

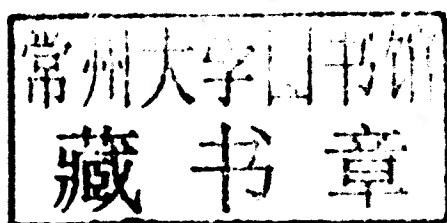


THE BUSINESS PRINCIPLES: FOCUS ON THE TEXTILE AND FASHION INDUSTRIES

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The Business Principles: Focus on the Textile and Fashion Industries

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The role of the book within our culture is changing. The change is brought on by new ways to acquire & use content, the rapid dissemination of information and real-time peer collaboration on a global scale. Despite these changes one thing is clear--"the book" in it's traditional form continues to play an important role in learning and communication. The book you are holding in your hands utilizes the unique characteristics of the Internet -- relying on web infrastructure and collaborative tools to share and use resources in keeping with the characteristics of the medium (user-created, defying control, etc.)--while maintaining all the convenience and utility of a real book.

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Textile Industry

Textile industry

The **textile industry** (known colloquially in the United Kingdom and Australia as the rag trade) is a term used for industries primarily concerned with the design or manufacture of clothing as well as the distribution and use of textiles.

Cotton stage

Prior to the manufacturing processes being mechanized, textiles were produced in the home, and excess sold for extra money. Most cloth was made from either wool, cotton, or flax, depending on the era and location. For example, during the late medieval period, cotton became known as an imported fiber in northern Europe, without any knowledge of what it came from other than that it was a plant; noting its similarities to wool, people in the region could only imagine that cotton must be produced by plant-borne sheep. John Mandeville, writing in 1350, stated as fact the now-preposterous belief: "There grew there [India] a wonderful tree which bore tiny lambs on the endes of its branches. These branches were so pliable that they bent down to allow the lambs to feed when they are hungry." This aspect is retained in the name for cotton in many European languages, such as German *Baumwolle*, which translates as "tree wool". By the end of the 16th century, cotton was cultivated throughout the warmer regions in Asia and the Americas. In Roman times, wool, linen and leather clothed the European population: the cotton of India was a curiosity that only naturalists had heard of, and silk, imported along the Silk Road from China, was an extravagant luxury. The use of flax fibre in the manufacturing of cloth in Northern Europe dates back to Neolithic times.

Cloth was produced in the home, and the excess woven cloth was sold to merchants called clothiers who visited the village with their trains of pack-horses. Some of the cloth was made into clothes for people living in the same area and a large amount of cloth was exported.

The process of making cloth depends slightly on the fiber being used, but there are three main steps: preparation of fibers for spinning, spinning, and weaving or knitting. The preparation of the fibers differs the most depending on the fiber used. Flax requires retting and dressing, while wool requires carding and washing. The spinning and weaving processes are very similar between fibers though.

Spinning evolved from twisting the fibers by hand, to use of a drop spindle, to a spinning wheel. Spindles or parts of them have been found in very, very old archaeological sites; they may represent one of the earliest pieces of technology available to humankind. was invented in India between 500 and 1000 AD It reached Europe via the Middle East in the European Middle Ages.

Weaving, done on a loom has been around for as long as spinning. There are some indications that weaving was already known in the Palaeolithic. An indistinct textile impression has been found at Pavlov, Moravia. Neolithic textiles are well known from finds in pile dwellings in Switzerland. One extant fragment from the Neolithic was found in Fayum at a site which dates to about 5000 BCE. There are many different types of looms, from a simple loom that dates back to the Vikings, to the standard floor loom.

History during the industrial revolution

Main article: Textile manufacture during the Industrial Revolution

The key British industry at the beginning of the 18th century was the production of textiles made with wool from the large sheep-farming areas in the Midlands and across the country (created as a result of land-clearance and enclosure). Handlooms and spinning wheels were the tools of the trade of the weavers in their cottages, and this was a labour-intensive activity providing employment throughout Britain, with major centers being the West Country; Norwich and environs; and the West Riding of Yorkshire. The export trade in woolen goods accounted for more than a quarter of British exports during most of the 18th century, doubling between 1701 and 1770 [1]. Exports of the cotton industry – centered in Lancashire – had grown tenfold during this time, but still accounted for only a tenth of the value of the woolen trade.

The textile industry grew out of the industrial revolution in the 18th Century as mass production of clothing became a mainstream industry. Starting with the flying shuttle in 1733 inventions were made to speed up the textile manufacturing process. In 1738 Lewis Paul and John Wyatt patented the Roller Spinning machine and the flyer-and-bobbin system. Lewis Paul invented a carding machine in 1748, and by 1764 the spinning jenny had also been invented. In 1771, Richard Arkwright used waterwheels to power looms for the production of cotton cloth, his invention becoming known as the water frame. In 1784, Edmund Cartwright invented the power loom. With the spinning and weaving process now mechanized, cotton mills cropped up all over the North West of England, most notably in Manchester and its surrounding towns of Ashton-Under-Lyne, Stalybridge and Dukinfield.

Textile mills originally got their power from water wheels, and thus had to be situated along a river. With the invention of the steam engine, in the 1760s to 19th century, mills no longer needed to be along rivers.

Post industrial revolution

Many of the cotton mills, like the one in Lowell MA, in the US originally started with the intention of hiring local farm girls for a few years. The mill job was designed to give them a bit more money before they went back to the farm life. With the inflow of cheap labor from Ireland during the potato famine, the setup changed, as the girls became easily replaceable. Cotton mills were full of the loud clanking of

the looms, as well as lint and cotton fiber. When the mills were first built, a worker would work anywhere from one to four looms. As the design for the loom improved so that it stopped itself whenever a thread broke, and automatically refilled the shuttle, the number of machines a worker could work increased to up to 50.

Originally, power looms were shuttle-operated but in the early part of the 20th century the faster and more efficient shuttleless loom came into use. Today, advances in technology have produced a variety of looms designed to maximize production for specific types of material. The most common of these are air-jet looms and water-jet looms. Industrial looms can weave at speeds of six rows per second and faster.

By the later 20th Century, the industry in the developed world had developed a bad reputation, often involving immigrants in illegal "sweat shops" full of people working on textile manufacturing and sewing machines being paid less than minimum wages. This trend has resulted due to attempts to protect existing industries which are being challenged by developing countries in South East Asia, the Indian subcontinent and more recently, Central America. Whilst globalization has seen the manufacturing outsourced to overseas labor markets, there has been a trend for the areas historically associated with the trade to shift focus to the more white collar associated industries of fashion design, fashion modeling and retail.

Areas historically involved heavily in the "rag trade" include London and Milan in Europe, SoHo district in New York City, the Flinders Lane and RichmondWikipedia:WikiProject Disambiguation/Fixing links.

In popular culture

- The Rag Trade, a British sitcom
- *On est au coton*, a controversial 1970 documentary by Denys Arcand attacking management in Quebec's textile industry.

See also

- Textile manufacturing terminology
- Rags to riches
- History of textiles
- Linen

External links

- [Step By step Process in Textile industry](#) ^[2]
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 - [union of textile industries](#) ^[4]
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Textile History

History of clothing and textiles

Clothing and textiles have been enormously important throughout human history—so have their materials, production tools and techniques, cultural influences, and social significance.

Textiles, defined as felt or spun fibers made into yarn and subsequently netted, looped, knit or woven to make fabrics, appeared in the Middle East during the late stone age. From ancient times to the present day, methods of textile production have continually evolved, and the choices of textiles available have influenced how people carried their possessions, clothed themselves, and decorated their surroundings.

Sources available for the study of the **history of clothing and textiles** include material remains discovered via archaeology; representation of textiles and their manufacture in art; and documents concerning the manufacture, acquisition, use, and trade of fabrics, tools, and finished garments. Scholarship of textile history, especially its earlier stages, is part of material culture studies.

Prehistoric development

Interest in prehistoric developments of textile and clothing manufacture has resulted in a number of scholarly studies since the late twentieth century, including *Prehistoric Textiles: The Development of Cloth in the Neolithic and Bronze Ages with Special Reference to the Aegean*, as well as *Women's Work: The First 20,000 Years: Women, Cloth, and Society in Early Times*. These sources have helped to provide a coherent history of these prehistoric developments. Evidence suggests that human beings may have begun wearing clothing as far back as 100,000 to 500,000 years ago.

Genetic analysis suggests that the human body louse, which lives in clothing, may have diverged from the head louse some 107,000 years ago, evidence that humans began wearing clothing at around this time.

Possible sewing needles have been dated to around 40,000 years ago. The earliest definite examples of needles originate from the Solutrean culture, which existed in France from 19,000 BC to 15,000 BC. The earliest dyed flax fibers have been found in a prehistoric cave in the Republic of Georgia and date back to 36,000 BP.

The earliest evidence of weaving comes from impressions of textiles and basketry and nets on little pieces of hard clay, dating from 27,000 years ago and found in Dolni Vestonice in the Czech Republic.

At a slightly later date (25,000 years) the Venus figurines were depicted with clothing. Those from western Europe were adorned with basket hats or caps, belts worn at the waist, and a strap of cloth that

wrapped around the body right above the breast. Eastern European figurines wore belts, hung low on the hips and sometimes string skirts.

Archaeologists have discovered artifacts from the same period that appear to have been used in the textile arts: (5000 BC) net gauges, spindle needles and weaving sticks.

Ancient textiles and clothing

The first actual textile, as opposed to skins sewn together, was probably felt. Surviving examples of Nålebinding, another early textile method, date from 6500 BC. Our knowledge of ancient textiles and clothing has expanded in the recent past thanks to modern technological developments. Our knowledge of cultures varies greatly with the climatic conditions to which archeological deposits are exposed; the Middle East and the arid fringes of China have provided many very early samples in good condition, but the early development of textiles in the Indian subcontinent, sub-Saharan Africa and other moist parts of the world remains unclear. In northern Eurasia peat bogs can also preserve textiles very well.

Early woven clothing was often made of full loom widths draped, tied, or pinned in place.

Ancient Near East

The earliest known woven textiles of the Near East may be fabrics used to wrap the dead excavated at a Neolithic site at Çatalhöyük in Anatolia, carbonized in a fire and radiocarbon dated to c. 6000 BC. Flax cultivation is evidenced from c. 8000 BC in the Near East, but the breeding of sheep with a woolly fleece rather than hair occurs much later, c. 3000 BC

But Çayönü in Turkey has also been claimed as the site of the oldest known cloth, a piece of woven linen wrapped around an antler and reported to be from around 7000 BC.^[citation needed]

Ancient India

The inhabitants of the Indus Valley Civilization used cotton for clothing as early as the 5th millennium BC – 4th millennium BC.

According to The Columbia Encyclopedia, Sixth Edition:

"Cotton has been spun, woven, and dyed since prehistoric times. It clothed the people of ancient India, Egypt, and China. Hundreds of years before the Christian era cotton textiles were woven in India with matchless skill, and their use spread to the Mediterranean countries. In the 1st cent. Arab traders brought fine Muslin and Calico to Italy and Spain. The Moors introduced the cultivation of cotton into Spain in the 9th cent. Fustians and dimities were woven there and in the 14th cent. in Venice and Milan, at first with a linen warp. Little cotton cloth was imported to England before the 15th cent., although small amounts were obtained chiefly for candlewicks. By the 17th cent. the East India Company was bringing rare fabrics from India. Native Americans skillfully spun and wove cotton

into fine garments and dyed tapestries. Cotton fabrics found in Peruvian tombs are said to belong to a pre-Inca culture. In color and texture the ancient Peruvian and Mexican textiles resemble those found in Egyptian tombs."

Ancient Egypt

Main article: Clothing in the ancient world#Egyptian clothing

Evidence exists for production of linen cloth in Ancient Egypt in the Neolithic period, c. 5500 BC. Cultivation of domesticated wild flax, probably an import from the Levant, is documented as early as c. 6000 BC. Other bast fibers including rush, reed, palm, and papyrus were used alone or with linen to make rope and other textiles. Evidence for wool production in Egypt is scanty at this period..

Spinning techniques included the drop spindle, hand-to-hand spinning, and rolling on the thigh; yarn was also spliced.. A horizontal ground loom was used prior to the New Kingdom, when a vertical two-beam loom was introduced, probably from Asia.

Linen bandages were used in the burial custom of mummification, and art depicts Egyptian men wearing linen kilts and women in narrow dresses with various forms of shirts and jackets, often of sheer pleated fabric.



Queen Nefertari in a sheer, pleated linen garment, Egypt, c. 1298–1235 BC

Ancient China

Main articles: History of silk and Hanfu

The earliest evidence of silk production in China was found at the sites of Yangshao culture in Xia, Shanxi, where a cocoon of *bombyx mori*, the domesticated silkworm, cut in half by a sharp knife is dated to between 5000 and 3000 BC. Fragments of primitive looms are also seen from the sites of Hemudu culture in Yuyao, Zhejiang, dated to about 4000 BC. Scraps of silk were found in a Liangzhu culture site at Qianshanyang in Huzhou, Zhejiang, dating back to 2700 BC. Other fragments have been recovered from royal tombs in the Shang Dynasty (ca. 1600 BC – c. 1046 BC).

Under the Shang Dynasty, Han Chinese clothing or Hanfu consisted of a *yi*, a narrow-cuffed, knee-length tunic tied with a sash, and a narrow, ankle-length skirt, called *shang*, worn with a *bixi*, a length of fabric that reached the knees. Clothing of the elite was made of silk in vivid primary colours.

Ancient Japan

The earliest evidence of weaving in Japan is associated with the Jōmon period. This culture is defined by pottery decorated with cord patterns. In a shell mound in the Miyagi Prefecture, dating back about 5,500, some cloth fragments were discovered made from bark fibers. Hemp fibers were also discovered in the Torihama shell midden, Fukui Prefecture, dating back to the Jōmon period, suggesting that these plants could also have been used for clothing. Some pottery pattern imprints depict also fine mat designs, proving their waving techniques. Since bone needles were also found, it is assumed that they wore dresses that were sewn together.

The textile trade in the ancient world

Main article: Silk Road

The exchange of luxury textiles was predominant on the Silk Road, a series of ancient trade and cultural transmission routes that were central to cultural interaction through regions of the Asian continent connecting East and West by linking traders, merchants, pilgrims, monks, soldiers, nomads and urban dwellers from China to the Mediterranean Sea during various periods of time. The trade route was initiated around 114 BC by the Han Dynasty, although earlier trade across the continents had already existed. Geographically, the Silk Road or Silk Route is an interconnected series of ancient trade routes between Chang'an (today's Xi'an) in China, with Asia Minor and the Mediterranean extending over 8,000 km (5,000 miles) on land and sea. Trade on the Silk Road was a significant factor in the development of the great civilizations of China, Egypt, Mesopotamia, Persia, the Indian subcontinent, and Rome, and helped to lay the foundations for the modern world.

Classical antiquity

Main articles: Clothing in the ancient world and Clothing in ancient Rome



Greek chiton (left) and chiton worn under himation

Dress in classical antiquity favored wide, unsewn lengths of fabric, pinned and draped to the body in various ways.

Ancient Greek clothing consisted of lengths of wool or linen, generally rectangular and secured at the shoulders with ornamented pins called fibulae and belted with a sash. Typical garments were the peplos, a loose robe worn by women; the chlamys, a cloak worn by men; and the chiton, a tunic worn by both men and women. Men's chitons hung to the knees, whereas women's chitons fell to their ankles. A long cloak called a himation was worn over the peplos or chlamys.

The toga of ancient Rome was also an unsewn length of wool cloth, worn by male citizens draped around the body in various fashions, over a simple tunic. Early tunics were two simple rectangles joined at the shoulders and sides; later tunics had sewn sleeves. Women wore the draped stola or an ankle-length tunic, with a shawl-like palla as an outer garment. Wool was the preferred fabric, although linen, hemp, and small amounts of expensive imported silk and cotton were also worn.

Medieval clothing and textiles

The history of Medieval European clothing and textiles has inspired a good deal of scholarly interest in the twenty-first century. Elisabeth Crowfoot, Frances Pritchard, and Kay Staniland authored *Textiles and Clothing: Medieval Finds from Excavations in London, c.1150-c.1450* (Boydell Press, 2001). The topic is also the subject of an annual series *Medieval Clothing and Textiles* (Boydell Press) edited by Robin Netherton and Professor Gale R. Owen-Crocker of Anglo-Saxon Culture at the University of Manchester.

Byzantium

Main article: Byzantine dress

The Byzantines made and exported very richly patterned cloth, woven and embroidered for the upper classes, and resist-dyed and printed for the lower. By Justinian's time the Roman toga had been replaced by the tunica, or long *chiton*, for both sexes, over which the upper classes wore various other garments, like a *dalmatica* (dalmatic), a heavier and shorter type of tunica; short and long cloaks were fastened on the right shoulder.

Leggings and hose were often worn, but are not prominent in depictions of the wealthy; they were associated with barbarians, whether European or Persian.

Early medieval Europe

Main articles: Early medieval European dress, Anglo-Saxon dress, and English Medieval fashion

European dress changed gradually in the years 400 to 1100. People in many countries dressed differently depending on whether they identified with the old Romanised population, or the new invading populations such as Franks, Anglo-Saxons, and Visigoths. Men of the invading peoples generally wore short tunics, with belts, and visible trousers, hose or leggings. The Romanised populations, and the Church, remained faithful to the longer tunics of Roman formal costume.

The elite imported silk cloth from the Byzantine, and later Muslim worlds, and also probably cotton. They also could afford bleached linen and dyed and simply patterned wool woven in Europe itself. But embroidered decoration was probably very widespread, though not usually detectable in art. Lower classes wore local or homespun wool, often undyed, trimmed with bands of decoration, variously embroidery, tablet-woven bands, or colorful borders woven into the fabric in the loom..



Edgar I of England in short tunic, hose, and cloak, 966

High middle ages and the rise of fashion

Main articles: 1100-1200 in fashion, 1200-1300 in fashion, and 1300-1400 in fashion

Clothing in 12th and 13th century Europe remained very simple for both men and women, and quite uniform across the subcontinent. The traditional combination of short tunic with hose for working-class men and long tunic with overgown for women and upper class men remained the norm. Most clothing, especially outside the wealthier classes, remained little changed from three or four centuries earlier.

The 13th century saw great progress in the dyeing and working of wool, which was by far the most important material for outer wear. Linen was increasingly used for clothing that was directly in contact with the skin. Unlike wool, linen could be laundered and bleached in the sun. Cotton, imported raw from Egypt and elsewhere, was used for padding and quilting, and cloths such as buckram and fustian.

Crusaders returning from the Levant brought knowledge of its fine textiles, including light silks, to Western Europe. In Northern Europe, silk was an imported and very expensive luxury. The well-off could afford woven brocades from Italy or even further afield. Fashionable Italian silks of this period featured repeating patterns of roundels and animals, deriving from Ottoman silk-weaving centres in Bursa, and ultimately from Yuan Dynasty China via the Silk Road.

Cultural and costume historians agree that the mid-14th century marks the emergence of recognizable "fashion" in Europe. From this century onwards Western fashion changes at a pace quite unknown to

other civilizations, whether ancient or contemporary. In most other cultures only major political changes, such as the Muslim conquest of India, produced radical changes in clothing, and in China, Japan, and the Ottoman Empire fashion changed only slightly over periods of several centuries.

In this period the draped garments and straight seams of previous centuries were replaced by curved seams and the beginnings of tailoring, which allowed clothing to more closely fit the human form, as did the use of lacing and buttons. A fashion for *mi-parti* or *parti-coloured* garments made of two contrasting fabrics, one on each side, arose for men in mid-century, and was especially popular at the English court. Sometimes just the hose would be different colours on each leg.

Renaissance and early modern period

Renaissance Europe

Main article: 1400-1500 in fashion

Wool remained the most popular fabric for all classes, followed by linen and hemp. Wool fabrics were available in a wide range of qualities, from rough undyed cloth to fine, dense broadcloth with a velvety nap; high-value broadcloth was a backbone of the English economy and was exported throughout Europe. Wool fabrics were dyed in rich colours, notably reds, greens, golds, and blues.

Silk-weaving was well-established around the Mediterranean by the beginning of the 15th century, and figured silks, often silk velvets with silver-gilt wefts, are increasingly seen in Italian dress and in the dress of the wealthy throughout Europe. Stately floral designs featuring a pomegranate or artichoke motif had reached Europe from China in the previous century and became a dominant design in the Ottoman silk-producing cities of Istanbul and Bursa, and spread to silk weavers in Florence, Genoa, Venice, Valencia and Seville in this period.

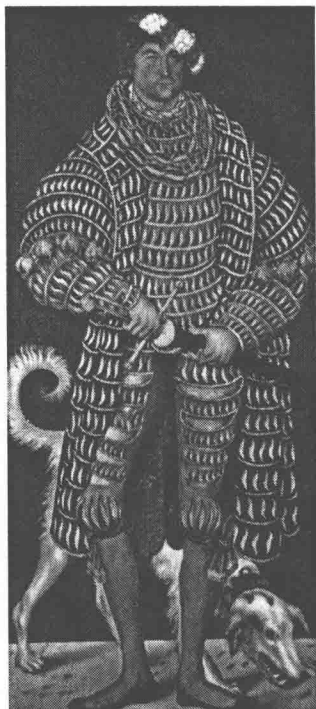
As prosperity grew in the 15th century, the urban middle classes, including skilled workers, began to wear more complex clothes that followed, at a distance, the fashions set by the elites. National variations in clothing increased over the century.



Bold floral patterned silks, 15th century.

Early Modern Europe

Main articles: 1500-1550 in fashion, 1550-1600 in fashion, 1600-1650 in fashion, and 1650-1700 in fashion



Slashing at its height: Henry IV,
Duke of Saxony, c. 1514.

By the first half of the 16th century, the clothing of the Low Countries, German states, and Scandinavia had developed in a different direction than that of England, France, and Italy, although all absorbed the sobering and formal influence of Spanish dress after the mid-1520s..

Elaborate slashing was popular, especially in Germany. Black was increasingly worn for the most formal occasions. Bobbin lace arose from passementerie in the mid-16th century, probably in Flanders. This century also saw the rise of the ruff, which grew from a mere ruffle at the neckline of the shirt or chemise to immense cartwheel shapes. At their most extravagant, ruffs required wire supports and were made of fine Italian reticella, a cutwork linen lace.

By the turn of the 17th century, a sharp distinction could be seen between the sober fashions favored by Protestants in England and the Netherlands, which still showed heavy Spanish influence, and the light, revealing fashions of the French and Italian courts.

The great flowering of needlelace occurred in this period. Geometric reticella deriving from cutwork was elaborated into true needlelace or *punto in aria* (called in England "point lace"), which reflected the scrolling floral designs popular for embroidery. Lacemaking centers

were established in France to reduce the outflow of cash to Italy.

According to Dr. Wolf D. Fuhrig, "By the second half of the 17th century, Silesia had become an important economic pillar of the Habsburg monarchy, largely on the strength of its textile industry."

Industrial revolution and modern times

Main article: Textile manufacture during the Industrial Revolution

During the industrial revolution, production was mechanised with machines powered by waterwheels and steam-engines.

Sewing machines emerged in the nineteenth century.