he exchanged the long locks and soft velvets of the *Patience* era for dramatic “Neronian” curls—a subversive reference to the pagan moral code of imperial Rome—and urbane Savile Row tailoring, the better to represent himself as the epitome of cosmopolitan stylishness.

By the late 1880s Wilde was beginning to explore the then dangerous territory of male to male desire, both

in his personal life and as a subject for artistic expression. He experienced his first homosexual relationship with a Cambridge undergraduate named Robert Ross in 1886, which partly inspired him to write an essay on Shakespeare’s sonnets, “The Portrait of Mr. W. H.,” exploring the thesis that Shakespeare’s creativity was derived from his love for a boy actor. Wilde published the first version of his most explicit investigation of the demi-monde in which he was now operating in 1890. *The Picture of Dorian Gray* was not only heavily informed by French decadent literature in terms of style and subject matter, but also contained expressions of the amoral outlook that would bring Wilde into contact in 1891 with his most infamous lover, Lord Alfred Douglas. In tandem with this search for hedonistic sensation, which was the ultimate outcome of the “art for art’s sake” philosophy of aestheticism, Wilde was also a supporter of the socialism espoused by William Morris. He wrote his influential essay “The Soul of Man under Socialism” during the same period. In fashion terms, the ideals of socialism found a corollary in the rational Liberty style of “anti-fashion” dressing adopted by Constance Wilde and promoted by Oscar in his journalistic output.

Wilde’s popularity as an author of astringent drawing-room comedies for the London stage peaked during the first half of the 1890s. Following the success of *Lady Windermere’s Fan* in 1892, he went on to produce *A Woman of No Importance*, *An Ideal Husband*, and *The Importance of Being Earnest*. Besides opening the mores and hypocrisies of contemporary fashionable life to devastating scrutiny, these plays also afforded an opportunity for sophisticated costume designs that influenced the modes of the day. While the drawing-room plays enjoyed the critical acclaim of polite society, Wilde was also developing further his interest in decadent and erotic themes. These were represented most forcefully in Wilde’s association with the avant-garde journal *The Yellow Book* and in his play *Salome*, which was refused a license for production in London on the grounds of obscenity.

The tension between Wilde’s public and private interests snapped in 1895, when he rashly brought charges of criminal libel against the Marquess of Queensbury, who was enraged by Wilde’s liaison with his son, Lord Alfred Douglas. The marquess had been accusing Wilde of “unnatural acts” to all who would listen. On the collapse of the libel trial Wilde was himself arrested for “acts of gross indecency with other male persons,” for which he was eventually found guilty and sentenced to two years’ imprisonment with hard labor. In 1897, during his incarceration, Wilde authored *De Profundis*, a confessional account of his fall. He published “The Ballad of Reading Gaol,” a poem that captured the suffering of prison life, after his release and exile to Paris in 1898. Though the image of Wilde in convict’s clothing provided a fitting costume for the final act of a drama that he himself might have written, he never fully recovered from the shame and physical discomfort caused by his

punishment, and died a broken man in Paris in 1900. His remains were transferred to the Cimetière du Père-Lachaise in 1909, where they were marked by Jacob Epstein's powerful sculptured angel.

Following decades when his name, works and image were associated in the puritanical Anglo-Saxon world with "unmentionable vices," Wilde's reputation as a gifted writer was gradually restored from the 1950s onwards. Sympathetic film treatments of his life and plays helped bring his sparkling legacy to a new generation, and the counterculture of the 1960s interpreted Wilde as a sexual and aesthetic revolutionary. By the 1980s and 1990s Wilde's complex personality and self-contradictory proclamations made him once again the focus of intense study and speculation. For the fashion theorist and historian, Wilde's life and work undoubtedly offer a rich seam of material for further research.

See also **Aesthetic Dress; Dandyism; Fashion and Homosexuality; Fashion and Identity; Gender, Dress, and Fashion; Savile Row; Theatrical Costume.**

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Christopher Breward

WINDBREAKER The windbreaker, or anorak, otherwise known as a windcheater in Great Britain, is a short, close-fitting garment with a hood, designed for the upper part of the body to give protection from the wind. The windbreaker, worn by men and women alike, is to casual dressing what the overcoat is to formal dress.

History

The windbreaker first became popular as an item of informal outerwear in the 1970s, but its history can be traced back almost 500 years. It is similar to, and de-

scended from, the parkas worn by Inuits in arctic conditions. In fact, the word "anorak" is derived from the Danish interpretation of the Inuit word *annoraaq*.

In one version, the Inuit parka was made of two animal skins (either seal or caribou) sandwiched together, with the skin side of each facing outward and the hair side facing inward to trap warm air and retain it for insulation purposes. Although it was not a rain garment as such, it was generally waterproofed, using seal gut until other methods were introduced during the nineteenth century. These parkas were adapted by Western polar explorers in the late nineteenth and early twentieth centuries, and modified versions entered the twentieth-century sports wardrobe. Parkas became standard wear for skiing and other winter sports, and gradually were adopted for ordinary outdoor use in the winter. After World War II, nylon and other artificial-fiber textiles replaced animal skins in the production of parkas, and advances in the development of waterproof fabrics and efficient insulating materials led to the production of parkas that were thinner and less bulky than older versions. During the 1970s, anoraks and other forms of casual jackets grew in popularity among younger men searching for outerwear that was both functional and fashionable.

Modern windbreakers are usually made from nylon, poly-cotton, or nylon/cotton mixes. These fabrics may be rubberized, oiled, or treated with other waterproofing finishes; at the more expensive end of the market, the garments are designed with stormproof taping on all seams to make them impenetrable to the rain. The modern version is also cut slightly longer to cover the buttocks; cuffs are elasticized and pockets are often slanted for ease of entry, and are at hip level. The hood should fold down, close with a drawstring, and either fit into the collar or be detachable.

The windbreaker has had a significant impact on men's fashions. The rise of sportswear during the 1970s coincided with a boom in spectator sports, such as both soccer (known as football in Europe) and American football. Fans who filled stadiums in cold weather wanted good-looking protection from the elements, and numerous designers offered versions of the windbreaker to fill that demand. In the early twenty-first century, nearly every sportswear and casual-wear company has a version of a windbreaker in its collection. Most are produced to keep the wearer warm during sporting activities such as golf, boating, football, or tennis. More significantly, the windbreaker has taken the place of raincoats and overcoats in most younger men's wardrobes.

See also **Outerwear; Parka.**

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Tom Greatrex

WINDOW DISPLAYS The eighteenth and early nineteenth centuries saw an evolution in shopping spurred by a faster turnover of manufactured “fashionable” goods and an increase in department stores selling them. These shops pioneered new techniques of window display. Rather than piling their stock up—as had been common in markets and bazaars—they sold goods in mannered and self-conscious window displays, intended to sell nonessential goods.

In cities, where competition was strongest, stores had larger windows and more frequently changing displays. A visitor to London in 1786 wrote of “A cunning device for showing women’s materials whether they are silks, chintzes, or muslins, they hang down in folds behind the fine high windows so that the effect of this and that material, as it would be in the ordinary folds of a woman’s dress, can be studied” (Adburgham, p. 6). This comment suggests that there was an awareness of sophisticated marketing techniques and a developing vocabulary for display in the late eighteenth century, which would be developed but not improved upon by later generations.

By the nineteenth century the small store with glass windows and some form of gas lighting dominated the main street. The arrival of department stores in the 1850s—multistoried buildings that utilized plate glass in long, uninterrupted window displays—would herald a new display aesthetic. Fashion goods began to be displayed in lifelike room settings, with mannequins. Known as “open displays,” these windows relied on themes and narratives, rather than sheer quantity of goods, for visual impact. The window display was now contextualizing goods, giving them precise domestic or cultural settings and imparting qualities other than practicality and price. In these displays the fixtures, stands, and mannequins, came into their own. Unfashionable stock goods continued to be displayed as though they were on a market stall—piled high or stacked in rows in the windows in “massed displays.”

Professionalization of Display Trade

These open displays were developed first in America, where the professionalization of the display trade had begun in the late nineteenth century. The display technocrat L. Frank Baum (who would later write *The Wizard of Oz*) began the first journal aimed at the display trade—*The Show Window* in 1897—and founded the National Association of Window Trimmers in 1898, which did much to raise the status of window trimmer to that of display manager. America had a large number of colleges teaching commercial design based upon the work of pioneering consumer psychologist Walter Dill-Scott, author of *Psychology of Advertising* in 1908. His theories for appealing to hidden desires of customers using particular colors, images, and formations in advertising layouts were applied to window display through numerous handbooks and journals detailing the creation of the “selling shop window.”

This approach was brought over to England by Gordon Selfridge (a friend of L. Frank Baum) and his display manager, Ernst Goldsman. Both men had worked at Marshall Fields department store in Chicago in the 1890s, where Selfridge had introduced radical and innovative methods of display and marketing, starting the first window displays and display department. Selfridge’s department store in London opened in 1909 with the longest window facade ever seen in Britain. The store achieved instant fame for its window displays: “They gaped in amazement at the American-style window-dressing with its life-like scenes and with wax models arranged in realistic poses” (Honeycombe p. 205). Goldsman was integral to the professionalization of the British display trade, founding the National Association of British Display Men in 1919. Such display organizations disseminated new ideas via lectures, display fairs, and their journals.

Art and Display

In Germany the design reform theories taught at the Deutsche Werkbund and later the Reimann School, in the first decades of the twentieth century, led to a new style of Modernist window display. The objects and fixtures were reduced to a bare minimum and arranged on strong geometric lines. These Modernist display ideals were disseminated when many window display managers left Germany for political reasons in the first decades of the twentieth century. The émigré designer Frederick Kiesler, for instance, was a Romanian architect, designer, and member of the De Stijl group who went to America in 1926. By 1928 he was working designing Modernist window displays at Saks and authoring the influential book *Contemporary Art Applied to the Store and Its Display* in 1929.

The photographer Eugène Atget had been documenting Parisian shop windows since the 1890s, and these images had been influential for succeeding generations of artists, particularly the Surrealists. Mass cultures, in-



Window shopping in Kuwait. First seen in eighteenth century Europe, window displays appeal to passersby in shopping malls worldwide. © ED KASHI/CORBIS. REPRODUCED BY PERMISSION.

cluding window display, had become subject matter for artists such as Léger, Max Ernst, and Salvador Dali. Both Kiesler and Dali used the window itself as a frame in their commercial display work and in England commercial designers like Misha Black, Edward McKnight Kauffer, and Tom Eckersley also worked in display.

Hollywood

The extreme modernist displays would, for the most part, be confined to small designer boutiques. The rest of the retail industry was looking toward America and the film industry for inspiration. There was an obvious corollary between the brightly lit shop window display and the cinema screen and the new and “showy” style of window display developed in America. In the 1930s these displays drew on contained visual references from films and advertising to create windows that looked like stills from films: brightly lit, full of oversized props, shiny fixtures, and film-star-like mannequins. Film and magazine promotional “tie-in” displays became popular. Sometimes the shops were selling fashions copied from the film, but often these displays would only loosely link the goods in the window with the film, hoping that the merchandise would sell if it were associated with the glamour of Hol-

lywood. Advertising display agencies, which (on both sides of the Atlantic) mass-produced display campaigns for branded goods, were particularly well placed to take advantage of the mass appeal of film tie-ins.

World War II halted the progress of window display in Europe. As stores reopened for business after the war their windows were old fashioned and empty of goods. American display remained strong but uninspired. It was not until the 1960s, when display again became subject matter for artists such as Claes Oldenburg, Roy Lichtenstein, and Andy Warhol—particularly the bright spaces of food supermarkets—that creativity was revived. Warhol, who had begun his career in display, would combine the two when he introduced his pop paintings into windows commissioned by Bonwit Teller. American department stores would carry the creative banner of window display through much of the late twentieth century, working with artists such as Jasper Johns and Robert Rauschenberg.

Although some large stores continue to have display departments, shop windows across the world have been given over to the homogenous visual merchandising campaigns of the big brand names, often containing only tailor’s dummies and photographic backdrops. It is the

designer boutique that is pioneering truly creative work in the beginning of the twenty-first century. Shops such as Prada and Comme des Garçons prove that the window display can still offer enough beauty, theatre, and spectacle to halt a passerby.

See also **Department Store; Mannequins; Shopping.**

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Jane Audas

WINDSOR, DUKE AND DUCHESS OF If Bettina Zilkha’s International Best Dressed List extended to couples, the Duke and Duchess of Windsor would be its king and queen. As individuals, their influence on twentieth century fashion was considerable, but combined it was unassailable. From the 1930s to the 1960s, the influence they exercised was all the more apparent for the media attention that magnified their sway on the public’s imagination.

Biography

The Duke of Windsor was born Prince Edward of York on 23 June 1894. With the death of his grandfather, King Edward VII in 1910, his father was crowned King George V. Upon his father’s accession, Prince Edward of York became Duke Edward of Cornwall, and on his sixteenth birthday, Prince Edward of Wales.

Bessie Wallis Warfield, who was to become the Duchess of Windsor, was born in Pennsylvania on 19 June 1896. Her upbringing, by her own admission, was modest and unexceptional. When she met Prince Edward of Wales for the first time around 1930, she had been married twice. Her first husband was Earl Winfield Spencer Jr., and her second was Ernest Aldrich Simpson, an American living in London.

It is generally accepted that the Prince of Wales and Mrs. Simpson began their affair in 1934. Following the

death of King George V, the prince was crowned King Edward VIII on 20 January 1936. That summer, he took Mrs. Simpson on a yachting holiday in the Eastern Mediterranean. Press coverage of the trip created a scandal, complicating the king’s decision to marry Mrs. Simpson. Parliament refused the king’s marriage request on the grounds of Mrs. Simpson’s status as a twice-divorced foreign commoner. A “Constitutional Crisis” ensued, which resulted in the king’s abdication on 11 December 1936. In his abdication speech he explained, “You must believe me when I tell you that I have found it impossible to carry out the heavy burden of responsibility and discharge my duty as King as I would wish to do, without the support of the woman I love” (Ziegler, p. 331).

Upon his abdication, he became His Royal Highness the Duke of Windsor, and with his marriage to Mrs. Simpson on 3 June 1937, she became the Duchess of Windsor. The title Her Royal Highness, however, was never conferred upon her. Apart from spending time in the Bahamas during World War II, the Duke and Duchess of Windsor remained in exile in France for the rest of their lives. The duke died on 18 May 1972, while the duchess, who was last seen in public in 1975, died on 24 April 1986.

The Duke: Trend Setter

More than any other individual, the Duke of Windsor was responsible for a transformation of men’s dress in the twentieth century. His personal preference for rejecting the received notions of Victorian and Edwardian “proprieties” not only influenced the men of his generation, but also—as Chanel is credited for having done with women—created a modern paradigm that persists to this day. What Nicholas Lawford said of him in the 1930s remained true of the Duke all his life, “In a world where men tend to look more and more alike, he seems more than ever endowed with the capacity to look like no one else” (Menkes, p. 95).

The Duke of Windsor preferred comfortable clothes that allowed freedom of movement, a style that he described as “dress soft” (The Duke of Windsor, 1960, p. 110). In the 1930s, he was one of the first men to wear unlined, unstructured jackets. From 1919–1959, these were made for him by Frederick Scholte, a Dutch-born, London-based tailor who disapproved of any form of exaggeration in the style of a jacket. As the duke commented in *A Family Album*, his treatise on style written in 1960, “Scholte had rigid standards concerning the perfect balance of proportions between shoulders and waist in the cut of a coat to clothe the masculine torso” (The Duke of Windsor, 1960, p. 99). The sleeves of the duke’s jackets were usually adorned with four buttons, and he preferred welted pockets rather than pocket flaps.

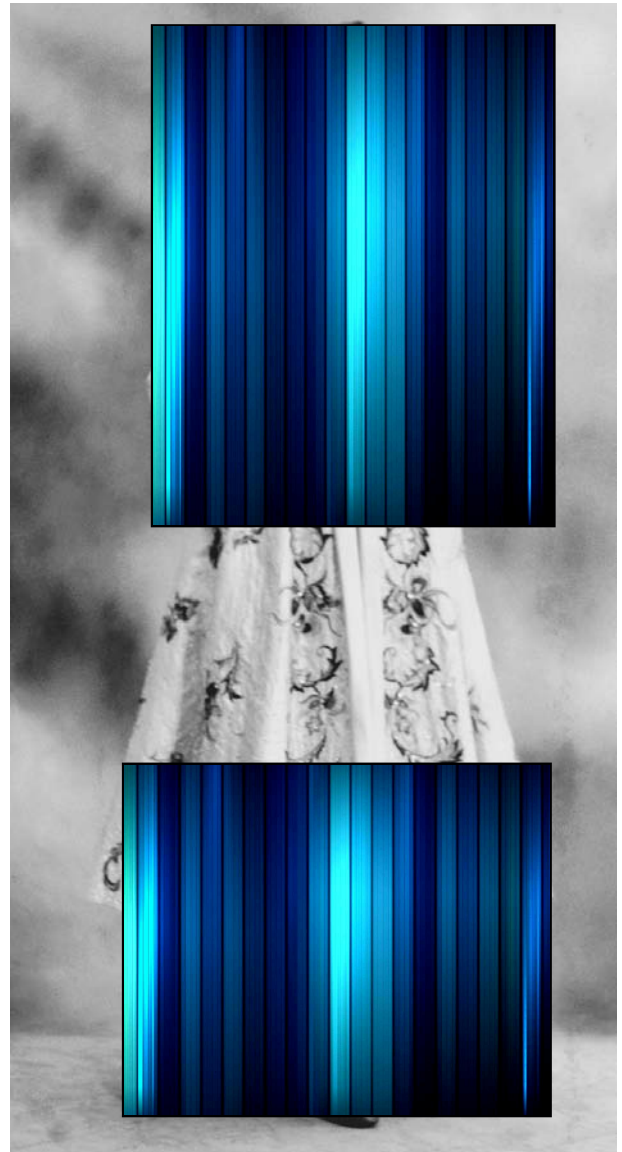
Before World War II, Forster and Son in London tailored the duke’s trousers. “I never had a pair of trousers

made by Scholte,” the duke explained. “I disliked the cut of them; they were made, as English trousers usually are, to be worn with braces high above the waist. So preferring as I did to wear a belt rather than braces with trousers, in the American style, I invariably had them made by another tailor” (*The Duke of Windsor*, 1960, p. 103). For every jacket the duke had made, two pairs of trousers were produced. These he wore in strict rotation. In 1934, along with his brother, the Duke of York, and his cousin, Lord Louis Mountbatten, he replaced the conventional button flies with zip flies. A heavy smoker all his life, the duke instructed Forster and Son to make his trousers with a slightly wider left pocket with no fastening, allowing him easy access to his cigarette case, which he always carried in his left pocket. The duke preferred trousers with cuffs or turn-ups. With the adoption of rationing restrictions in Britain during World War II, which banned turn-ups, he placed all subsequent orders with H. Harris, a tailor based in New York.

The London firm of Peal and Co. made the duke’s shoes, Lock and Co. his hats, and Hawes and Curtis his shirts and ties. He favored shirts with soft, unstarched cuffs and collars and wore his ties, which he ordered with thick inner linings, with a wide “four-in-hand” knot. Despite popular opinion, the Duke of Windsor did not, in fact, wear a style known as the “Windsor knot.” As he explains, “The so-called ‘Windsor knot,’ was I believe regulation wear for G.I.s during the war, when American college boys adopted it too. But in fact I was in no way responsible for this. The knot to which the Americans gave my name was a double knot in a narrow tie—a “Slim Jim” as it is sometimes called” (*The Duke of Windsor*, 1960, p. 116).

As a keen sportsman, the Duke of Windsor paid particular attention to his sporting attire. In the 1920s, he popularized the wearing of plus fours, which became his standard dress for hunting and sporting pursuits. Disliking the traditional style with fastenings below the knees, he developed a loose-fitting version with a soft cotton lining, which he wore slightly lower than the traditional four inches below the knee. When playing golf, he would wear them with brightly colored Argyle socks and Fair Isle sweaters. Commenting on the Prince at play, Lawford noted, “He was quite loud in the way he mixed his checks, but he represented style to his generation” (Menkes, p. 102).

Like his sportswear, the duke’s highland dress expressed his theatrical and audacious use of color, pattern and texture. He wore kilts, often made by Chalmers of Oban or William Anderson and Sons in Scotland, in casual settings, usually at “The Mill,” the Windsor’s weekend retreat just outside Paris. These he would wear with a leather sporran, in which he would store his cigarettes. The duke preferred “tartans which I have the right to wear—Royal Stuart, Hunting Stuart, Rothesay, Lord of the Isles, Balmoral” (*The Duke of Windsor*, 1960,



The Duchess of Windsor, 1951. The duchess was known to have bought entire collections from a couture designer. Pictured here, she wears a flowered and beaded strapless Dior ball gown. © CONDÉ NAST ARCHIVE/CORBIS. REPRODUCED BY PERMISSION.

p. 128). In *A Family Album*, the duke describes wearing a suit of Rothesay hunting tartan, originally belonging to his father, that triggered a vogue for tartan in the 1950s,

I happened to wear it one evening for dinner at La Croe near Antibes, where the Duchess and I lived for a while after the last war. One of our guests mentioned the fact to a friend in the men’s fashion trade, who immediately cabled the news to America. Within a few months tartan had become a popular material for every sort of masculine garment, from dinner jackets and cummerbunds to swimming-trunks and beach shorts. Later the craze even extended to luggage (*The Duke of Windsor*, p. 129).

One of the Duke of Windsor's most notable sartorial innovations was the introduction, in the 1920s, of the midnight blue evening suit, an alternative to the traditional black evening suit. Wanting to enhance his well-dressed standing in the popular press as well as soften men's formal wear, he explained,

I was in fact 'produced' as a leader of fashion, with the clothiers as my showmen and the world as my audience. The middle-man in this process was the photographer, employed not only by the Press but by the trade, whose task it was to photograph me on every possible occasion, public or private, with an especial eye for what I happened to be wearing (*The Duke of Windsor*, 1960, p. 114).

The Prince of Wales understood that in black and white photography, unlike black, midnight blue allowed the subtle details of tailoring, such as lapels, buttons, and pockets, to become more apparent.

It is through these photographs that the Duke of Windsor influenced fashionable men of his generation, and, indeed, continues to influence fashionable men today. Through their designs, Ralph Lauren, Paul Smith, Sean John Combes, and a host of other men's wear designers pay homage to the Duke of Windsor's witty and idiosyncratic approach to self-presentation. As Diana Vreeland (1906–1989), editor of *Harper's Bazaar* and *Vogue*, said of him, "Did he have style? The Duke of Windsor had style in every buckle of his kilt, every check of his country suits" (Menkes, p. 126).

The Duchess: Trend Follower

Unlike the Duke of Windsor's innate sense of style, the Duchess of Windsor's self-presentation, as Suzy Menkes, fashion editor for the *International Herald Tribune*, has observed, was "a product of rigorous effort rather than inherited or natural taste" (p. 95). She was a picture of elegance, preferring simple, tailored clothes with no superfluous details or decoration. She remained on the *International Best Dressed List* for more than forty years, and upon her death in 1986, Elle commented, "She elevated sobriety to an art form" (Menkes, p. 95).

Being immaculate was the hallmark of the Duchess of Windsor's personal style. As Cecil Beaton (1904–1980), a British portrait photographer, commented, "She reminds one of the neatest, newest luggage, and is as compact as a Vuitton travelling-case" (Beaton, p. 27). Beaton's first impression of the Duchess, formed in 1930 before she had acquired her title, was less than favorable. He recalled her as "brawny and raw-boned in her sapphire blue velvet" (Tapert and Edkins, p. 92). Four years later, however, when they met again, the Duchess had changed. Beaton commented, "I liked her immensely. I found her bright and witty, improved in looks and chic" (Tapert and Edkins, p. 92). Lady Mendl (Elsie de Wolfe), who remained the Duchess of Windsor's friend and mentor throughout her life, was largely responsible for Mrs. Simpson's transformation. It was Lady Mendl who in-

troduced her to Mainbocher, who was to dress her until he retired in 1971. As Vreeland commented, "Mainbocher was responsible for the Duchess's wonderful simplicity and dash" (Menkes, p. 98).

Mainbocher was to make the Duchess of Windsor's wedding ensemble and trousseau. The wedding ensemble included a simple, floor-length dress and matching long-sleeved jacket in "Wallis Blue" silk crepe. The color was specially developed by Mainbocher to equal that of the Duchess of Windsor's eyes. The dress complemented the duchess's style of fashion austerity, being modest but not prudish. Shortly after her marriage, copies of the dress were sold at retailers for a small fraction of the original's cost, from \$25 at Benwit Teller to a mere \$8.90 at Klein's cash-and-carry. Within a few months, the "Wally" dress made its way to the United States, where it was available from department stores in a variety of styles, colors, and materials.

Cecil Beaton became the Duchess of Windsor's unofficial photographer. In this position, he was able to play an important role in the construction and depiction of her public image. Beaton, in fact, took photographs of the royal wedding the day before the actual ceremony. Several weeks before the marriage, he also took a series of famous photographs of the Duchess of Windsor wearing models from Elsa Schiaparelli's Spring/Summer 1937 collection, including the legendary "Lobster Dress" with a print designed by Salvador Dalí. Like Mainbocher's designs, Schiaparelli's clothes appealed to the Duchess of Windsor's rigorous, restrained aesthetic. She liked Schiaparelli's evening suits, in particular, and made them her trademark. Indeed, the duchess was at her most elegant in smart, impeccably tailored suits, a look that Cecil Beaton referred to as her "trim messenger-boy's suits" (Menkes, p. 102).

While the Duchess of Windsor's daywear tended to be plain and simple, her evening wear revealed a more feminine, romantic sensibility. As Danielle Porthault of Yves Saint Laurent commented, "Her Royal Highness's style was sobriety by day and fantasy and originality at night" (Menkes, p. 116). During the 1930s, the Duchess of Windsor favored Mainbocher, Schiaparelli, and Vionnet, while after World War II she preferred Dior, Givenchy, and Yves Saint Laurent. These she would wear with shoes by Roger Vivier, who began working for the House of Dior in 1953. According to Vreeland, one of the Duchess of Windsor's many sartorial innovations was the short evening dress.

The Duchess of Windsor's recipe of "sobriety by day and fantasy at night" included ingredients of wit and irony, often expressed in her exuberant use of jewelry. Her two favorite jewelers, Cartier and Van Cleef and Arpels, competed with each other to provide the Duchess with ever more lavish and innovative creations. The Duchess of Windsor's simple day suits proved the perfect backdrop for her flamboyant broaches, bracelets, ear-

rings and necklaces, as did her more romantic confections worn at night. One of her more memorable pieces of jewelry was a bracelet made from jeweled crosses, which she wore at her wedding. Each cross represented “a stepping stone in their love story, and a cross they had to bear” (Menkes, p. 151).

The Duchess of Windsor once told her friend and confidante Elsa Maxwell, “My husband gave up everything for me ... I'm not a beautiful woman. I'm nothing to look at, so the only thing I can do is dress better than anyone else” (Tapert and Edkins, p. 97). But she did much more than this. Not only did she dress to enhance the idiosyncrasies of her physicality, enhanced by her coiffure by Alexandre, but she dressed with a consciousness of how her image would be received by both the press and public. As Vreeland observed, “She had a position and dressed to it” (Menkes, p. 138). In this respect, she had a lasting influence on royal women and stateswomen alike, perhaps most notably Jacqueline Kennedy and Diana, Princess of Wales.

See also **Diana, Princess of Wales; Fashion Icons; Fashion Magazines; Formal Wear, Men's; Mainbocher; Neckties and Neckwear; Royal and Aristocratic Dress; Schiaparelli, Elsa; Tartan.**

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Andrew Bolton

WOMEN'S WEAR DAILY Its own motto is “the retailer's daily newspaper,” but within the fashion industry, *Women's Wear Daily* is widely referred to as “the bible of the business.” It is far more than just a trade publication serving an industry. With its unique mix of hard business, financial stories, society gossip, and biting fashion reviews, *WWD* (as it is commonly known) is a high-impact cultural voice.

Women's Wear first appeared as a supplement to the 21 May 1910 edition of the *Daily Trade Record*, a broadsheet that tracked the burgeoning, if rather dry, textiles imports and apparel manufacturing businesses. Both were

products of Fairchild Publications, started by Edmund Wade (E.W.) Fairchild and his brother Louis E. Fairchild. But with department stores booming and women's fashion becoming a business unto itself, it seemed obvious to the Fairchilds that the *Women's Wear* supplement could succeed as a stand-alone publication. “There is probably no other line of human endeavor in which there is so much change as in the product that womankind wears,” opined an editorial in one of the first editions. *Women's Wear* became a daily on 15 July 1910, publishing every day but Sunday and selling for 15 cents.

The next year, E. W. Fairchild opened a Paris bureau, since that city's houses basically dictated the course of fashion; correspondents would wire stories about the trends in French fashion, such as the “universally repudiated hobble skirt,” or Paul Poiret's scandalous Turkish trousers of 1913. In 1912, one of the paper's Paris correspondents, Edith L. Rosenbaum, happened to be on the maiden voyage of the Titanic; she survived and gave *Women's Wear* a version of the tragedy that noted which prominent retailers were on the ship (Isidore Straus, a founder of Abraham & Straus, perished with his wife) and what some of the survivors wore in the lifeboats (“Lady Duff-Gordon made her escape in a very charming lavender bathrobe”).

The paper by then was based at 822 Broadway and had three Linotype machines dedicated to rolling out its copies. In 1927, Fairchild added the “Daily” to its name. Although the paper acknowledged world events, high society, Hollywood movies, and the like, its content was always within the context of the fashion industry. Coverage was always focused on business, not personalities. *WWD* adopted the mind-set of its readers slavishly following Paris designers like Christian Dior, Cristóbal Balenciaga, and Coco Chanel while essentially ignoring homegrown talents. It was first and foremost a trade paper, with a fairly narrow, albeit loyal and influential readership.

The second generation took over in 1948 when Louis E. Fairchild passed the president's title to his nephew, Louis W. But it wasn't until the charismatic, confident, worldly Princeton-educated John B. Fairchild (son of Louis W.) arrived in 1960, after a stint in the Paris office, that *WWD* shook off its old identity as a niche-market trade paper and became a cultural chronicler crackling with opinion. “It was as if a tornado hit 7 East 12th Street,” recalled fashion journalist Etta Froio, then just starting her *WWD* career as a market editor. “In just a few weeks, he swept away every trace of the musty, stodgy newspaper we had known and set out to create a new era of style and status.”

During his time in Paris, Fairchild had decided that the most interesting thing about fashion wasn't the clothes as much as the people who made and wore them. He began establishing the new tone of *WWD* there, as he befriended Coco Chanel, Christian Dior, Yves Saint Laurent, Pierre Bergé, and Pierre Cardin, among others.

Once back in New York, he expanded that vision to include the entire industry. Before John B., *WWD* had more or less ignored society, except as it pertained to the fashion business. Now, the paper began running on-the-street pictures of chic socialites and interviews with sexy young starlets like Julie Christie, Brigitte Bardot, Vanessa Redgrave, Jane Fonda, and Faye Dunaway. Even counterculture artists, rock stars, and scandalous trends (Andy Warhol, Patti Smith, braless women, the invasion of blue jeans), barely acknowledged in the mainstream press, were investigated and reported on.

Fairchild and *WWD* were instrumental in shifting the world's attention to the merits of American designers, giving their clothes and their personal style more attention than either had ever received. He covered designers such as Halston, Perry Ellis, Oscar de la Renta, and Calvin Klein as much for their social lives as for their collections. "We became fascinated with the personalities of the business executives and the social world," said John B. Fairchild in an interview he gave for *WWD*'s 90th Anniversary edition in 2001. "We were looking for people who made the world tick. That's what it has to be about. All the other coverage then was just endless descriptions of clothes. Nothing to me is more boring than that!" This new approach to fashion was seen in the paper's spin-off magazine *W*, founded in 1972, which combines edgy coverage of fashion with features such as celebrity interviews and news of society events.

When it came to modern women, Fairchild was particularly obsessed with Jacqueline Kennedy Onassis, sending photographers to wait outside restaurants like La Grenouille and Le Cote Basque where she regularly lunched. He also tracked chic young socialites like Babe Paley, Slim Keith, and CZ Guest. He had his editors write stinging reviews of collections that sometimes infuriated the designers (and occasionally resulted in banishment, which never lasted more than a season) but always delighted the readers. The phrases *WWD* invented to describe this gilded group have entered the common lexicon: the BPs (beautiful people), Nouvelle Society, Social Cyclones, Walkers (the men who escort Social Cyclones to events), and HotPants, coined in 1970 to describe indecently short shorts. The paper's power grew to the point that its decrees could make a trend or a designer; *Time* magazine put Fairchild on the cover of its 14 September 1970 issue, labeling him "The Man Behind Midi Mania."

WWD courted controversy, frequently needling designers—its review of Saint Laurent's first collection for Dior said the dresses looked like toothpaste tubes on top of a brioche—and occasionally banishing them from the pages. The most famous example was an estrangement lasting for several years between the paper and Geoffrey Beene. Under John B. Fairchild's editorship, *WWD* added theater, restaurant and movie reviews, lengthy interviews with celebrities such as Truman Capote, Barbra

Streisand, Alfred Hitchcock, and Cassius Clay (pre-Muhammad Ali), and even coverage of the social doings of the White House. The paper's Washington coverage prompted Henry Kissinger to complain that it was giving his active social life too much attention. *WWD* became a must-read not just for retail and business executives, but also for socialites, public-relations people, talent agents, and even politicians.

A new round of conspicuous consumption in the 1980s fit perfectly with the paper's exuberant coverage of the worlds of fashion and society. *WWD* gave the Reagan White House ample play. Couture came back, exemplified by Christian Lacroix's bubble dress and the swept-up hairdo, and a new generation of celebrities designed and wore the high-end fashions of the decade. Designer Carolynne Roehm, for example, was married to the wealthy Henry Kravitz, and appeared in the pages of *WWD* both as a designer and a socialite. The recession of the late 1990s that accompanied the bursting of the dot-com bubble was like a morning-after hangover after the long party of the 1980s and early 1990s. The pages of *WWD* began to fill with news of liquidations and reorganizations in the fashion industry, and the flight of manufacturing to Asia and the developing world. But the paper remained the must-read publication for everyone connected with the world of fashion.

In 1968, the family decided to sell Fairchild Publications (which had grown to include trade papers dedicated to footwear, home furnishings, even electronics) to Capital Cities Broadcasting, thus becoming part of a publicly owned media empire. In 1986 *WWD* editors retired their typewriters and moved into the computer age. In 1991, Fairchild Publications moved from its woefully outdated Greenwich Village headquarters to modern offices in a more convenient, if less attractive, neighborhood across the street from the Empire State Building. John B. Fairchild retired in 1997 at age 70, naming Patrick McCarthy to be his successor as chairman and editorial director of Fairchild Publications. After a series of media mergers and acquisitions that gave Fairchild Publications various corporate parents in the 1980s and 1990s, the company was acquired in 1999 by Advance Publications Inc., the publishing empire (and publishers of *Vogue*), owned by the Newhouse family.

WWD remains one of the most influential voices in the world of fashion. It is famous as a sort of prep school for fashion journalists. Its alumni are on the masthead of almost every American consumer magazine, from *Condé Nast Traveller* to *Time*, although the concentration is heaviest, naturally, at fashion magazines. *New York Times* theater critic Ben Brantley and Bernadine Morris worked at *WWD*, as did former CNN correspondent Elsa Klensch, *Vogue* editor-at-large André Leon Talley, photographer Bill Cunningham, former French *Vogue* editor Joan Juliet Buck, and even Calvin Klein, who had a brief, unsuccessful stint as a copy boy in 1961.

See also **Fashion Advertising; Fashion Editors; Fashion Icons; Fashion Industry; Fashion Journalism; Fashion Magazines; Fashion Photography.**

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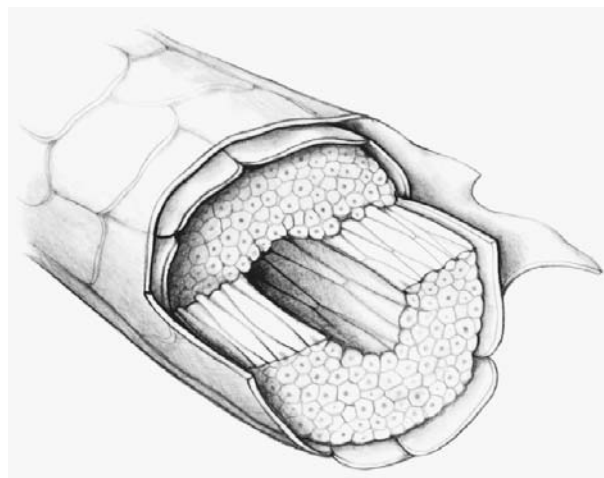
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Janet Ozzard

WOOL Wool is one of the oldest textile fibers used by humans. The term wool is generally used to describe fiber obtained from sheep or lambs. Legally the hair of a few other animals can also be called wool because its qualities are similar to sheep's wool. The United States government allows the fiber from alpaca, camel, llama, vicuña, Cashmere goat, and Angora goat to be labeled as wool, but these can also be labeled by their own fiber names.

Sheep were first domesticated in Central Asia about 10,000 years ago to provide a ready source of meat, milk, and hides for clothing. As humans worked with the hair from the sheep hides, they found that twisting thin strands of wool fiber together forms a continuous length of yarn. As time went on, they discovered that interlacing the yarn would form a fabric. Once yarn and fabric production were part of the knowledge base of humans, fabric became a second skin. The oldest surviving fragments of wool cloth were found in Egypt and date between 4000 and 3400 B.C.E.

The early, wild species of sheep had a two-layer coat. The coat closest to the body was a short wool undercoat of fine, downy fiber. This was protected by long, coarse



Cross section of a wool fiber. A wool fiber is made up of three layers: the cuticle, an outer layer of overlapping scales; the cortex which provides the bulk of the fiber; and the medulla, when present, is found in the middle of the cortex, and is a latticework of air-filled cells. REPRINTED WITH PERMISSION FROM *IN SHEEP'S CLOTHING* BY NOLA FOURNIER AND JANE FOURNIER. PUBLISHED BY INTERWEAVE PRESS, LOVELAND, COLORADO.

and straight guard hair. Since some sheep had better-quality fiber than others, people selected sheep for breeding that provided more undercoat and less guard hair. In the early 2000s, the majority of sheep growing wool for clothing produce mainly undercoat fiber.

A wool fiber is made up of three layers: the cuticle, cortex, and medulla. The cuticle is the outer layer of overlapping scales that comprises about 10 percent of the fiber. The cortex provides the bulk of the fiber, about 90 percent, and is composed of millions of long cells held together by a strong natural binding material. The cortex has two types of cells that behave differently to give wool fiber the characteristic "crimp" or waviness when a fiber is viewed from the side. The medulla, when present, is found in the middle of the cortex, and is a latticework of air-filled cells. A fiber with a large medulla is weak and doesn't dye easily.

Wool Production

Shearing. When human beings first used wool fiber, they gathered fiber that was shed from the sheep during their spring molt. As humans domesticated the sheep, they bred them to resist shedding so that the wool could be removed when it was convenient. In the early twenty-first century, the first step in wool production is removing the wool from the sheep by shearing (cutting). Once off the animal, the fleece of one sheep is bundled together with the clean side in.

Grading and sorting. Each fleece is examined, graded, and sorted. The tangled and dirty parts of the fleece are



TEASING OUT THE MEANING OF WOOL FIBER TERMS

Hair vs. Wool: Technically, hair differs from wool.

Hair is a coarse and straight fiber, whereas wool is a fine and crimped fiber with a scaly surface.

Fur fiber vs. fur: Fur fiber describes the hair of any animals other than sheep, lamb, Angora goat, Cashmere goat, camel, alpaca, llama, and vicuña. If hair or fur fiber is attached to the animal skin, it is also referred to as fur.

Fleece: The coat of fibers from one sheep is called a fleece.

removed and the fleece is graded for fiber fineness (diameter), length, crimp (a uniform waviness), color, kemp (thick hair fibers that dye poorly), strength, and elasticity. The finest wool's diameter is between 10 and 20 microns (one micron equals 1/20,000 of an inch). Fine wool is soft, like the fiber in a cotton ball, and is most luxurious. Coarse wool tends to be stiff and bristly, making it best for carpet. The length of wool fiber varies from 1 to about 14 inches. Fine combing wools measure 2.5 inches or more in length and coarse wools around 1.5 inches. While there are as many colors of sheep as there are colors of dogs and cats, white is the most common and has been the most valued over time. Sorting separates the individual fleece into various qualities, with the shoulders and sides giving the best quality and the legs the lowest quality.

Scouring. Wool needs to be cleaned of natural impurities before it is processed further. Impurities include a greasy substance called lanolin that oils the wool fiber and helps the sheep's coat shed water. Other impurities are dirt, vegetable matter, and perspiration or suint (pronounced *swint*). The wool is scoured by washing it with a detergent solution that carries the oil and dirt away from the wool. If some of the lanolin is left on the wool fibers to provide water repellency, it is called *grease wool*.

Blending. Sorted fleeces of a particular quality are thoroughly mixed together, in order to obtain a desired consistency of wool quality. Other types of fibers, such as spandex or nylon, may be added during this step to achieve an intimate blending of the fibers before they are spun into yarn.

Stock Dyeing. Clean fiber can be dyed before spinning it into yarn. This is referred to as stock dyeing. Dyed fiber may then be blended to obtain a yarn with a *heather effect*, which has many colors of fibers.

Carding. In order for an even yarn to be made, the fibers must be separated, spread into a uniform thickness, and encouraged to lie relatively parallel with one another. The carding step produces a continuous strand of untwisted fibers that are eventually drawn into a finer diameter strand before twisting the strand into yarn.

Woolen system. When a soft, fuzzy texture is desired in fabric, the woolen system of yarn production is used. In this process, the fiber is carded several times. Wool fibers of differing lengths and types may be processed with this system. Cloth made from yarn spun on the woolen system is correctly referred to as woolen. Typical fabrics include tweeds, sweater knits, and flannel.

Combing (worsted). In order to get a smooth and uniform textured fabric, the fiber must go through the combing process. Combing makes the fibers straight, in a parallel order. It removes short fibers and almost all of the foreign matter from the fiber matrix. Combed yarns are finer, cleaner, stronger, and more lustrous than

carded yarns. Examples of worsted wool fabrics are gabardine and serge.

Spinning. The final step in the process of making yarn is spinning. This draws out the fiber mass, thinning it to the desired diameter, and then stabilizes the strand by twisting the fibers into a yarn.

Yarn dyeing. Coloring the wool in the yarn stage before it is woven or knitted into fabric is called yarn dyeing. Dyed yarn produces plaids, checks, and other color-effects in weaving and knitting.

Weaving. Interlacing two or more sets of yarns at right angles to one another forms a woven fabric. Both woolen and worsted yarns can be used in the weaving process. Fabrics made with woolen yarns can be classified as woolens, and those made with worsted yarns may be classified as worsteds.

Knitting. Inter-looping one yarn or a series of yarns forms a knitted fabric. Either woolen or worsted yarns may be used in the knitting process, but woolen yarns are most commonly used. Garments may be knit into shape or flat knitted fabric can be created, which must be cut and sewn into a garment.

Piece dyeing. After a fabric is woven or knitted, pieces of a fabric can be immersed in a dye bath to give color to that fabric. Piece dyeing generally results in a solid color fabric. If yarns of differing fibers are included in one fabric, multiple color effects are possible.

Finishing. A completed fabric needs additional treatment before being acceptable for use by consumers. Numerous finishes can be done to wool fabrics, including: mending to repair damage done in the weaving or knitting process, wet finishes to control shrinkage and to make the fabric more dense; napping to brush-up a fuzzy surface; and singeing (burning) to eliminate long yarn ends. Wool fabric is given a final press to smooth out the wrinkles from previous finishing processes.

The Properties of Wool

The natural qualities of wool are the reason it has been continually used for thousands of years. Its superior properties have not been totally duplicated by textile scientists. Wool remains a masterpiece of nature and provides a standard by which other fibers are compared.

Resiliency and elasticity. Wool fiber is resilient and elastic. It can bend 30,000 times without breaking or being damaged. Its natural elasticity is due to the cortex cells that naturally coil like springs to form crimp. The elasticity makes it comfortable to wear, because it conforms to the shape of the body and helps wrinkles disappear from wool garments when they are allowed to rest. Wool's resiliency is shown when it stretches and returns to its original shape. Dry wool fiber can be stretched about 30 percent without any damage. Wet wool can

stretch between 60 and 70 percent, but is weaker, so washed wool must be handled carefully. The resiliency of wool helps it to wear longer and maintain its good appearance longer than many other fibers.

Comfort. Wool clothing provides superior comfort during both hot and cold weather. Its complex cellular structure enables it to absorb water vapor, but repel liquid. As wool absorbs the body's water vapor, a dry layer of air is left next to the skin to hold in body heat, thereby keeping the body warm. The crimp in the wool fibers keeps each fiber apart from one another, resulting in little pockets of air trapped between the fibers. This trapped air acts as a very good insulator.

Wool is comfortable in hot weather because it helps keep the body cooler by absorbing perspiration vapor from the body. The evaporation of perspiration allows the body to naturally cool. The crimp that helps keep the body warm in cold weather blocks out much of the outdoor heat with its insulating barrier of air pockets. This helps the body maintain an even temperature.

Wool's insulating properties protect against sudden changes of temperature and let the body breathe. While wool can absorb moisture, it repels liquids. The scales on the outside of the fiber keep the liquid on the surface of the wool fabric. If it rains, it will take some time before the raindrops penetrate wool clothing, so wool keeps the wearer drier. When wool eventually gets wet it releases the heat and keeps the wearer warm. Wool can absorb up to 30 percent of its own weight in moisture before feeling really damp.

Flame resistance. Wool is naturally fire resistant because it absorbs water vapor from the air. While wool will eventually burn, it will not support a flame. Once the flame source is removed, wool self-extinguishes and an ash is left that can easily be brushed away. Wool does not melt when burned, so it won't stick to the skin.

Resistance to static electricity. Because of wool's ability to absorb moisture from the air, its tendency to build-up static electricity is low. Wool garments are less likely to "spark" and cling to the body. Wool resists dirt and stays cleaner longer than other materials because static electricity doesn't attract dust from the air. Furthermore the scales of the wool keep dirt from penetrating the surface. These same qualities make wool easier to clean.

Felting. Felting occurs when wool fibers interlock with each other when they are subjected to a combination of heat, moisture, pressure, and agitation. The scales lie in one direction on the fiber, making it move more easily in one direction than another. This is the differential friction effect (DFE). As wool fiber is moistened, rubbed, and warmed, the fibers' scales become locked together. Felting allows wool fiber to be made directly into a fabric without first being made into a yarn. It also allows wool fabrics to be finished with a process called "fulling," a con-

trolled form of felting. "Fulling" makes a fabric thicker and more densely packed. Wool's ability to felt makes it tricky to wash, as heat, moisture, and agitation will encourage felting and permanent shrinking will occur.

See also **Alpaca; Angora; Camel Hair; Mohair; Worsted.**

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Ann W. Braaten

WORKING-CLASS DRESS For much of the period between the eighteenth century and the present, most people in western countries could be characterized as working class. Many occupations and styles of living are encompassed, ranging from independent skilled artisans in regular work to unskilled laborers or the unemployed. Despite a numerical majority and their central place in social, cultural, and economic history, working-class people, like women as a group, until recently have been hidden from written history and their clothing has been overlooked or subject to only generalized or romanticized interest. What they wore also remained under-represented in museums, due to a low survival rate caused by the thrifty reuse of clothing or its worn-out condition, and the tendency of museums to collect and preserve elite fashions rather than utilitarian clothing. In the early 2000s there is widespread interest in occupational dress, the clothing of the poor, and the role of working-class clothing consumption in the development of a consumer society during this period. Academic studies in this field make use of an array of sources including inventories, court records, and household accounts to pursue this interest in the earlier part of the period and the use of oral history, film, and photography helps ensure the more recent past is better documented.



"Everybody knows that good clothes, boots or furniture are really the cheapest in the end, although they cost more money at first; but the working classes can seldom or never afford to buy good things; they have to buy cheap rubbish which is dear at any price" (Tressell, p. 296).

Occupation, Social Position, and Clothing

One of the most marked gulfs between the appearance of working people and their employers was the use of livery for retainers and household servants. This practice of providing uniform clothing in the colors and style of a particular household was used to augment wages, and it served to embody hierarchy by distinguishing between employees and employer and between ranks of employees themselves. Livery was in widespread use during the period, as it had been since medieval times. It was far from universally popular with its recipients. By the nineteenth century it had become archaic in appearance, such as breeches and wigs for footmen, and had become very limited in use. It has been superseded to some extent by corporate uniforms. Domestic service was a major employer of women until World War I and generated styles of clothing representative of moral and practical notions of order and cleanliness.

Working people in the eighteenth and nineteenth centuries who did not get livery or other clothing as part of their employment often struggled not only to clothe themselves and their families at a basic level, but also to keep up certain levels of cleanliness and respectable appearances on which their continuing employment or their participation in local and church life depended. However, throughout these centuries, employers and the elite, in general, expressed anxiety about the consumption of clothing by working people. Increasing use, more styles, and a variety of available textiles, and the so-called democratization of fashion were judged to weaken conventional distinctions between social classes. Expenditure on clothing by working people was thought to indicate potential extravagance, vanity, and improvidence. There were numerous Victorian cartoons mocking both the domestic servant and her employer as the servant appeared in stylish crinolines or other finery. This was frequently observed in Britain, where social distinctions in dress are thought to have prevailed for longer than in the United States. In the twentieth century, new synthetic materials, simpler styles, affordable fashion magazines, dance halls, and the cinema especially, spurred greater access to fashionable clothing for working women. More recent adoption of homogeneous leisure wear means that social distinctions may be less visible than ever before outside work.

Working Clothes and Fashion

Modish and symbolic use of working-class dress entered general consumption in various ways and in general over the last three centuries; there has been a significant flow of garment types and textiles from utilitarian and occupational clothing into fashion. Examples include appropriation of military combat styles into everyday wear and the rough and thorn-proof warmth of local Scottish and Irish tweeds that were adopted for fashionable urban use in Victoria's reign. Sailors wore "trousers" long before they entered fashionable male wardrobes. What was produced in nineteenth-century America as denim work wear for men is, in the early 2000s, universally available as fashionable leisure wear for men, women, and children alike and authentic antique jeans command high prices among collectors.

Doc Marten boots had a similar pattern of appropriation and cult status. English agricultural smocks of the nineteenth century were adopted and revived as artistic dress, popularized by Liberty's for well-off urban women and children at the end of the century, echoing nostalgia for a largely imagined idyll of rural England.

Politicians have made use of the symbolic value of materials or garments associated with working-class life, such as when Keir Hardy, elected as one of Britain's first working-class members of parliament, insisted on wearing a rough-spun tweed suit and a flat wool cap instead of the more formal garb usually seen in parliament. President Lyndon Johnson famously wore a cowboy hat to signify his allegiance, and President Jimmy Carter often wore a sweater rather than more formal attire.

In the arts, performers and actors such as Dolly Parton, James Dean, Marlon Brando, and Charlie Chaplin have used working and utilitarian dress to powerful effect. Subcultures, as disparate as Hell's Angels, hippies, punks, and New Agers, have often demonstrated their nonconformism by blending garments from a variety of sources, including working clothes. In the 1970s many pioneer feminists adopted dungarees as a sartorial rejection of fashion and conventional gender roles.

The making and wearing of replica working clothing from the past has become widespread through the popu-



"To imagine New York City in 1789 is to conjure up...tattered beggars, silk-stockinged rich men, pomadoured ladies and their liveried footmen, leather-aproned mechanics and shabby apprentice boys, sleek coach horses, pigs...where the riotous world of the labouring poor surrounded a small, self-enclosed enclave of the wealthy and urbane" (Stansell, p. 3).

larity of historical reenactment and the use of living history to interpret historic sites. The shift such clothing makes in its esteem and value may have no single explanation; rather, it may embody a complex range of social, cultural, and economic factors over time. Mass production of clothing, urbanization, and more recently, new attitudes to work and leisure, money, and credit, may change not only our clothing but the identities they represent.

Provision

Before the advent of systematic state support in the twentieth century, various local or parish bodies and charitable organizations took responsibility for those unable to help themselves, and clothing for such men, women, and children was often part of the provision. Outside this framework, provision was uncertain because it was dependent on income, locality, and luck.

Secondhand clothes were an important element in the clothing strategies of working people. These could be obtained as cast-offs from employers, or from markets and specialist shops in urban areas. There were large warehouses buying and selling secondhand clothing in bigger cities by the eighteenth century, and Henry Mayhew describes a vibrant trade in the wholesale and export of old clothes in 1850s London.

Where women possessed adequate sewing skills, much clothing was made over or recycled: For example, children's clothes were made from cut-down adult garments. The pawning of best clothes played a central part in many household economies. This provided regular cash, and often clothes left all week in the pawnshop were stored in better conditions than was possible in damp or overcrowded homes. In many working households, mothers were traditionally in charge of the budget, and there is evidence that they often clothed and shod working husbands, sons, and school-age children before meeting their own needs.

Sewing clothes at home was assisted by the advent of the sewing machine and effective paper patterns from the 1860s onward, but these were unaffordable for many women. Others sewed at home to earn cash by making or renovating garments for local customers.

Theft played its part in the provision of clothes for use or resale, and in the eighteenth century there are numerous records of vanished household servants who took quantities of clothing with them to pawn or sell. Peddlers traveled around selling clothing, accessories, and cloth to individual households in the eighteenth century before communications and transport improved.

Many working people continued to clothe themselves and their families in ways more suited to their circumstances than traveling to expensive shops. Local or workplace clothing clubs and, by the mid-nineteenth century, mail order with payment by installments played an important part in enabling them to be adequately and fashionably clothed.

Huge markets for slops and utilitarian clothing, including uniforms for the military, led to the development of the mass manufacture of ready-mades from the eighteenth century onward. In America the manufacture of jeans for men demonstrates the growth of factory-based specialist clothing companies. As urbanization coupled with expanding markets during the nineteenth century, new jobs grew up in service industries such as banking and insurance, which resulted in large numbers of low-paid white collar jobs for men and women. A big manufacturing sector developed for affordable clothes for this work, such as suits, blouses, collars, and shoes, which could be widely distributed through growth in urban retailing.

Specific Modes and Items

The common utilitarian dress for laboring men before the twentieth century was made up of breeches or trousers, jackets, and waistcoats of hard-wearing materials such as moleskin, fustian, or corduroy. In some situations, working women were the first women to don breeches or trousers. This occurred in the second half of the nineteenth century in Britain (in pits and mines, in work associated with fishing, and in brickworks), and in the United States (where women did agricultural work), and in some utopian communities.

In many manual occupations, until shorter skirts were widely accepted, women simply hitched up long skirts in various ways. Commonly, in many countries, they wore aprons and woolen shawls. In eighteenth- and early nineteenth-century Britain, the red woolen, hooded cloak was commonly worn by rural women. Women used boots instead of shoes; pattens and then clogs were valuable assets for workingmen and -women on dirt roads and later in factories and mills. Stout and durable footwear has always been a major investment for those undertaking physical labor. Similarly in the United States, denim became widely used by the second half of the nineteenth century for tough work by cattlemen, on the railways and in the mines. Roomy and rugged work shirts accompanied these. Leather and suede have been used in working garments for centuries and persists to the present day, providing hard-wearing and durable covering in the form of aprons for blacksmiths and chaps, gaiters, gloves, and various specialist items and outerwear for other occupations.

Although Britain differed from continental Europe in having no recognizable regional folk dress, two agricultural garments stand out as characteristic of rural workers, and these were worn either at work or as Sunday best. These were smocks for men, from the eighteenth century onwards, which provided a measure of protection and warmth; and the cotton sunbonnet for women, which was decorated with tucks and piping and had strikingly long panels to protect the neck. Fishermen have always had special clothing needs to protect them against the elements. In this context, oilskin was developed in the nineteenth century, and the woolen hand-knitted, close-fitting and ornamented upper garment for fishermen known variously

as a gansy, jersey, Guernsey, knitfrock, and later sweater or jumper, became associated with the island fishing communities of Britain. Versions of it were later widely adopted as warm, informal attire for both sexes.

Occupational dress evolves as new occupations emerge, and innovative protective elements are introduced as new risks appear. In the industrializing period, boiler suits accompanied the use of steam power, and since the advent of forms of power that propel us into alien environments, special forms of clothing have been developed for, among others, pilots, divers, and astronauts. To an extent, occupational dress has often represented social and local or regional identities. In this sense, it has shown more style and commanded more loyalty than is strictly utilitarian. In 2002 in northern England a local bus driver was fired for refusing to exchange his habitual cloth cap for a baseball-style company cap. The dramatic fantail hats of the garbage collectors of early nineteenth century England or the intricate patterning on fishermen's knitwear have all testified to expressive and creative elements in occupational dress.

See also **Secondhand Clothes, History of; Uniforms, Occupational.**

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WORSTED The term "worsted" identifies a yarn that has been processed on the worsted spinning system. This system of yarn production is designed to work with staple fiber lengths that range from 2.5 to 7 inches. It was originally designed for processing wool, but in the early

twenty-first century any fiber or fiber blend of the appropriate length can be processed. This system of yarn production can utilize fibers with diameters that range from fine to coarse. While worsted wool in apparel fabrics generally uses fine diameter wool, worsted fabrics can use any diameter fiber so can vary in quality. "Worsted" also refers to a fabric woven from yarn processed on the worsted spinning system.

Both worsted and woolen spinning systems include the steps of opening, blending, carding, drawing, and spinning. Opening separates the fibers from their compact state. Blending mixes fibers from different fleeces to get a fixed level of quality. Carding works to organize the fiber into an even and fairly parallel strand. Drawing pulls the fiber into the desired diameter. Spinning twists the strand to hold the fibers in place.

What makes the worsted spinning system differ from yarns made on the woolen spinning system is an extra step in the yarn manufacturing process called "combing" or "gilling." To visualize what happens in the combing process think of the difference between brushing and combing tangled hair. The combing action removes snarls, short fibers, and any other waste matter from the fiber matrix. The short fibers are called *noils* and are recycled by blending them into woolen yarns. Combed yarns have their fibers lying parallel with each other, like spaghetti before being cooked. When the fibers are in this arrangement, they can be pulled to form a very thin yarn. This compact orientation and uniformity in fiber length makes worsted yarn smoother and stronger than similar yarns made on the woolen spinning system.

The worsted spinning system was originally developed in the English city of Worstead. (The term "worsted" is a Middle English derivation of the city's name.) The term "woolen" should not be used to describe worsted yarns or fabrics, as woolen refers to yarns manufactured on the woolen spinning system.

Worsted wool fabrics vary from woolen fabrics in several ways. Wool will be comfortable to wear in the hot summer months if the fabric is made with worsted wool yarns, as they are thinner and flatter yarns that trap less air than fuzzy woolen fabrics. The smooth surface helps worsted wool fabric repel soil and lint better. Worsted wool fibers will not shed from the fabric because the short fibers were removed in the combing step, unlike woolen fabrics. Worsted fabrics are longer wearing and stronger than woolen fabrics. They are also lighter weight than woolens, and will not sag.

Worsted wool fabrics for apparel can range from sheers to suitings. Worsteds made of fine diameter wool will provide sleek fabrics that show design details, and will take and hold a crisp press. Some common examples of worsted wool fabric include tropical worsted, wool crepe, wool broadcloth, wool gabardine, and wool serge. The word "worsted" may be pronounced in two different ways, *woo-sted* and *wer-sted*.

See also **Wool**; **Yarns**.

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WORTH, CHARLES FREDERICK Four generations of Worths are associated with perhaps the most enduring name in fashion history. Indeed, without the house's contributions to fashion, the French Second Empire would not be remembered as an unending parade of luxurious confections in women's dress, and the Gilded Age would not seem so golden.

Charles Frederick Worth (1825–1895) was the founder of a fashion house usually credited with establishing the highest level of fashion creativity: *haute couture*. Originally the French phrase meant the highest level of sewing. Later it was employed to identify that portion of fashion—particularly French fashion—that both exemplified the pinnacle of dressmaking techniques and produced new styles. Unfortunately, the phrase *haute couture* has lost its original meaning through overuse.

Early Career

Charles Frederick Worth was uncommonly astute in recognizing that his talents were better directed toward artistic creativity rather than managing a business. Following a period of working in London dry-goods shops, Worth set out for Paris. In 1846 he found a position at the prominent dry-goods and dressmaking firm of Gagelin et Opigez. This position gave Worth the experience that later enabled him to build his own business. At Gagelin he was exposed to the best resources for fabrics and trims, and allowed to develop his design skills. He also learned the value of live models and met his future business partner, a Swede named Otto Bobergh (1821–1881). What eventually became the House of Worth was established in late 1856 or early 1857 as Worth and Bobergh at 7, rue de la Paix, with Worth as the artistic head and Bobergh as the financial director. The partnership dissolved in 1870–1871, when Bobergh decided to retire due to major political unrest in France.

Worth's wife, née Marie Vernet (1825–1898), was a former Gagelin model. Mme. Worth easily attracted the attention of the ladies of the French court and then the Empress Eugénie herself, by wearing Worth's creations. Taken with promoting French industries, including the once-dying silk industry of Lyon, the empress thrived on lavish gatherings and equally lavish dress at these events. The empress appointed Worth the court couturier in 1860. To make sure his house could keep up with the growing demand for his dresses, Worth introduced a new way of creating an outfit. Instead of designing a complete dress, he pioneered the concept of mixing and matching skirts



Charles Frederick Worth. Worth founded the House of Worth, which is credited as being the first producer of *haute couture*. THE LIBRARY OF CONGRESS. PUBLIC DOMAIN.

and bodices, which insured that ladies did not appear at a function in look-alike attire. Worth also developed interchangeable pattern pieces in constructing these garments, further insuring the uniqueness of a completed ensemble.

At the House, clients could preview evening attire in rooms illuminated by various forms of light—natural light, candlelight, gas lamps, and later, electric bulbs. While the House maintained the usual fitting and modeling rooms, it also offered rooms for fabric selection that were distinguished by color. An understanding of the play of colors and textures was one of the enduring achievements of the House, and was successfully passed from generation to generation. Charles Worth's sense of color was particularly noteworthy—he preferred nuanced hues to bold primary colors.

Merchandising Innovations

Throughout the House of Worth's existence, it catered to the rich and titled, although it also served those of more limited means. Garments could be ordered from afar with no personal fittings required. The client supplied a comfortably fitted garment from which appropriate measurements were taken. Worth's models also could be made from commercial paper patterns. The House initially advertised its creations in obscure but aesthetically interesting nineteenth-century publications before entering the

mainstream at the end of the century with full-page images in *Harper's Bazaar* and *The Queen* as well as their French counterpart *La mode illustrée*. In the twentieth century, the House's models were advertised in such selective fashion publications as the *Gazette du bon ton*, and such newer entries as *Vogue*. The former type of publication carried on the centuries-old tradition of hand-drawn and hand-colored illustrations, while the latter featured modern photographs.

Late-nineteenth-century publicity images of Charles Frederick Worth depict a man who saw himself as an artist, wearing a bow at the neck or a beret. Many of the images of his son Jean-Philippe also show someone intent on conveying an impression of creativity. Like many classically trained painters and sculptors of their day, the Worths drew on historical prototypes. The House's designs included references to garments in historical paintings gleaned from museum visits, published descriptions of works of art, and personal familiarity with historic costume. Large numbers of Worth garments from the period of Charles and Jean-Philippe referenced seventeenth- and eighteenth-century styles, but none of them will ever be confused with their prototypes, thanks to construction detail and fabric choice. The Worths employed several distinguishing features in their garments beyond the waistband label that they first introduced in the mid-1860s. Although often credited with the innovation, Worth was not the first dressmaker to use a label. The earliest Worth examples were stamped in gold, but they became a woven signature in the late 1870s. This signature label would last the duration of the House. Attempts to defraud the public with spurious labels were made, especially in the United States in the early twentieth century.

Dress Construction and Materials

Contrary to Worth family mythology, the vast majority of the House's garments were trimmed with machine-made rather than handmade lace. Many Worth clients had collections of lace that had been acquired as investments. Sometimes such lace was used on a garment but almost always removed later and returned to the client. The same procedure was followed if gemstones were incorporated into a garment's design. An additional feature employed by the House was the use of selvage as a decorative touch as well as functional finishing.

Perhaps the House's most important contribution was the type of fabrics that it employed. Following the collapse of the Second Empire in 1870, Worth became an even more important client for the textile and trim producers of Lyon and its environs. There is evidence that Worth both used preexisting yard goods and worked with manufacturers to come up with patterns for new materials.

Charles Worth had begun his designing career by following the expansion of women's skirts in the 1850s, when they were supported by layer upon layer of petticoats. In the later 1850s Worth draped yards of fabric

over the skirts' increasing width, as the newly devised crinoline cage, or hoop, permitted expansion without increased bulk. Many Worth dresses from this period, sadly, were frothy, cloudlike confections in silk tulle that have now melted into oblivion. An impression of their impact, however, can be seen in portraits by such artists as Franz Xaver Winterhalter.

Worth introduced hooped dresses with flatter fronts in the early 1860s. It is evident, however, that he was careful not to diminish the amount of material needed; he merely pushed the fabric to the back of the dress. During this decade Worth is also credited with developing the princess-cut dress. These less expansive styles posed an economic challenge. Having been trained in dry-goods shops, Worth recognized the danger of weakening trades that contributed to the success of his own business. Therefore he had to either incorporate large quantities of material into his garments or support the production of costlier luxury goods. In order to maintain a high level of consumption, the House moved material throughout much of the 1870s and 1880s from draped overskirts to trains, bustled backs, and a variety of combinations of these styles. Just as the Empress Eugénie's patronage of the French textile industries had been crucial before 1870, so also was Worth's business vital for the looms of Lyon and Paris that created spectacular luxury materials afterward.

Many of the House's early garments had been constructed of unpatterned silks—tullies, taffetas, reps, and satins—or nominally patterned fabrics featuring stripes and small floral sprays—in other words, typical dress goods. Beginning in the 1870s, almost as a move to fill the void left by the departed French court, the house increasingly employed more expensive textiles usually associated with household furnishing in its garments. Worth boldly utilized grand-scale floral motifs designed for wall coverings in garments whose skirts were often not long enough to include a full repeat of the pattern. Such luxury fabrics, exhibiting astonishing richness of material and the highest level of technical skill, were a feature of the House's models into the first years of the twentieth century. With the exception of machine-made laces, Worth's trims and embroideries matched the ground fabric to which they were applied. The consensus among Worth's clients was that these costly toilettes were worth the price.

Charles Worth and his house did not merely purchase materials; they are also known to have worked closely with textile manufacturers. From such concerns as A. Gourd et Cie, J. Bachelard et Cie, and Tassinari et Chatel, the Worths either commissioned specific designs or ordered preexisting patterns. Often the fabrics they chose had been displayed at important international exhibitions. Many of the fabrics found in late-nineteenth- or early-twentieth-century Worth garments feature subjects that were especially popular with the House: feathers, stalks of grain, stars, butterflies, carnations, iris, tulips, chestnut and oak leaves, scallops and scales, and bowers of roses.

The First Couturier

Worth was not the first man to be an acclaimed creator of fashion. LeRoy had been held in similar esteem as a milliner and dressmaker to the Empress Josephine. Worth was, however, the first clothing designer to be called a couturier. Nevertheless, Worth had the good fortune to be a man entering a field that had become dominated by women, a position that automatically made him a curiosity in the 1850s. During the heady days of the Second Empire, the magic of the “man milliner” called Worth drew the fashion-conscious to the rue de la Paix. Worth’s clients were decried as slaves to this dictatorial monarch. Nor was it lost on the House that the theater was an active agent for the propagation of fashion. Even when dressing actresses of the stature of Sarah Bernhardt, however, Worth would insist on full payment for garments. British actress Lillie Langtry was a faithful client, as were such other *grandes horizontales* (courtesans), actresses, and opera stars as Cora Pearl, Eleanora Duse, and Nellie Melba. Such Bostonians as Lillie Moulton, Isabella Stewart Gardner, and Mrs. J. P. Morgan were dressed by the House, as were their counterparts of the Vanderbilt, Astor, Hewitt, Palmer, McCormick, and Stanford families in New York, Chicago, and San Francisco. The House dressed members of the royal families of Russia, Italy, Spain, and Portugal as well as the noblewomen of numerous German principalities.

The first challenge to the house’s primacy came with the founding of the House of Paquin in 1891. During the 1890s Worth began to lose clients to this concern. An analysis of the order numbers found in late nineteenth- and early twentieth-century garments reveals not only the year of manufacture but also the fact that orders were declining during this period. But for nearly fifty years, however, a Worth garment had been the most coveted of all apparel, particularly among American women. Perhaps this popularity developed because women from the United States felt at ease discussing their dressmaking needs with a man who could speak English. In return, Charles Worth appreciated his American clients because they had faith in him, figures that displayed his creations to advantage, and perhaps most importantly—francs to pay his bills.

Worth’s Successors

Charles Frederick Worth was officially succeeded on his death by his sons Jean-Philippe and Gaston, who had established important roles within the House in the 1870s. Jean-Philippe (1856–1926) worked as a designer alongside his father, and Gaston (1853–1924) functioned as business manager. Throughout the years and over the span of four generations, the Worths never lost sight of the need for astute financial as well as artistic direction.

During the period when Charles and Jean-Philippe worked together as designers within the House it is im-

possible to separate their designs. Even though later house labels carry the signature of the elder Worth, others may have been responsible for the garment’s inspiration.

World War I and the subsequent devaluations of European currencies were particularly devastating to the Worths, because the house had dressed so many female members of the royal families of Europe. In addition, many of the House’s older clients died during this period, while fashions were making the transition from Edwardian modes to jazz age styles. When Jean-Philippe and Gaston retired in the early 1920s, they were succeeded by Gaston’s sons; Jean-Charles Worth became the new designer, and his brother Jacques the financial director. Jean-Charles easily moved the House’s designs from the more staid yet elaborate models of the prewar period into the simpler and more practical styles of the 1920s. In the process, however, fewer and fewer of the characteristics that had been exclusively associated with the House’s production can be discerned in the garments that survive from this period.

Worth’s grandsons were followed in the 1930s by his great-grandsons Maurice and Roger, the latter assuming the couturier role. They attempted to breathe new life into the House; in 1936 they moved the Paris store to 120, rue du Faubourg St.-Honoré. At the end of World War II, however, both the London and Paris branches of the house merged with Worth’s old rival Paquin. The London branches, the first established in 1911, survived the Paris branch by eight years. Worth’s heirs also shuttered the branches of the House that had been established in Cannes and Biarritz.

As of the early 2000s, the Worth name survived in perfume, although the company has long been out of direct family control.

See also **Crinoline; Fancy Dress; Fashion Marketing and Merchandising; Haute Couture; Paquin, Jeanne; Paris Fashion; Perfume; Royal and Aristocratic Dress.**

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