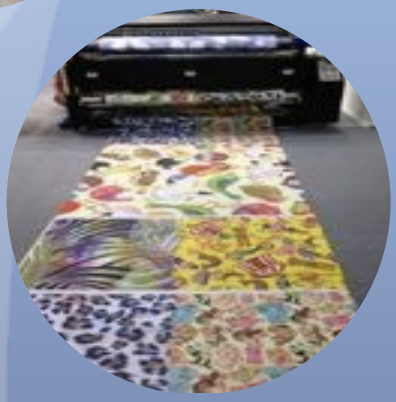

DARE2WOW

Textile Heritage. From the Wooden Loom Weaving to the Digital Art

Co-funded by the Erasmus+ Programme of the European Union

The hereby Handbook is created as a direct product of the work completed during the implementation of the Erasmus + project **"Textile Heritage. From the Wooden Loom Weaving to the Digital Art".**

The aim of this handbook is to allow all - teachers and students, to dive into the world of textile the way we saw and experienced it and would like to present to you!

This project is realised through the DARE2WOW Consortium consisted of:

Centro de Education e Promocion de Adultos de Ourense (Spain)

Istituto professionale statale per i servizi aziendali, turistici, grafici, sociali e alberghieri L. Cossa (Italy)

Bulgara Centre for Development (Bulgaria)

AETOI THESSALONIKIS (Greece)

SISU Consulting Ltd. (UK)

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INTRODUCTION

The world of the textile industry is in a process of transformation - what is today often looks back to what was in the past – new technologies, globalization ecology ... and above all FASHION.

At the same time, improving European educational and training system's quality has been set as a key target in Europe's strategy for becoming a smart, sustainable and inclusive economy by 2020 (Council of European Union, 2010). As such specific goal to improve skills within the adult's education are seen in a key role.

In this context, **"Textile heritage - from the Wooden Loom Weaving to the Digital Art" (DARE2WOW)** brings together 6 countries from all over Europe (Spain, Italy, Bulgaria, the UK, Latvia & Greece) to support the development, transfer and implementation of innovative practices within the partnering organizations and Europe by implementing the project's joint initiatives that promote cooperation, peer learning and exchange of experience at European level in the area of textile production and exploration.

There are many methods for general improvement of adults' manual skill on the market; however, there is clearly a lack of model that identifies the capabilities (knowledge, skills and insights) to fill skill gaps in the area of textile production.

DARE2WOW project proposes a flexible and collaborative method, processes and tools for adults to increase their skill, knowledge and insights in their own pace and within their own understanding. The project promotes and strengthens the European cooperation while designing a new model, new tools and a new platform between the partnering institutions but also for free access to all stakeholders to learn, develop and create a new understanding of the textile industry.

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CHAPTER 1: OUR TEXTILE HISTORY

I T A L Y

The textile industry is one of the most important sectors of the Italian industry. The traditional success factor of the Italian textile industry is the ability to combine innovation, fashion, creative style with production technologies.

The textile industry in Italy has developed mainly in the north: in the Upper Milan area and around Biella and Bergamo. In particular Como specialized in the production of silk while the center has developed especially in Prato's industrial district, the largest in Italy for number of companies and employees.

From the 14th century to the mid 19th

The Italian textile industry has occupied a position of supremacy in Europe since the late

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Middle Ages. However, in the 15th and in the 16th century, France and England became the new centers of textile production and, a century later, these countries extended their hegemony on international textile markets, both in the North of Europe and in the Mediterranean basin; consequently, from the middle of the 17th century Italian cities like Florence, a long- time specialist in textile production, went losing importance.

The Italian textile industry between 1650 and 1850 was characterized by a series of technological and socio-economic elements: first, textile production was located in small towns and in the countryside and concerned the manufacturing of medium - low quality cloths; secondly, it relied prominently on the use of female and child labor poorly qualified and low cost and, for this reason, the mechanization of most of the production steps was still very reduced; thirdly, in order to have water and hydraulic energy, proto-factories and workshops of the dyers were located near rivers .

From the Unification to the First World War

The unification of the Kingdom of Italy in 1861 represented a great opportunity to expand the markets for textile production centers, especially in the northern areas.

It was the North - West of the country to be the center of the new industrialization: on the basis of the first general industrial census in 1911, three-quarters of all workers engaged in the textile sector focused only in Piedmont and Lombardy.

At the end of the 19th century, the silk industry underwent profound developments both technical and commercial; the sector underwent a process of mechanization and saw the increase of the number of frames. In addition, business owners took advantage of the opportunity to find locally the raw silk from Asia at low cost. This, on the other hand, determined

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the rapid decline of the cultivation of mulberry and silkworm rearing and the consequent lack of domestic production.

Since the Italian wool textile industry, in contrast to the silk one, was not in competition with companies in the advanced economies, most Italian industries were oriented to the domestic market. Towards the end of the 19th century, the Italian wool industry entered a phase of modernization and adopted production runs vertically integrated, thus becoming one of the largest Italian companies in terms of both employment and production, thanks to the imposition between 1887 and 1965 of protective tariffs even by 40 % and adopted a vertically integrated production.

The First World War to the Second World War

After the First World War, the artificial fibers were introduced gradually in Italy. These new fibers were often combined with natural ones, in particular wool.

The production of artificial fibers had a rapid increase in the second two decades of the 20th century, and, in 1935, Italy (with 31 manufacturing plants and 24,000 employees) produced 15% of all man-made materials in Europe and it was the third largest producer in the world after the United States and Japan.

The cotton industry enjoyed its greatest prosperity during this period and became the most important sector in terms of capital, number of employees, equipment, energy consumption, total value of production and foreign trade.

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The second post-war recovery and ' Americanization

Before the ' economic miracle ' of the fifties, the recovery was possible in Italy, from 1948 to 1952, thanks at the European Recovery Program (ERP , also known as the Marshall Plan). In this period, the Italian industry (large firms especially) went through a modernization and ' Americanization ' process through the provision of goods (raw materials, particularly cotton), services (training and apprenticeship in America) and fundings which allowed them to import advanced equipment from the United States .

Already during the reconstruction period the textile factories of Como began to export their fabrics in the United States and, in particular, in 1960, the luxury silk export became one of the main markets of Italian products. In 1969, the United States, France and Germany absorbed 66% of the fabrics produced in Como for export.

After the war, although the use of wool declined in many Western countries, demand and world supply suffered a dramatic and steady increase due to the rapid growth of the Far East. The Italian textile industry of wool, once overcome the difficulties in access to supplies of raw material, recovered and grew considerably since the early fifties.

The most established Italian wool mills had built an excellent reputation based primarily on the elegance of their fabrics.

The reason why this type of tissue is produced in Italy is that the textile companies set great value on the sensory characteristics such as appearance, lightness and texture, and employ sophisticated production processes.

Winning choices: local / global

The industrialization of the Italian textile sector, at the end of the Second World War, led

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to a recovery process from the starting disadvantage compared to the textile industries of advanced economies such as the United Kingdom, France, Belgium, Germany and the United States.

One of the features that distinguished Italian textile entrepreneurs from those of other Western economies, was respect for the nationality and location, screened in a global perspective.

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GREECE

Weaving in fact is connected with many other types of human activity. It is clearly linked to farming and generally with all the crops from which the raw materials come (grown cotton, grown silk, etc.). By the time of turning the raw material into yarn and woven, an object is created. If the product is a kind of household can be connected to the so-called decorative arts. If the product is intended for commercial transactions it is professional work (Tsatma, 2009).

The oldest cloth found in Greece was in Lefkandi of Evvoia and dated around 1000 BC. It was a linen cloth with plain weave and a more complex woven belt. The looms that time were vertical with weights. Such weights are found in Crete and probably coexisted with other flat looms definitely been in use from time to Egypt. The vertical looms weights were used possibly to stretch the vertical yarns for weaving paper sacks.

During the Greek Classical era (500 BC – 323 BC) the doric way of clothing dominates, namely a tunic worn as a veil with its endless folds arranged in an oval pulley. Villagers wore a woolen tunic that left the shoulder uncovered. The Alexandrian (323 BC – 146 BC) and the Roman era (146 BC - 330 AC) clothing appearance remained pretty much the same but changed the materials and accessories. During these periods, the use of cotton from India and silk from China spread.

The costumes become more flamboyant and combined with gold carvings. In the Byzantine era (330 a.c. - 1453 a.c) and the Ottoman era (1453-1821) the way in which tunics are woven is remarkable. Clearly influenced by the Christian faith, the textiles are woven on the loom in a frame with the shape of the cross due to the religious significance of the symbol. (Papantoniou, 2000).

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The history of textiles of modern Greece is connected with the first attempts in 1870 to industrialize the country, because since the establishment of the Greek state in 1830, the country grew mainly as agricultural and commercial. Until the Second World War the main centers of the textile industry were Athens, Piraeus, Lavrio, Edessa, Naoussa, Thessaloniki, Patras and Ermoupolis of Syros. Edessa and Naoussa textile industries existed since the 18th century, thanks to the waterfalls, while Piraeus and Thessaloniki have been developed thanks to their geographical position, as ports and transshipment centers between Europe and the Middle East.

The working conditions in textile factories are appalling. 80% of employees are women and children who work at least 10 hours a day and are paid by the piece. They face various health problems from the engine noise (hearing problems), the lack of illumination (vision problems), dust from raw materials (breathing problems), high temperatures and high humidity levels. Yet despite difficult and unhealthy working conditions, the wages are very low (Ntelezou et.al., 2006).

The strong growth in the textile sector occurred after the end of World War II with the creation of large units until 1970. Due to the civil war the textile industry is limited to urban centers (Athens and Thessaloniki) and it grows in the countryside. In Thessaloniki, the largest textile factory was established in 1908 and at the begining it produced mainly fezzes. The factory, named YFANET, although initially employed about 100 workers, it grew so much that at some point the workers were more than 550. The factory made a vertical production from yarn to blanket. For twenty years YFANET took over the exclusive supply of the Greek army with clothing items. In 1951 the factory was burned down large scale. The factory rebounded, but the large loans in combination with the difficulties of the market and a number of huge strikes in 1964 led to the permanent closure of the factory in 1967. The Greek National Bank bought the

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factory and sold the old equipment for iron. In 1993 the factory was marked as a historical monument, example of industrial architecture from the Ministry of Culture. In 2000 became part of the “Costakis Collection” and the plans for the ruined buildings of YFANET were to become a Museum of Contemporary Art. From 20 March of 2004 until today is occupied by ananarchist group and they use it for the needs of their community.

In the 1970s and 1980s the first problems appear in the textile industry regarding the internal demand of the market, due to the change of the habits of the consumers. Costumes cease to be manufactured from fabrics as raw materials and people prefer to buy prêt-a-porter clothing. The heavy blow to the Greek textile industry, however was given in 1995, when the World Trade Organization adopted a new "Agreement on Textiles and Clothing", which fully releases imports and prohibits barriers. The Greek Textile industry was for decades the engine of the economic development of the country. In the 1990s, the industry exported approximately 45% of all industrial exports of the country and employed nearly 170,000 workers. In 2005, according to the Association of the Textile Industry it accounts for 15% of GDP and employs 120,000 workers. The sector of textile and clothing covers 23% of total exported goods and 47% of exported industrial products and contributes 28% to the industrial production of the country (ELINYAE, 2004).

The main cause of the textile industry crisis is undoubtedly the escalating international competition. There is a decrease in exports (which absorb a significant part of domestic production) and simultaneously there is an increase of imports, mainly from developing countries, where production costs are lower. The Greek textile industry will find itself exposed to

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the competition of countries with huge comparative advantage of low labor costs. The situation got even worse due to the complete liberalization of trade clothing and textiles, which started in 2005.

In our days, the widespread crisis that prevails in Greece since 2009 almost leads the Greek textile industry to extinction. Specifically, the employees in the textile industry are estimated to be around seventeen thousand (17.000), and the operating companies are estimated to be more than three hundred (300). The gross output value is more than 1.4 billion Euros and represents 4.5% of the domestic industrial production. The corresponding figures at EU level are more than two million (2.000.000) workers in about one hundred thousand (100.000) enterprises involved in the sector, with the gross value of production amounting to around 3.5% of the total industrial production EU and exports close to 35 billion Euros. (Verouli I. & Pavlaki A., 2014).

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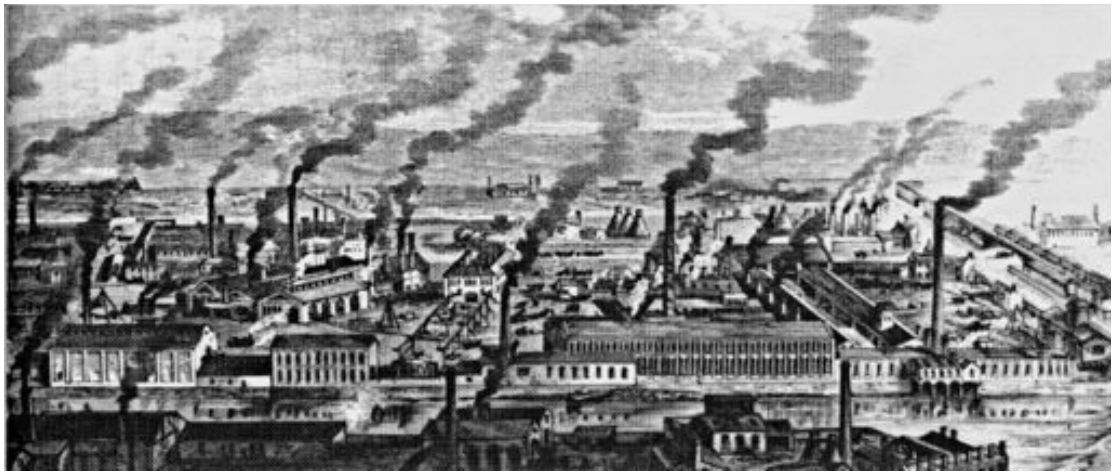
UNITED KINGDOM

It all started with the Industrial Revolution in 1733 and the first cotton mill....



The British textile industry can surely be dated as far back as the Middle Age, but it is originally very much a rural, cottage-located industry – fabrics were manufactured for local use only, produced locally and sold locally. For centuries the textile production is way of life for the British people as in the other countries in the world but what made it different and built it as one of the leaders in this area was the never-ending spirit of improvements, curiosity and discoveries, sparking immense amounts of creativity, productivity and innovation that Great Britain gave the world through the Industrial Revolution.

There are two major facts about the Industrial Revolution:

1. The steam engine – it changed the way the world experienced production – the steam engine made it possible for heavily machinery to be used in factories; and

2. The assembly line – a new methods of production where manufacturing times were greatly lowered, meaning the product could be given to the public much faster and in larger quantities.

The textile industry was indeed at the center of British's industrial expansion and technological advances meant that cotton, wools, silks and dyestuffs could be produces at unprecedented rates, with results exported around the Empire. At the beginning of 18th century, Great Britain is overloaded with recourses and raw materials from the colonies. On the other

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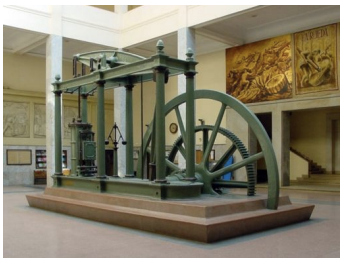
side, the improved way of life increased population and with the two things combined the demand of more textile increased, improvements meant for prices to become reasonable and produce – more widely available to everyone.

The revolutionary inventions that changed the entire textile industry start with the "Flying Shuttle". In **1733, John Kay invented the 'Flying Shuttle'**, allowing wider cloth to be weaved and at a faster speed. Before this invention, weavers had to pass the shuttle through the warp threads by hand. The Flying Shuttle put the shuttle on wheels and controlled it with a driver. The weaver controlled the shuttle by pulling a cord attached to the driver. When this cord was pulled to the left, the driver caused the shuttle to fly through the warp in the same direction. Pulling the cord to the right sent the shuttle back. The loom replaced the work of two people plus the weavers could only go as far as their arm length, but the shuttle allowed them to go farther. The "Flying Shuttle" is especially important as it spurred the inventions of spinning machines taking step towards automatic weaving.


Flying Shuttle, Watt's Steam Engine, Power Loom

In 1759, the stocking frame invented in 1589 for silk became viable when **Jedediah Strutt** introduced an attachment for the frame which produced what became known as the "Derby Rib", which allowed stockings to be manufactured in cotton. Nottingham, a traditional center for lacework, had allowed the use of the protected stocking frame since 1728.

In **1761**, the Duke of Bridgewater's canal connected Manchester to the coalfields of Worsley and in **1762, Matthew Boulton** opened the Soho Foundry engineering works in Handsworth, Birmingham. His partnership with Scottish engineer **James Watt** resulted**, in 1775**, in the commercial production of the more efficient **Watt steam engine**, which used a separate condenser.

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In 1764, James Hargreaves invented the 'Spinning Jenny'. Within twenty years the number of threads one machine could spin rose from six to eighty, multiplying the spun thread capacity of a single worker.

In 1769, Richard Arkwright patented the 'Water Frame'. This, as its title would suggest, used water as a source of power but it also produced a better thread than the spinning jenny.

In 1779, Crompton's 'Mule' was invented. This combined the good points of the water frame and the spinning jenny and resulted in a machine that could spin a thread better than any other machine.

In 1785, Edmund Cartwright invented the Power Loom – it meant that all stages in the making of cotton could now be done in one factory. In 1790 he also patents a wool-combing machine that was used to arrange and lay in parallel by length the fibers of wool, prior to further treatment.

By the 1790's, Boulton and Watt' steam engine was used in increasing numbers in textile factories. Therefore there was less reliance of water and the availability of water was lesser factor for building a productive factory. As the new machines used steam engines, factories now tended to be built nearer coalmines as a result.

All these inventions had a major impact in the amount of textile produced in Great Britain and the fortune this represented. And while some became really wealthy from the factories, those working in them had no protection against excessive work, dangerous conditions and low pay. As no laws were put in place at the time, many children were employed within the textile industry - in these factories children were subjected to harsh physical labor, doing unregistered hours and often job not suitable for their abilities that could end up with an accident or fatally as well. Child laborers during the Industrial Revolution were stripped of their childhood, a time today associated with innocence and playfulness. Because of the romantic notion, the Factory Acts, laws regulating child labor, developed. These acts prohibited employment at certain ages, restricting working hours and requiring children go to school.

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In 1833 the first Act of Parliament forbids employment of children under nine years of age in all textile mills (excluding lace and silk – the argument there was that within the lace and silk industry working conditions were much healthier and child labor was regarded as a way of keeping production cost lower that allowed competing with cheaper importers). Soon after more acts followed in order to improve conditions with the current laws on child labor, established exactly 100 years after the first act – the Children and Young Persons Act of 1933, amended in 1963, that stipulates compulsory education as the primary activity of children in the UK.

Did you know? (www.timelessmyths.co.uk)

The story that the name "Nylon" comes from the collaboration of the two research teams that created it – New York and London (NYLon), has been around for a long time – almost as long as nylon itself. It's a good tale and one with possibly even a little romance to it, however, it is not a true one! Nylon was first produced in 1935 by the working for the American DuPont company chemist Wallace Carothers, who in 1935 first discovered the silky thermoplastic material that became a novelty at the time no other product could match. First used to replace real bristles in toothbrushes, it found its great fame as the substitute for silk stockings so much so that nylons became the generic term.

The uses for nylon have multiplied and today it can be found in as many products from carpets to tires. The stories around the name have also multiplied with one very believable among them all: in the mid to late 1960s the first large and meaningful customer for the product was the British

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government who were looking for a replacement of the cotton that had been diverted from civilian clothing to military clothing. Even a true story, it does not stand in the origin of the name. Nylon was names this way by its creator who committed suicide two years after its famous creation so the myth around the name will remain forever.

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COSTUMES DURING THE ROMANESQUE PERIOD

Reconstruction by designer Arantza Vilas depicting King Alfonso IX and Empress Berenguela from the 13th century

In the eleventh and twelfth centuries the Romanesque dress of the upper class consisted in two overlapped robes: the *brial* or bliaut, which had long narrow sleeves made of embroidered and dyed fabric, and the skin or *pellizón*, which was worn over the brial. It was shorter and had wider sleeves.

The king needed two people to get dressed, and was the only one who could wear purple clothes. This colour was extremely difficult to get, as it was obtained from sea shells.

Cathedral Museum of Santiago de Compostela, Cathedral Museum of Ourense

The Romanesque costume of the lower class consisted in a dress girded by a belt, where the leather pouch was held. The collar had round shape and a vertical slit at the bottom. Over the

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dress they could put on another piece of clothing called *pellote* or pelice, similar to the previous one, but sleeveless and with two openings on each side.

Women's clothing was longer than men's so they could hide their feet. The common warm clothing to all social classes was the mantle.

Men used to go outdoors bareheaded and they liked wearing a fringe, which was very stylish in that time. Wearing a beard was also frequent. Their shoes had a wide cork sole.

Flax was already being cultivated in Galicia, although the production and the weaving were only women's tasks.

It was a medieval custom to wrap sacred relics with precious fabrics brought from Byzantium, where the best ones could be found. The clergy wore capes made of silk and precious stones, silver brooches as well as gold necklaces and beautiful sandals with girdles.

THE KNIGHT OF BEADE

This work by Francisco de Moure can be found in the Archeological Museum in Ourense. It dates from the reign of Felipe III (1598-1621). This is a sculpture in walnut wood. It has a size of 1.30 meters and it depicts a knight of San Juan kneeling and praying, dressed in armour.

In his neck we can see a pleated ruff and his left knee is on a pillow. On his chest on the armour he has a cross of the Order of Malta. In the late 15th century ruffs were very fashionable, but they became so exaggerated in size that they were forbidden by King Felipe IV with a law against luxurious attire. Black was also considered an expensive colour to maintain.

In the sculpture of the knight of Beade we can see items like hinges, buckles, gloves, the scabbard and the ruff in every detail. The armour, the sword and the spurs are features of the

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knights of this era.

This is a very detailed sculpture that reminds us of people like Miguel de Cervantes. We can see similarities with the character of Don Quixote, when he was knighted by the Inn Keeper in chapter III and he was given the sword and the spurs. The Inn Keeper also gives a minute description of a knight.

		**"There was no need to mention anything so obvious and necessary as money and clean shirts"**

Portrait of Miguel de Cervantes by Juan de Jáuregui. Painting of Don quixote and Sancho Panza by Pablo Picasso. By Andrea Rivero, Javier Borrajo, Juan Antonio Prieto Cañizo and Carmen Rodríguez Iglesias, 2º Bacharelato 2016.

THE TEXTILE INDUSTRY OF GALICIA

Flax Flower

This is a long term account of an ancient activity in Galicia, the production of textiles and clothing, focusing on the factors that led to a deep decline in the mid 19th century and trying to depict a new setting that led to a rebirth at the end of the 20th century and a success at the beginning of the 21st century.

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In the 18th century in Galicia, textile activities were oriented to the processing of certain fibers: wool, linen and in much less quantity hemp- for ropes, canvas, etc.

Two remarks are relevant to be made. Firstly, urban industry organized in guilds was not important. Therefore, and throughout the next century, the manufacturing activity was mainly rural, carried out by peasants and out of the guild regulations.

Secondly, the production of wool fabrics was extended, but the economic value was less important than the production of linen, wool fabrics being rough and sold in the district markets. Therefore, we have an industrial activity at domestic level in rural areas that produced mainly linen. As a raw material the flax in mid 19th century was local, but as it was not enough to provide spinners and weavers, since the 1770s linen began to be imported from the Baltic.

The techniques used here were similar to other European regions, except for the whitening process. Whereas in other areas the fabric was whitened at the end of the production, in Galicia the linen yarn was whitened before being woven. In this way, less lawn was necessary for drying, and the whitening could be made in a common domestic saucepan that was used for cooking by adding ashes to the boiling water, and it took less time. But this peculiarity in the whitening process prevented the final product from having the quality reached in other places.

Traditional Galician Blanket of Linen and Wool

In the mid 18th century the sector gave employment through a part of the year to a minimum 15,000 weavers and 60,000 spinners and other people who took part in the preparation of linen.

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The period of highest growth in the sector spanned between 1750 and 1830, thanks to the expansion of potential markets for Galician linen and favourable conditions for more production as a response to a higher demand, due to a growth in population.

The model of growth was based on low production and distribution costs, for products of medium-low quality destined to not very wealthy customers. Among the reasons for the growth we find that the raw material was local and later on imported from the Baltic. Secondly is the growth in rural population, who could supplement their income at low cost with textile production. And finally, we have the informal distribution system, that even resorted to travelling peasants, contributing to the low cost.

The inability to introduce technical and organizational advances in the 19th century to compete with the cotton and linen products of other regions and countries that produced at lower prices, caused the Galician textile unstoppable loss of market.

Galician textile was displaced from the traditional markets. At first, the American market was lost, as a result of the independence of Latin American countries in the 1820s, by the loss of privileges and above all the inability to compete neither with the cotton products nor the fine linen sent there from other European regions at a lower cost.

And the Spanish market was also lost, including Galicia, first to British cotton smuggled since the 1820s, and later on to the modern cotton from Catalonia, which also took advantage of the improvements in coastal navigation and the railway system to reach areas previously supplied more easily from Galicia, and also favoured by a protectionist policy.

The First Train arrived in Ourense in 1881

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What were the obstacles that prevented the success of Galician textile? Firstly, the technical conditions of production made it very difficult for the linen to have a certain quality and standard. The whitening process was harmful for the final quality and diversity of the product. Additionally, the size and quality was varied according to the area of precedence, which made it really necessary to arbitrate a way to standardize these aspects. This was not possible in Galicia, whereas in other regions it was fundamental to give a guarantee to distributors and customers of the product they were buying.

It was not easy to convince the small rural manufacturers that they should change the production methods or adjust to certain standards of size and quality, when many of them considered textile activities as a supplement, as one among many alternatives to earn a living.
Apart from this, and contrary to what had happened in other European regions, a social group linked to the sector had not been created, which could intervene in terms of techniques and production organization, in order to adjust to the demands of the new times.

We must conclude that in the 19th century the techniques of production and the marketing of Galician textile prevented the progress of a business network that could lead to transformation.

The sector went through difficult times of mere survival during most part of the 20th century, unable to compete with the consolidated textile industry of Catalonia, until the 1980s and 90s when it reached unexpected protagonism.

Wrinkles are beautiful, 1982 season by Adolfo Dominguez

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There is no doubt that the sector led a difficult life for much of the twentieth century. The factors that prevented the modernization of the sector in the second half of the nineteenth century remained valid for much of the twentieth, and this made it very difficult to compete with such a consolidated industry as the Catalan.

In the first third of the 20th century the few factories, which were created in Galicia at the end of the 19th century, survived the best they could. The production of fabrics and clothes at rural domestic level also continued, which is not surprising as many areas were still difficult to reach for imported textiles due to the deficiency in communications. There, many families still had wooden looms –for local linen and wool- and the workforce was especially women, for whom the cultivation of land and livestock breeding left some free time to produce textiles for self-sufficiency and to sell in the local markets.

After the Spanish Civil War, the supply bottlenecks and the scarce vitality of the internal market that Spain experiences in the 1940s and 1950s should not have been precisely favorable for the development of a Galician textile sector that had little to do before the competition of the industry of other areas of the peninsula. Some textile and clothing companies continued to operate, supported by the international isolation of those years - which prohibited the Spanish market for foreign textiles - and the still poor communications of Galicia - which gave some advantage to local companies in some product ranges compared to those of Catalan origin.

From the 1950s to the 1970s, the expansion cycle of the Spanish economy offered opportunities to many small size Galician enterprises in the ready-to-wear industry. But the crisis in the mid 70s was a drawback. It affected especially those regions with more textile industry like Catalonia, but it also had consequences here.

It must be assumed that at the beginning of the 1980s a continuous decline in the sector could be expected rather than a rebirth, which had outstanding dynamism and notorious public acknowledgement. The most important example of this vitality is the extraordinary growth of the group Inditex from A Coruña, which is now a multinational and an impulse to a broad network of small enterprises, workshops and co-operatives in the textile sector.

There are particular elements that explain the success of textile in Galicia. Thus, its expansion has been very beneficial and has benefited at the same time by the institutions of self-government of the Xunta de Galicia (the autonomy began in 1980-1981). The Xunta de Galicia, from its beginnings, has formulated a conscious strategy of renewing the external image of the territory of the four provinces. In this context, the slogans "Galicia Calidade" - Galician quality or

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"Galicia Moda" - Galician Fashion, with which we can enunciate the idea of the strength of the Galician autonomous community in the 1990s, "Galicia is in fashion", acquire a strong content, revealing the leading brands of textiles and clothing of the country. Of course, this use has been very favorable to the interests of certain companies (Adolfo Domínguez, Roberto Verino or the Zara phenomenon as emblems), which in conventional terms had not been much supported by public policies of incentives to industrial activity, or more generically, entrepreneurial.

LATVIA

Weaving holds an outstanding position in the history of mankind's culture as one of the oldest crafts, also in the history of Latvia.

In the early Stone Age, around the 2nd thousand BC the livelihood of inhabitants was breeding and agriculture. These branches yielded linen and wool that was raw material for clothing production. Processing them, people developed different techniques of wreathing, spinning and weaving. During this time the Corded Ware Culture started to spread around the present territory of Latvia. Vestiges of the early Stone Age cloths and textiles are not preserved.

The oldest messages about textiles are provided by clothing remains gained in the archaeological excavations. These cloths were made of linen or wool. Especially tiny fragments of the woollen clothing that are remained at the bronze ornaments are related to the AD 2nd- 4th century.

The most of textiles that are got in excavations were made of fleece. Its colour has become dark and nondescript; however in the wrinkles of some cloths the vestiges of indigo blue colour are still visible. Colouring in indigo blue colour holding plant *mēlene* is often mentioned in our *dainas* (Latvian folk songs). There are often mentioned also bedstraws used for obtaining red colour. Its tones are often found in an ancient *celaine* (belt). The yellow and dark-brown colours that are seen in the textiles and *celaines*, are available in several plants. A part of woollen textiles had also been done from naturally light or dark wool.

Textile fabrics made of linen and hemp fibre are remained comparatively little, because they rot off fast. Widespread are combined woollen and linen-hemp textiles.

Grounding on the technical analysis of the ancient textiles we can conclude that the belt-kind textiles are derived from primitive and more ancient kind of textile – winding and then, the textiles made in weaving frames that are known in the northern Europe since Neolithic.

Besides, Latvians had known the rolling of wool and woollen fabrics. It reposes on the woollen fibre upper layer scaled structure. When wool is being machined strongly fibre gear into

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each other and the fabric gets certain tightness. That time the fabrics were made of yarn that was spun by an axle. The first message about the spinning-wheel comes only starting the 15th century. The typological trait of yarn done by an axle is uneven roughness and uneven twist. It is often observed that spinning the warp yarn they are turned to the right and weft yarn to the left side. The yarn spun this way better joins each other while weaving and the material comes out smoother.

As ordinary as thrown yarn was used for textiles. An ancient weaving equipment was used loom or fork; where the warp hanged down from head to downwards and were held hard by stones fastened in the endings. Wefts were placed between warps and tacked with a long wooden comb from bottom to top. There were used 2,3 and 4 shafts.

Basic fabrics - plain cloth and huckaback. These both we can find at the Latvian tribes already AD 2nd century. The fabric of plain cloth two-shaft is considered as the oldest one and as a base of all the other fabrics. It is the densest fabric because the alternate warp and weft thread crosses. Also the huckaback (a fabric of three shafts) is a very old kind of weaving. The weave is made by diagonal lines here. This technique is spread in the 12th century and in comparison with the previous techniques gives the better quality of the fabrics. Especially here can be mentioned men's cloth fabrics because they are hairy as well. It witnesses about the introduction of comparatively complicated figured fabric technique in the 12th century. It also witnesses about the weavers work of that time and with that about the spreading of the more progressive tool of work – horizontal weaving frame.

Around the middle of 17th century, in Kurzeme (Courland) the weaving workshops are encountered with the 20-30 weaving frames where Zemgale is holding an outstanding position with broadcloth, linen, wallpaper, brocade, tapestry and sail weaver's workshops; Rucava with broadcloth, linen of Dutch and French techniques. Craftsmen of Holland, Germany and France put the weaving techniques contemporary achievements at the disposal of Latvians, and Latvians with their knowledge accumulated in their family traditions formed it further overcome their masters.

The Kurzeme cloths of the 16th – 17th were highly appraised product of export. Later it turned an extremely valuable house-art for local needs in family losing as local as foreign market.

Since the 1880s the weaving course were organised with the training programme made in Finland. This course had a great importance for the formation of living accommodation equipment culture for middle layer of Latvians, especially intelligence. The course started a new

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tradition – adornment experience stored in national costumes was transferred to the furnishing textiles: door and window curtains, carpets and rugs, wall blankets, decorative pillows. The course graduates became elaborators of methods and weaving course lecturers. They participated in the exhibitions of handicraft and applied arts organised by the agricultural societies.

The organised weaving course by Zemgalian (middle of Latvia, also Bauska) Pēteris Viļumsons and his popularised weaving equipment – weaving frame with the pattern-maker of z*akards* type, became an unique fact of the Baltic's area. It promoted the origination of such ware where the Mid-European craftsmen's experience combined with the local craftsmen's art traditions. In the wide territory the commercial textile fabrics spread mainly in patterned huckaback bindings with a rich background patterns.

The craft centres declined while the industry developed. In the second half of 19th century the professional applied art was formed from the artistic craft. The professional applied art in its turn started to influence hardly the folk applied art. After the First World War in Latvia the folk applied art ware was gathered, processed and researches were published by the Board of Latvian Historic Monuments and State Historic Museum. Their task was to preserve and hand over this heritage to the next generations.

Zemgale Mittens

After the Second World War, during the soviet times, the three main applied art development directions were developed:

1) individually working persons;

2) persons joined into collectives (hobby groups and studios) that prepared decorative items for particular needs and sale;

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3) persons working in the state enterprises that with their hand work or industrial methods produced the applied art pieces. A part of these products were made grounding on professional artists' made patterns.

Linen Towels

Nowadays the house weaving has diminished hardly. It has been outdone by the produce of cheap foreign factories. Textile fabrics are cheaper but in their aesthetic meaning they are not equal value to home-made cloths. In home weaving every weaver can make a cloth on his/her own taste and pleasure adjusting it to the interior but manufactured cloth has to be taken as it is. Therefore, during the last years Latvian women have started to approve the home-made cloth advantages again and getting down to work, to respect the old habits.

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BULGARIA

Kotel Carpets. Photo source: bnr.bg

The textile and apparel industry in Bulgaria is the second most important industry in the country, after the tourism. It includes over 3000 small and medium companies, which employ approximately 170 000 people, having one of the highest shares in employment – 22.4%.

The production of textile has its roots from ancient times, but its rate of development and production scales at the end of the 18th and early 19th century when the industrial revolution introduces the machine technology. However, the rich Bulgarian history of the textile starts with the handmade production of string and fabric from the Neolithic era, where the full process was done within the household for the need of the family and with no mass-production known at the time.

The history itself is large, full with amazing facts and details as the one that almost up to the fall of the socialist government in 1989, no fabrics are mass imported in the country and Bulgaria produces almost all types of fibers:

1. Fibers from animal origin – wool, wave fibers (sheep, goats, rabbits), silk (from the cocoons of the silkworm);
2. Textile from vegetable origin – cotton, flax, jute, entire plants – grass/ straw, hemp, linen;
3. Fabrics of synthetic origin – polyester, nylon, lycra, spandex, acrylic;
4. Textile of mineral origin – glass/ glass wool, metal, asbestos and basalt.

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This leads to specialization of different sectors of the textile industry, creating a full cycle of creation, processing and production of different types of fabric - silk - the process of breeding silkworm, the silk thread extraction, production of silk fabrics and silk creation of works ; mutafchiystvo – the processing of using goat hair from looking after goats to extracting their hair into fine strings for weaving; homespun, braiding, carpet weaving. Carpet weaving is one of the most beautiful Bulgarian crafts of making unique carpets, which is practiced today with both varieties in the production of carpets - Chiprovtsi and Kotel carpets, the clothing decoration of the traditional Bulgarian embroidery representing a unique harmony of shapes and colors. Cotton clothing is also an artistic craft of embossing decoration of fabrics - an activity that has been widely advocated in small family proceedings decoration of fabrics produced for own needs and for sale.

With regards to the purpose of this report, we will look more closely at two names from the Bulgarian History of Textile: Dobri Zhelyazkov and George Mitev.

DOBRI ZHELYAZKOV

The Textile Factory of Dobri Zhelyazkov

The first ever factory in Bulgaria was founded in Sliven by Dobri Zhelyazkov – his notability lies not only for the foundation of a factory but starting the whole textile industry as such in the Bulgarian land – still under the Ottoman rules at the time.

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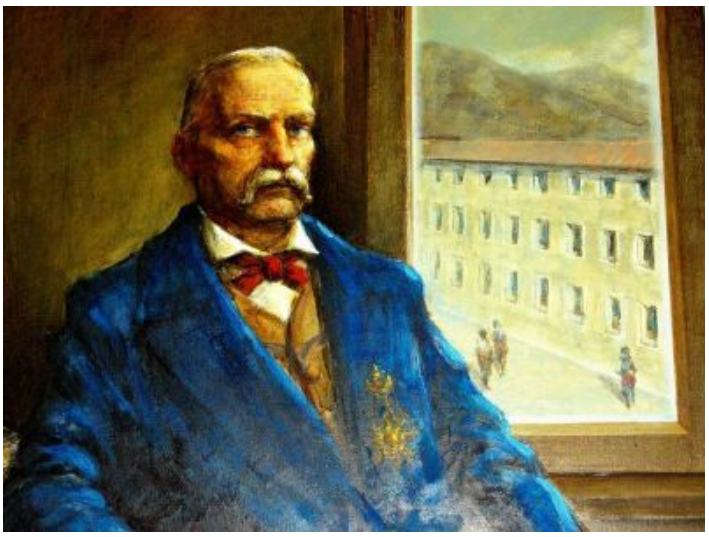
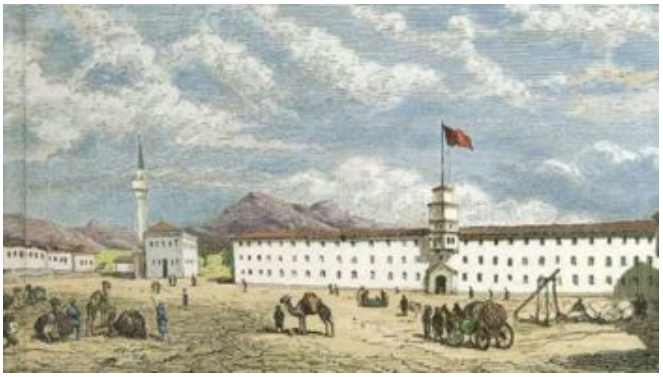


Dobri Zhelyazkov is born in the 1800 in Sliven and initially deals with the pastry, which most likely has been his father's business. However, the son soon starts dealing with homespun - production and marketing of handmade woven wool fabrics. At the time homespun is widely spread in Sliven region because of the natural resources of the area - there are many wool (sheep) and rivers of water with the right chemical composition especially suitable for the processing of wool. In 1829 Zheliazkov goes to Ukraine, Ekaterinoslav (Dnepropetrovsk today), where the young man studies the production and textile industry in general, returning to Bulgaria with schemes of textile machinery as well as parts of them hidden around his luggage – as of the Ottoman rules, importation of machinery from other countries has been strictly prohibited.



In 1833 Zheliazkov is already established in Sliven, creating a small workshop for the production of textiles, which is revolutionary in the sense of transition from home-made production to industrial production. The small factory separates facilities as spinning, weaving and dyeing. This is the start of the Bulgarian textile industry.

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Dobri Zelyazkov goes beyond the small factory - he dares to present its production of textile and fabrics to the Sultan - Mahmud II. who is extremely impressed with the quality and makes a important judgment about the potential financial benefits of such activities within the Ottoman Empire. With a decree from the Sultan, Zelyazkov receives tax exemption for 10 years – and with the assignment to build and equip Sliven state (Ottoman) textile factory.

Just in two years the manufactory is built and work begins in 1836. In 1842 the production process is expanded, a new building joins the existing one - preserved to nowadays. For its time, this is the second largest building built within the Bulgarian territory of the Ottoman Empire after the famous Rila Monastery. The factory employs 2000 workers - something unheard again in size at that period of time.

As for the manufacture of machinery for the textile industry, Bulgaria produces a number of such - band loom Yantra; automatic knitting machine, the Bulgarian invention pneunorapic weaving machine.

GEORGE MITOV

The "Prenomit" Patent of George Mitov

In 1971 a Bulgarian launches self-direction and vanguard in the production of yarns in the world - technology "Prenomit."

"Prenomit" comes from the first letters of the Bulgarian words for "spinning, new methods and technologies" and summarizes the technology to produce smooth and fancy yarns with a structure that combines the qualities of natural and chemical fibers with strength synthetic fibers, and created the basis of this method universal spinneret. Machine and yarn are the brainchild of inventor George Mitov.

George Mitov is born in Sofia in 1925 in the family of an auto-mechanic, that explains in large degree the boy's love for machines, mechanisms and motors. As a student in the Mechanical and electrical school in Sofia, Mitov builds an acting steam engine completely alone made all from waste materials. After completion of the Technical University in Sofia, he is recommended from a friend and begins working in the state enterprise "Cotton Industry", later Mitov moves to the Institute of Textile Industry, and then - the Ministry of Industry. However, the "laboratory environment" does not stop the inventor, whose hobby back in 1968 led to the creation of "production of torsion mechanism". The first invention method "Prenomit" is born with core of which are hollow spindle and an element of delimiter regulator. The machine has

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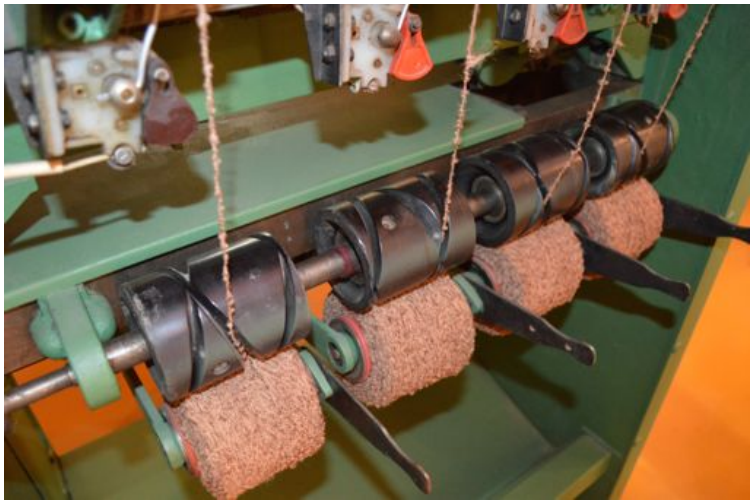
very simple idea: three strands with varying degrees of tightness are intertwined with one another, thereby creating a spectacular yarn.



The invention is first recognized in the UK - the company "Gemmill and Dunsmore Ltd." in 1974 buys the license and begins mass production of this machine. Until today, the method and all devices of "Prenomit" have received 40 patents in the US, England, Germany, France and Japan. Georgi Mitov is awarded with gold medals and diplomas from the most prestigious international exhibitions for technological and technical innovations in Geneva, Brussels, Nuremberg and others. Manufacturers of textile machines for the first time take our country as a technical partner, not just as a customer.

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CHAPTER 2: DIGITAL PRINTING

DIGITAL FABRIC PRINTING

Fabric printing isn't a new process, it has been around for centuries. The techniques have changed rather a lot over the years, but textile printing is an ancient art that can be seen in fabrics dating as far back as the 4th and 5th Centuries B.C. The earliest type of printing on fabric is the block printing. It is the process of dye being pressed onto a fabric from a carved material: wood, copper but also rubber and now many other materials. The pattern wanted on the fabric is the pattern carved into the material, subsequently these patterns are often not overly detailed because this won't necessarily show up on the fabric. As the dye sits on the surface of the fabric when block printing is used, there is often a texture to this style of textile printing.

In the 18th Century the technique of roller printing came about, it is the process by which the fabric is carried along a rotating central cylinder and pressed by a series of rollers, each of which is engraved with the design. Each roller is fed a different color through feed rollers, and some roller printing machines were even able to print six colors at once, making them much faster than the block printing process.

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Block of Wood Carved for Textile Printing

In the early 20th Century the modern process of screen printing arrived, although it is thought that screen printing dates back much further than this. This process involves the use of a stencil of an image on a screen of porous mesh (this was traditionally made of silk), a roller is used to pull ink over the stencil which is in turn forced through the mesh and onto the fabric; for each separate color a different stencil is used. In the mid 20th Century rotary multicolored screen printings allowed large-scale screen prints at a faster rate, making it more economical.

Cylinders for Rotary Pringing on Fabric

We now have digital textile printing using computer controlled lasers and high-pressure jets to inject ink directly into the fabric. This allows very detailed patterns at a fast pace, however it is an expensive process. It is clear that textile printing has come a long way over the years and even the oldest methods are still used in fabric printing today. Digital printing is a technique similar to screen printing, does not use transparencies or print frames and the ink is printed through special HD printers, getting exceptional results in extremely short times.

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Printing with Copper Plate

The prints are soft to the touch because the color penetrates completely into the tissue. In short, it is an innovative high quality technology, especially suitable for photos and complex colored patterns, resulting in a high definition printing with brilliant colors, smooth and sharp shades. By the words “digital textile printing” we mean the possibility of transferring ink quantities according to what is determined by a computer.

This ability combines Cylinders for rotary printing on fabric Printing with copper plate the technology of the classic inkjet printers with the different types of ink available depending on the type of material used. The mechanization of the ancient technique is inevitable, both because it makes it possible to produce many identical items and because it means a huge saving in materials and employees. The time required is very short, as a matter of fact in one hour either more than sixty light garments or thirty dark items can be completed, besides the costs are contained. In digital printing the screen printing frame is lacking and its ability to achieve extremely high quality prints is due both to its innovative technology and to the CMYK four-color process. A further advantage in finished product is the softness of the prints to the touch, since the color penetrates deeply allowing an excellent durability in time.

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If, on one hand, direct printing is just a step from printer to support - used to create posters or alternative illustrations and ranging from plexiglass to aluminum, from drywall to wood-, on the other hand textile digital printing goes farther on allowing companies to customize any fabric : canvas, cotton, polyester, either mixed or synthetic natural fabrics, transfer papers, films and thermotransfer films. It can also be applied to the field of interior design, whose most popular applications are on armchairs, cushions, carpets, curtains, wallpaper fabric etc. The only downside: it might be less economical than the screen printing technique, but that is true only for large runs. Machineries used in textile appear similar to large printers, insteadof sheets they use meters and meters of natural, synthetic, mixed, polyester fabrics.

Today digital printing is having a huge success. Workshops and seminars are held each year to improve and study this new process that has enabled many companies either to recover from the crisis or to drive their success.

Recently, Italian digital printing has sped up its modernization to achieve tangible results and helped a lot of companies to bear the brunt of the globalization and the competition with Eastern countries, where labor costs are lower. FOR.TEX, a textile company from Como, manufacturing and selling inks, dyes Pietro Ronconi, president of FOR.TEX Tissue while it is being printed and other chemicals for the fabric processing is an example of how innovation in this area can be decisive both for individual companies and for all the Made in Italy.

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Pietro Ronconi, President of FOR.TEX

The company has been one of the first in the area to believe in the digitized press capacity of enabling a broad range of shapes, colors and shades, reducing the environmental and economic impact and promptly adapting to the changes of the market trends. The company commitment and hard work have paid off, since in about ten years digital printing on fabric has increased from 2% of the output to the current 58%, 81% is estimated in 2017. Both productivity and turnover have got benefits.

Italian textile entrepreneurs hope to expand and promote their products through solution centers, such as the Textile Solution Center, the first global center for the development and promotion of digital textile printing. Textile Solution Center is a facility entirely dedicated to research, assistance, training and promotion for industrial textile digital printing. The Center is a joint venture between Epson inkjet technology and For.Tex experience in the textile printing.

With Epson inkjet printing solutions, the Center can support each step of the textile digital printing process, from pretreatment to print and to post-treatment. It is the place where companies who do not know this technology will be able to experience all the integrated industrial production cycle of the digital printing and learn how to exploit its potentiality through specific courses.

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Fabric in Process of Printing, A Glimpse of the Production Plant in Grassobbio

The impact of it is such as to create a new demand since it allows greater flexibility in product development, realization of very complex designs and ecological footprint as it does not present the dyes problem. Another important element often overlooked is the work environment: humidity (between 55% and 70%), temperature (between 18°C and 25°C) and absence of both fumes and dust must be constantly under control. Staff is another key variable. Once installed the machinery, the staff training needs enough time to use this new technology. Technologies change rapidly, people slowly. Reggiani Macchina is another Italian company that has managed to break into this field. It manufactures and markets machines for printing and mobilization of fabrics and yarns.

Established in 1946, Reggiani is and remains a solid Italian company representing a rare example of high technology that the entire world recognizes and ranks first among textile printing machine manufacturers. In short, a real pride for Italy! While many companies of printing plotters manufacturers of paper - Japanese, Israeli, American - are looking out in the field of inkjet printing fashion fabrics, Reggiani Macchine, leader in this field, is emerging with its advanced technology in areas such as wallpaper, printed laminates for floors, furniture, environmental decoration and external communication. The group's efforts have focused on the realization of industrial machines, strictly using water-based inks to create green solutions. Those inks are made by multinational market leader companies and then tested in laboratory directly by Reggiani to ensure its safety. Workers at Reggiani are young and resourceful, as well as the technique they are going to use.

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SCANNED PRINTING

The scanned print is a novelty of the new millennium, and the younger generations are expected to face and make the most of it. Antonino Tricomi, business development manager at Reggiani, explains that digital is opening up new market segments, even in those areas which were traditionally covered by paper printing machines, referring to furniture, wallpaper and fabrics.

Reggiani laboratory in printing fabrics to develop and test the machines produced

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Nowadays the fabric digitized printing is much used by the fashion and fast fashion companies, the latter being multinational companies that don't always respect the human rights and the ecological duties because too much focused on profits. Fast fashion is a contemporary term to express that designs move from catwalk quickly in order to capture current fashion trends.

Fast fashion clothing collections are based on the most recent fashion trends presented every year both in spring and autumn. Emphasis is on optimizing certain aspects of the supply chain in order for these trends to be designed and manufactured quickly and inexpensively to allow the mainstream consumer to buy current clothing styles at a lower price.

This philosophy of quick manufacturing at an affordable price is commonly used in large retailers. Fast fashion has become associated with disposable fashion because it has delivered designer product to a mass market at relatively low prices, but it has also come under criticism for contributing to poor working conditions in developping countries. In a society where clothes are consumed like food, fashion changes weekly and anyone can lay down the law in fashion thanks to social networks, we end up in a very unbalanced situation: on one hand the western population, rich, updated, fashionable, educated according to the principle "the more I have, the better", who crowd the season sales (the famous American black Fridays) to be able to have as many things as possible; on the other hand the poor people forced to work 16 hours a day at 10$ a month in order to produce that t-shirt, tanktop, skirt we buy at the modest price of 5.99 €.

Evidently this is not true only for multinational clothes companies. What is cheap is not always ethical or ecological, that is why the companies using Reggiani machineries or FOR.TEX ecological chemical components are often not preferred since they can't sell at bargain prices what is produced ethically and fairly. Digital printing has been a huge innovation, enabling companies to meet the demand of a fast-growing world in a constantly monetary disequilibrium. The best choice for ourselves and for the world would be to always prefer a bit more expensive but ethical choice rather than an economic but wrong one.

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CHAPTER 3: INDUSTRIALIZATION, GLOBALIZATION & ECOLOGY

GLOBALIZATION

The modern society is defined by the term “globalization”. We eat Italian food, drink French champagne, drive German cars, use Japanese technology and wear multi-national cloths. Countries and borders do not exist when it is about trade and commerce of any kind - cultures have become closer, people have come together. Movement of goods, people and capital becomes more and more easy making it easy for the global trade to thrive.

In a certain sense, the Western economy has been "global" since the sixteenth century with the African slave trade, colonialism, and the intercontinental trade in sugar and coffee

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making capitalism possible. But since the early 1980s, transnational corporations, cyber technology, and electronic mass media have spawned a web of tightly linked networks that cover the globe. Taken together, these forces have profoundly restructured the world economy, global culture, and individual daily lives. Nowhere are these changes more dramatic than in the ways dress and fashion are produced, marketed, sold, bought, worn, and thrown away.

For consumers in dominant Western countries, globalization means an abundance of fashions sold by giant retailers who can update inventory, make transnational trade deals, and coordinate worldwide distribution of goods at the click of a computer. It means that what people are consuming is less the clothing itself than the corporate brand or logo such as Benetton, Adidas, or Abercrombie & Fitch. Consumers are purchasing the fantasy images of sexual power, athleticism, cool attitude, or carefree joy these brands disseminate in lavish, ubiquitous, hyper-visible marketing on high-tech electronic media. But much less visible is the effect of globalization on the production of fashion.

As fashion images in magazines, music videos, films, the Internet and television speed their way around the world, they create a "global style" (Kaiser 1999) across borders and cultures. Blue jeans, T-shirts, athletic shoes and baseball caps adorn bodies everywhere from London and Milan to villages in Africa, styles and textile elements are borrowed from each other, global bazaars cater to consumers of every age, gender, ethnicity, profession, and subculture.

What are the elements that best describe the phenomenon “globalization” within the textile industry?

1. Outsourcing or subcontracting

No longer manufactured by the company whose label it bears, clothing from large retailers is manufactured through a network of contractors and subcontractors. Pioneered by Nike, the largest retailer of athletic shoes and fashions, the outsourcing or subcontracting system was quickly taken up by giant retail chains and today it represents the face of the textile industry worldwide.

By definition outsourcing involves companies from different countries (generally developed countries) who move out their manufacturing, marketing, and other back end tasks to other countries (generally developing countries). The process usually cost to the ordering company less than what they would pay at home for the same service – vastly a result of

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currency difference between the two countries as well as salary requirements for the same staff. Many times, this will get the work completed in just half the price of what they would pay in their country.

There is a vast contrast, but a tight relation, between production in sweatshops in countries such as Mexico, China, Thailand, Romania, and Vietnam, where poverty is high and wages can be as low as 23 cents per hour and consumption in retail chains filled with glamorous images.

This inevitably caught the attention in the world of textile and leading textile manufacturers officially created fair working conditions. Statistics show that the Western countries are losing millions in manufacturing jobs, with employment in the industry falling up to 10% in the last 10 years.

The negative side of outsourcing is huge and well known and still this practice proved to have quiet positive influence on the local markets: provided work for areas commonly known to have no such opportunities, provided infrastructure from buildings, through roads, bridges and ports, bringing a working mentality as well as greed. Understanding the benefits of outsourcing, many emerging economies have started targeting offshore clients. India and China suddenly faced competition from many other developing nations like Philippines, Vietnam, Bangladesh, Myanmar, Brazil, and even African countries. Countries with lower currency value are bagging outsourcing work for lesser prices than India and China. Due to competition for outsourcing projects among emerging nations, corporate offices can get their work done for very low prices.

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The global community is becoming increasingly aware of the many issues of outsourcing and subcontracting and today various organizations and institutions staged protests against such firms at various points of time. The World Fair Trade Organization (WFTO) is one such organization working against sweatshops and unethical sourcing. Students, Non Governmental Organizations (NGOs), and many others have held protests time and again against corporate giants indulging in unethical sourcing.

2. Labour Immigration

Living in a world with free market of goods, people and resources brought the other effect of the globalization: labour immigration. Immigrants from third-world counties look for better life and professional realisation there, where jobs are available and will improve personal lifestyle. One of the reasons to this phenomenon is the established legal system in the developed society where minimal wages are guaranteed and payment by employers is secure. Often reason to leave one country becomes the poor legal system that does not protect employees rights – workers might get no payment at all or less payment than the agreed one, insurance and taxes then might not be paid either that is a loss for the country itself but with high corruption the public interest is not of a concern.

3. The Informal Global Networks

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While the global assembly line and mass consumption form the dominant circuits of globalized fashion, other, less visible circuits span the globe. These shadow networks concern fashion production and consumption in third-world countries. The global economy of high-tech, large-scale networks also works by exclusion. In third-world countries, globalization has resulted in the destabilizing and dismantling of official economies, massive unemployment, and the rise of informal or underground economies. As part of the restructuring and deregulation of global capital, the World Bank and International Monetary Fund have imposed on debtor nations in the third world Structural Adjustment Programs. These programs dismantled state economic controls on basic necessities and social programs for health, education, housing, and sanitation, in favour of free-market strategies, austerity programs, and privatization of basic utilities like electricity and water. These measures have resulted in a disintegration of formal institutions of the government and economy. Out of desperation, people have devised means of surviving in informal economic networks. In Africa and Latin America, this has had two effects on fashion.

One is that the numbers of artisanal producers, especially tailors, dyers, weavers, and jewellery makers, have increased dramatically. In an alternative global network, suitcase vendors sell to tourists, or they travel to diasporic communities in Europe and the United States, where they sell their fashions in people's homes, at ethnic festivals, or on the street. They also sell in the boutiques and on the Web sites of non-profit organizations dedicated to helping third-word artisans.

A second effect concerns global networks of used clothing dealers and consumers. Large wholesalers buy masses of used clothing from charity thrift shops in the United States, Canada, and Europe. In giant warehouses, dealers sort the clothes, bail them, and send them by container to smaller wholesalers in countries of Asia, Africa, and Latin America. Small retailers then sell the clothes for affordable prices at open-air stalls in cities and tiny rural towns. Jeans, T-shirts, and athletic shoes thus become the most visible symbol of globalization in virtually every corner of the world.

Where from here?

Today’s politics are changing the world’s map rapidly – the rise of nationalist and conservative parties around the world and particularly all Europe are shouting loudly that the

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wealthy western societies are becoming more and more concern with opened borders, attacks on national identity, steal of domestic jobs, all of the above meaning less economical stability within their own countries.

The global markets are still very strong and no one expects immediate change but things are not the same and it comes a time to re-think the opportunities not outside the box but exactly within it.

THE EFFECTS OF THE TEXTILE INDUSTRY ON ECOLOGY

We wear, use, and decorate, with textiles, yet we know very little about them and further more we know very little about their impact on our very own bodies when we use them. Further more we know very little about the impact they make on the ecology of our valuable Earth.

The textile industry encompasses many different types of fabrics shared between natural fibers such as wool, silk, linen, cotton, or hemp and then man-made fibers, the most common ones would be synthetic fibers namely polyamide, acrylic, polyester, elastane, or lycra. Most of these synthetic fabrics are made from petrochemicals, these are cheap and easy to care for, which is why they are becoming the industries miracle drug. The textile industry is becoming more and more divers due fabric process and means of employment. Most synthetic fibers are hard to recycle, (nylon takes 30-40 years to decompose) and they create heavy pollution.

Chemical Based Procedures of Textile Manufacturing

There are eight basic steps when producing textiles to be sold. The first step is called **Scouring.** This is when the raw textile materials in the natural form (dirt, pesticides, fungicides etc. are in the material) undergo a pretreatment to ready them to be worked on at a factory level. This includes wetting agents

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and peroxides stabilizers. **Bleaching** is the decolonization of the fabric; on natural fibers using Oxidative bleaching or reductive bleaching completes this process. These steps contain sodium, hypochlorite, sodium hydrosulphite, and hydrogen peroxide. **Desizing** is the third step in the process. During weaving sizing agents are added to the fabric, after weaving the material is treated with chemicals such as acids, alkalis, or oxidizing agents in a proses called desizing. **Fabric softening** is designed to prevent static cling and make the fabric softer to the touch by coating the fabric outsides with a thin layer of chemicals These chemicals contain lubricating properties and eclectically conductive properties. **Mercerization** is the step where fabric is treated with a caustic solution to making the fibers stronger, prevent shrinkage, improve luster and so on. High-end fabrics may undergo this process twice. The **Dyeing** process includes large amounts of dyestuff, thinking agents, water, dispersing agents, leveling agents, acid buffs etc. are used in the step of the process; most dyes are water soluble and applied as an aqueous solution. Lastly is the **Printing** step, this is when colour is imparted onto the fabric. In this step different dyes and agents are added to the fabric along with various chemicals and acids.

Why this is Important and what Effect does it have on Humans?

It is found that 70% of the problems with manufactured fabrics occur in the finishing steps. The problems being with the fabric themselves, discoloration and so on, but also this step have the largest effect on humans. These chemicals used in the steps above impact us directly when we put these products on our bodies, causing unknown chemical seepage and allergies as well as known problems like rashes and so on. A majority of these chemicals have been known to cause cancer, genetic mutation and be generally toxic. Chemicals such as

- Alkylphenolethoxylates (APEOs)
- Pentachlorophenols (PCP)
- Toluene and other aromatic amines
- Dichloromethane (DCM)
- Formaldehyde
- Phthalates
- Polybrominated diphenyl ethers (PBDE's)
- Perfluorooctane sulfonates (PFOS)
- Heavy metals – copper, cadmium, lead, antimony, mercury among others

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These chemicals provide a massive problem for humans, but also the environment.

The Impact on the Ecology and Economy

While the factory portion of the industry produces waste and pollution very seldom do we think of the raw fiber- agricultural side of the industry. For example, cotton is the most pesticide invasive crop worldwide. This crop also undergoes herbicide as well as often times chemical defoliants, these chemicals remain with the fabric even after finishing and release throughout the life span of that fabric. Another astonishing factor is how much water is used in growing cotton alone, for example it takes 257 gallons of water to create just a t-shirt from the growing process up to the finishing process. There are many other problems with the agricultural side of textiles. The UK is known for having agricultural as well as craft workers suffer from high exposure to organophosphate sheep drip problem from the wool industry located in those regions. Another example is that many synthetic fibers don't biodegrade at all (nylon and polyester). A different synthetic fiber known as Rayon is actually made from wood pulp that undergoes heavy acid treatments and plays a large role in the lumber industry. The last example from an agricultural stand point is the leather industry that is suffering heavily from a lack in supply with solutions that are controversial to animal rights as well as the tanning and dyeing process causing pollution.

When textile manufacturers start producing, they often use massive amounts of water as ever step in the finishing process is treated in water, this creates to problems: Attaining so much water and second what happens to the water after it has been mixed with chemicals? Another problem is the disposal of used chemicals and waste, because many countries have strict pollution regulations (how to dispose of water, chemicals, regulations on water and types of chemicals etc.) and the coast to follow these regulations a common trend is to "outsource manufacturing". The side effect of this procedure is that while manufacturing and its pollution is in and affects every country more countries with less strict regulations are taking the brunt of the manufacturing work and there for pollution. Countries in east Asian who do the most

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manufacturing due to lax government regulations, seem to have the highest amount of textile population and child labor as well as poorer working conditions given the higher demand, to serve the world market, thought this is a huge money maker for those countries, their ecosystem and nation suffers for it.

In conclusion the impact of textiles is massive to the environment including chemical dumping in the world's water supply, agricultural problems and then impairments to human bodies as well as human rights. However with more research done on the topic many organizations are creating more "eco" friendly ways of manufacturing. Where there is a will there is a way.

WHAT IS THE ENVIRONMENTAL AND SOCIAL IMPACT OF TEXTILE?

Today we face many challenges, like the environmental and social cost of producing textiles. According to Amigos da Terra Ourense-Friends of the Earth, the obsolescence of textiles poses the problem of two collections being presented each year, with the psychological pressure on consumers, who want to be in fashion, and an impact on resources. They give us the example of T-shirts, with over 2 billion sold every year worldwide, each person in Spain buying 8-9 Kg of clothes per year and 390,000 tons of textiles being trashed in Spain alone.

As for the environmental impact, they explain that in order to produce one cotton T-shirt we need 3,900 litres of water, which means about 26 bathtubs. Additionally, 125 grammes of fertilizers are needed, along with chemicals like insecticides, or those used in dyeing.

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The social impact is also high because, of the total price a customer pays for a piece of clothing, very little goes to the person who actually sewed it.

The fact that some factories are in Asian countries, where labour laws are very lax, is also a risk of child labour or difficult working conditions in some cases. There is a social challenge, as in many other sectors.

WHAT CAN WE DO?

Fortunately, by recycling one ton of textile, we save 7 tons of CO2.

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It has been also suggested repairing and with the project Alargascencia that Amigos da Terra Ourense-Friends of the Earth intend to extend the lives of our possessions. They recommend shops where we can rent, exchange, repair or adapt anything we need, before buying a new one without thinking of these possibilities.

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INDUSTRIALIZATION

The Industrial Revolution, which took place from the 18th to 19th centuries, was a period during which predominantly agrarian, rural societies in Europe and America became industrial and urban. Prior to the Industrial Revolution, which began in Britain in the late 1700s, manufacturing was often done in people's homes, using hand tools or basic machines. Industrialization marked a shift to powered, special-purpose machinery, factories and mass production. The iron and textile industries, along with the development of the steam engine, played central roles in the Industrial Revolution, which also saw improved systems of transportation, communication and banking. While industrialization brought about an increased volume and variety of manufactured goods and an improved standard of living for some, it also resulted in often grim employment and living conditions for the poor and working classes.

But what does the term "industrialization of the textile industry" mean today?

Today's fast speed of life determins the fast pace of everything and above all is the textile industry. "Fashion" is extremely time sensitive term and the changes are rapid with the rapid development of technologies, methods and technics of production of goods.

Textile engineering nowadays is shattering decades-old stereotypes of a labor-intensive, factory-based industry in which men and women toiled over looms and spinning jacks. The clang of the early production machinery has been replaced by a computer-driven enterprise that is making significant contributions to fields ranging from athletic performance equipment to human health and rehabilitation.

Among other innovations, textile engineers are developing high-tech fibers that are used as substrates in biomedical applications, as well as materials that aid in energy conservation and pollution control.

While the textile industry in some parts of the world is labor-intensive, new technology has advanced manufacturing processes in many markets. Industrial looms today incorporate air-jets to weave at speeds of 2,000 picks per minute - in 1980, 200 picks per minute has been considered fast.

Computer-aided design and computer-aided manufacturing have also impacted textile production, as companies seek efficiency gains to remain profitable and competitive. Machine designs have become increasingly sophisticated and precise, enabling innovations in specialty fabrics used in the biomedical field. In addition to substrates that are used to rehabilitate damage to the human heart and vascular system, other textile innovations include Dupont's Lycra, a specialty material used in compression pants worn by competitive bicyclists.

Textiles are also showing up in road construction and environmental applications. There is much activity today that extends far beyond clothing and home furnishings.

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The modern nanotechnology has the potential to make major contributions to material innovations going forward. Many belive that a breakthrough technology would be the cost-effective development of nanofibers.

Nanotechnology is already driving innovations in this field. Nanoscience is bringing advances in lightweight materials and durable materials, and is providing keys to understanding methods by which less energy can be used in textile design, fabrication, and manufacturing. With almost no doubt we can say that the fabrics of the future will be nanotechnology-based.

The way to go? .... Education and Training

To bring high-value innovations to the marketplace, the professionals and especially designers involved with the textile industry today require training in areas ranging from the classic disciplines of materials science and thermodynamics to specialties like polymeric biomaterials engineering, mechanics of tissue implants, and composite structures.

Educating themselves, training and experiencing work with new technologies, new fibers and new fabrics is Dare2Wow's aim for everyone interested in the textile industry.

Keep exploring, learning and experimenting - the future is today!

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FROM FLAX TO FABRIC: THE TRADITIONAL LINEN PROCESS

***"Spinning** was carried out in a meeting that also involved chatting, joking, singing and even dancing at the end". It was an occasion for work and amusement. From ancient times, these gatherings contributed to establishing links in small communities.*

Textile handcrafts in Galicia had an enormous socioeconomic importance in the past. One of the activities that had great relevance in the family economy and the way of living in Galicia was the linen industry, with a long tradition, even though the documents, which have been found about linen production, date from the Middle Ages. Wool production in Galicia was not relevant.

The highest peak in linen production was mid **18th century** until the beginning of the 19th century. During this period, apart from the flax cultivated here, foreign linen from the Baltic was woven, which reached Galicia through the ports of Ribadeo, Carril and Vigo. The linen was then exported to Castilla or America.

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With the foreign linen there was a decrease in autoctonous production, which lost quality as the seeds were not being renewed. From the 1830s this kind of handcrafts went into a crisis as a consequence of the flourishing English and Catalonian textile industry.

Although this activity continued until the mid 20th century, it was limmited to self-consumption in hard times like post world war I or the Spanish civil war.

Recently, some associations are interested in recovering the linen handcrafts, which were present in most of the Galician territory.

Linen was the protagonist of a good part of our culture. Each family cultivated flax for home use and to make blankets, bed sheets, bedspreads, table linen, towels, carpets, clothes and underclothes, everything necessary and expensive in those times of a subsistence economy.

A relevant aspect of the works connected with textiles is the importance given at the time to **women,** who throughout history remained retreated into a domestic context, as part of a model of work that intended to increase the family income through activities connected with sewing, combining with other household chores. This way, women in Galicia took part throughout the centuries in this socio-productive system carrying out traditional jobs like seamstress, weaver, spinner, knitter or lacemaker, in a mainly rural society.

LINEN HANDCRAFTS




It was a labour-intensive process that was carried out all year long. The flax seeds are planted in May and the harvest takes place three months later.The plants are not cut, but uprooted in handfuls. In the same place they are threshed with a *ripple* to remove the seeds.

Stalks are then immersed in slowly-moving waters of rivers, in a process called water-retting, and stones are placed on top so that they do not drift away.

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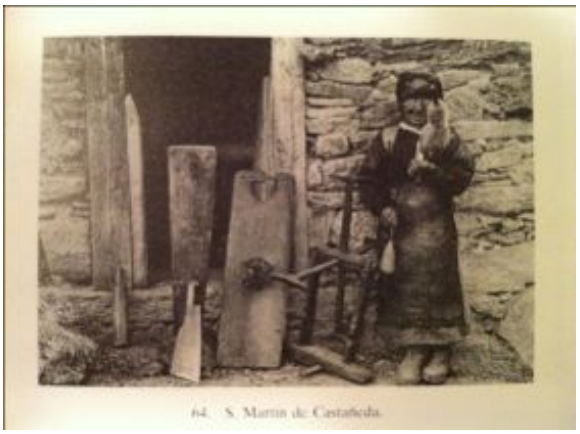
After some weeks, the flax is spread on the ground to dry. Once it was dry, in some places the cows trod on it to break the fibre.

Then it is further broken with a flax break, which is is a set of hinged intersecting wooden blades. This is done to crush the stems and separate the flax fibre inside. To finish this process, scutching swords are also used.

During the winter nights the separated bast fibres are next heckled, or combed with *heckling combs*, through a bed of nails that splits and polishes the fibers.

HECKLING COMB

Two tools are used for spinning: the *distaff or rock* and the *spindle*. Flax is always spun from the rock very finely resulting in a thin yarn, then winding the yarn onto the spindle. When the spindle is full the *skeins* are made. The yarns are then bleached by boiling in soapy water with oakwood ashes. With a *winder*, the yarns are then wound onto spools.



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WINDING

The spools are then taken to the weaver to weave in the loom the linen that will be used for clothes or home use.

WOODEN LOOMS

Even though women carried out most of the tasks, the whole community participated many times and spinning for instance was a festive occasion.

Women gathered in the kitchen or barn of a house for s**pinning** and other people attended to sing or tell stories. These **fiadeiros**, after the day's work, became an occasion for amusement for young people. There was dancing, tambourine playing and singing. They began around Christmas and finished by Carnival.

Vicente Risco pointed out that the gathering was quite a collective courtship occasion. With the loss of hand spinning the **fiadeiro** became a festival called in different ways, depending on the area of Galicia: **ruada, foliada, serán, pandeirada**, etc.

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II SERÁN CAMOS (NIGRÁN)
Sábado 7 de maio a partir das 21:30 horas
No pavillón da comisión de Festas de San Roque de Camos (Xogo de Bolos)
Chocolatada para tódolos asistentes!
Música e baile asegurados Agardámosvos!!
BÓTALLE UNS ELELELOS!!
Organiza: Pandereteiras As Camoesas
Colabora: Comisión Festas de Camos
Concello de Nigrán


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28 de Maio de 2016
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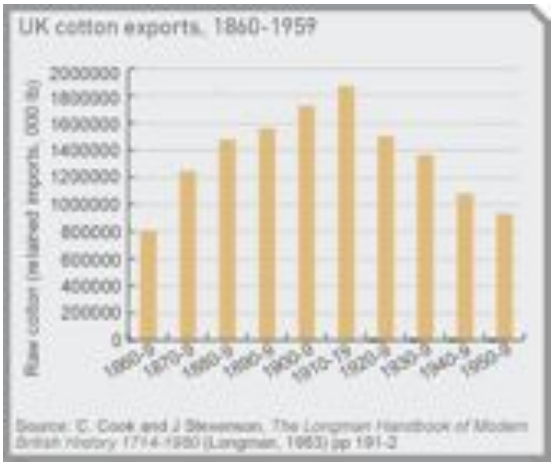
Ruada en Soutelo
Sábado 23 de Xaneiro / 21:00 horas
Salón Avenida de Soutelo de Montes
Acudirán numerosos grupos musicais da bisbarra e arredores
Asociación Ecoloxista e Cultural de Terra de Montes Verbo Xido


III NOITE DE FIADEIRO
25 de Abril de 2009
20:30 h
Praza San Andrés - Vilavidal - Ramirás
Organiza:
Patrocinan
Colaboran
Escola Provincial de Danza Castro Flosio
Airiños d'Amoia
Pandereteiras Lecer
Cantareiros Maghúa
Lembranza Sulpor
Brisel
Os Chicharos
Abalarx
Os Jalos d'Antoquia
Cantareiras da Bola

THE HISTORY OF COTTON IN GREAT BRITAIN

Weather you know it or not cotton is the most widely used and sold fabric. “Cotton” It is a word printed on most every one’s shirt tag. The Cotton plant is used for textiles; food for cattle, and the cottonseed is used to make oil that is utilized in cooking, soup, margins, cosmetics, rubber and even plastics. The cotton fiber may be woven or knitted, because of this it is used in most household fabrics such as: velvet, corduroy, chambray, velour, jersey and flannel materials. It is also used to make paper, book binding, coffee filters, fishnets and much more.



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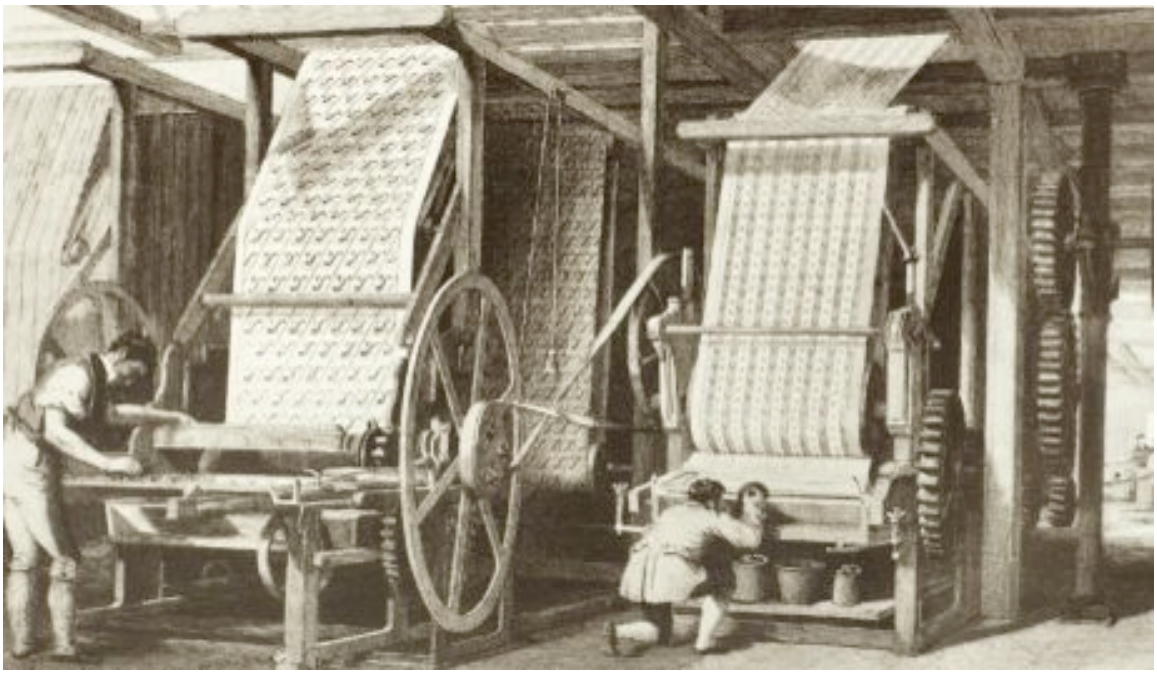
Cotton was not a key player for Britain until the Industrial Revolution. Due to Britain's massive cultural impact on Europe, the British trading empire took cotton and made it a worldwide calamity. In the 1660's the East India Trading Company was sending a quarter of a million pieces into Britain. This number grew heavily when the general public grew to be more fashion forward and concerned about cleanliness. Because cotton may be easily washed and dyed it became the number one fabric for the general public, as it remains today.



Cotton used the industrial revolution as a stairwell to the top, starting with Sir Richard Arkwright's first true cotton factories. The factories originally were in North England around the Pennines Hills. This was ideal for the space and more importantly the flowing rivers that supplied power to the factories. The industry gave way to many jobs and new trade opportunities. The whole Industrial Revolution is based on the inventions that made the cotton industry one of the most thriving ones in the world - the invented in 1733 "flying Shuttle." allowed wider cloth to be weaved at a faster speed. The "Spinning Jenny" allowed for a higher number of threads a machine could spin. The later invented "Water Frame" utilized water as a source of power, but also produced a better thread than the "Spinning Jenny." Up next in the list of great inventions sits the "Mule" that made the best thread than any other machine out there. Then it was the Boulton and Watt's Steam Engine that powered factories and machinery.

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Today's well-known loom, made in 1812, was a massive component for the success of cotton because factories could now produce a finished product within the same premises.

Great Britain soon established itself as the king of cotton trading in Europe and with India; all of these successes did however have a downside. Child labor was increased due to the 64 new factories built between 1790 and 1821. This was eventually challenged by parliament with numerous Acts passed to protect children.

Today Cotton is still a large contributor to Great Britain's economy making it still the "Workshop of the West." The cotton Industry has given jobs to millions in the course of its development. Cotton has and continues to provide job security for farmers to factory workers all the way up to designers and corporations. The little letters on your clothing tag has had a bigger impact than most will ever realize and proceeds to be well trusted and used by millions around the world.

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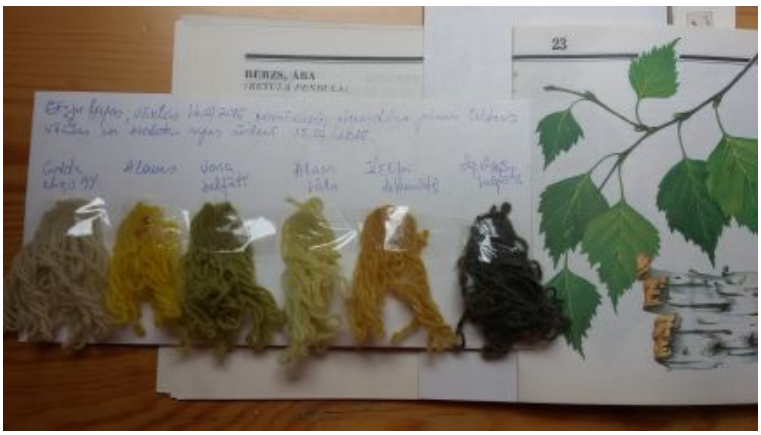
COLOURING WITH NATURAL PLANTS

Plant dyes are used for colouring wool, linen, cotton, semi-synthetic fibre, leather, wicker wood and roots.



Natural dye-colour is durable and does not fade when washed. (Resistant to alkaline liquids and the sun.) Especially resistant to fading are colours, which are obtained from a plant or its bark infusion. Only materials coloured by flower infusions are more affected by sunlight.

Dyeing with natural dyes formed as an independent branch of folk art in which each master shows his/her craft, traditional and newly acquired different work techniques.

In Latvia dye is made from nearly all wild and many cultivated plants. By using a variety of colouring techniques and mordant, from a single plant you can get a number of different colours and tones.

Plants can be collected, crushed, boiled and fibres coloured are allowed only if the hands are without injuries and inflammations. This is especially important when working with plants containing poisonous substances.

The plants are collected in a dry, sunny mornings, when the dew has dried off. In rainy weather you can collect lichens, roots and rhizomes, because they are washed before drying. They are collected in autumn or before blooming.

Plant collection ought to adhere to wildlife protection. The plants cannot be collected in reserves, protected areas, national and natural parks, and in the green areas around cities. Protected plants recorded in the Red Data Book should not be used for colouring.

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Colour tones depend on whether the dye is made from fresh or dried plants. Taking larger quantities of plants the colouration will be darker and more permanent.

Fresh herbs give brighter and more intense colour. Dried plants will result in more greyish and paler colours. For plants to give more intense tones, plant are processed - dried in the sun and wind, occasionally sprinkling with water until they become pink. Fermentation also can be used to make plants give more striking colour. Fermentation is performed by soaking plants and fibre in a pot that is closely sealed with a thick cloth or polythene film and left untilit ferments.

The first rule of painting: good, clean, high-quality colouring material. To achieve maximally even coloration the fibre must be clean. It can only be washed with unscented soap.

In order to make the dyes more durable they must be treated with mordant. This can be done by natural or chemical materials. The quality of fibres processed with natural mordantis less affected.

If the yarn is treated with mordant before dyeing chemicals affect the fibreless. Longer maceration in strong alkalis will make the fibre brighter.

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BOBIN LACE MAKING

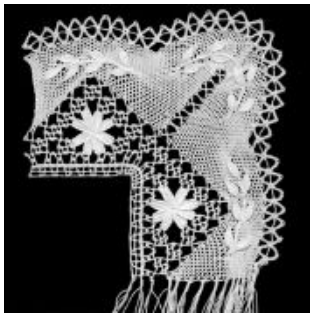
CAMARINAS LACE

“At the back of the kitchen, the mother was making bobbin lace flowers. That industrious sound belonged to the natural order of the house. It made itself noticed when it didn’t exist”. Manuel Rivas: O MÍSTER & IRON MAIDEN

"We are talking about 8,000 euros a year, so running the school means Camariñas lace making".

The idiom "facer encaixe de Camariñas" or Camariñas lace making is used with the meaning that somebody had to carry out complicated or delicate tasks to achieve a goal, Camariñas being the name of a coastal town in Galicia.

Example in REVERSO Dictionary: Teño que facer encaixe de Camariñas para que o soldo me chegue a fin de mes. I have to juggle things around constantly to make ends meet.



THEY ALL CLAIM TO BE THE ORIGIN OF THE ART OF LACEMAKING

For many years, Spain, France, Italy and Flanders claim to have been the inventors of bobbin lace making... Researchers are sure that since the 15th century lace from these countries was bought and sold throughout the known world.

The word “lace” with the meaning of “delicate fabric made by knotting, looping or twisting threads into open intricate symmetrical patterns” was not documented until the first half of the 16th century. Since the mid 16th century and specially the 17th century, bobbin lace became a tradition common to all western countries and all those under their cultural influence, from Russia to Brazil: paintings by Anthony van Dyck (1599-1641) or Diego Velázquez (1599-

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1660) show the fabulous collars and cuffs of the 17th century. In the 18th and 19th centuries we have the splendid blonde silk lace shawls, also made with bobbins.

LACE IN 17th CENTURY EUROPE

Anthony van Dyck (1599-1641): Portrait of Emanuele Filiberto, Prince of Savoy, 1624.

Anthony van Dyck (1599-1641): A triple portrait of Charles I of England, c.1636.
17th CENTURY SPANISH LACE

Diego Velázquez (1599-1660): Prince Baltasar Carlos as a hunter.
18th CENTURY SPANISH LACE: Blonde silk lace shawls.

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Francisco de Goya: The Duchess of Alba (1797).
19th CENTURY SPANISH LACE: Blonde silk lace shawls.

Postcard of Queen Victoria Eugenia (1887-1969). 19th century blonde silk lace shawl.
20 th CENTURY SPANISH LACE: Blonde silk lace shawls.

Joaquín Sorolla: "Queen Victoria Eugenia of Spain" (1911).

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BOBBIN LACE IN GALICIA

The intense trade in Europe at the end of the Middle Ages also included lace, and models and motifs were exchanged to improve sales and production.

The crowded way to Santiago continued from Compostela up to the coastal towns of Fisterra, Muxía and Camariñas, where varied cultural elements arrived from all over Europe, including lace.

According to Galician historian Antonio López Ferreiro, in the 15th century the art of bobbin lace making was spread all over Galicia, as lace was used in clothes and home linen. In the 16th century the nobility and wealthier class imposed the fashion of wearing lace in their clothes. The Church was a special consumer of lace for the sacred ornaments, frontals and altar cloths, sacrament attire and even the clothes of religious images, so in the 18th century the production of lace in Galicia experienced a period of great prosperity.

In the 19th century, as a consequence of the massive Galician migration to America, lace began to be exported, specially to Argentina and Cuba.

In the Expos of A Coruña (1878), Barcelona (1889) and Paris (1889), works of "Camariñas lace" were exhibited, as all Galician lace is named after this designation of origin. It doesn't only come from Camariñas, but also from Muxía, Vimianzo, Cabana, Carnota, Corcubión, Dumbría, Fisterra, Laxe, Muros, Noia, Santa Uxía de Ribeira, Betanzos and Santiago de Compostela, some places in the Pontevedra province and areas of Fonsagrada and Viveiro, in Lugo.

World War I (1914-18) caused that in the 20th century those countries which produced and exported lace like Germany, France, England, The Netherlands and Belgium, among others, had to give up production due to the circumstances. Therefore, lace from Galicia and other areas of the Iberian peninsula saw an improvement in the national market, as well as in Europe and America.

The dictatorship of General Franco promoted and revalued handcrafts and beneficial measures were taken to promote Camariñas lace and to improve the precarious economic situation of bobbin lace makers. Exhibitions showing lace from Camariñas were organised, and in 1948, the Women's Section created the Professional Training Workshop of Camariñas Youth (Taller de Capacitación Profesional de Xuventudes de Camariñas), which operated non-stop until 1978: many women learnt the techniques of lace making and the important work of bobbin lace makers gained recognition.

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Since 1970, the rebirth and the important improvement of production caused lace to be present in every exhibition, fair and display of Galician handmade crafts.

In 1992 the Law of Galician Handcrafts (Lei de Artesanía de Galicia) was passed, which, among other measures, establishes the areas of handcrafts interest and creates a certificate of quality handmade crafts, since 2011 under the brand *Artesanía de Galicia*, or *Craftsmanship of Galicia*, a guarantee of quality and prestige in international markets.

Today, bobbin lacemaking continues to be an activity of great importance for the local economy, with a growing number of artisans dedicated to this art. This way, a centuries-old tradition is kept alive, which enriches the cultural heritage of our country.

MAKING LACE AND SINGING: THAT INDUSTRIOUS SOUND BELONGED TO THE NATURAL ORDER OF THE HOUSE

The girls learnt the art of lace making in a house where all the women gathered and which were called "escolas para palillar" or "palilladas", schools of lacemaking. While they made lace, songs were sung to accompany “that industrious sound that belonged to the natural order of the house”. The house where they gathered was a workshop, a school and a place for amusement. There were two kinds of lacemakers: on the one hand, the girls who were going to dedicate exclusively to making lace, the *caseteiras*, who didn’t have to take part in the agricultural or farming work. On the other hand, those who had to work in the fields and farms, and only made lace in the evenings or in bad weather.

Lace making gatherings have survived to the present day and, although they have lost part of their old nature, they are still a meeting point for lacemakers and a school for learners.

THE SOUND MADE ITSELF NOTICED WHEN IT DIDN’T EXIST

Most of the lace made was of two kinds: lace edging and insertions. Although there were nearly a thousand designs, today a vast amount have been lost, specially the most difficult ones and those which used the thinnest yarns.

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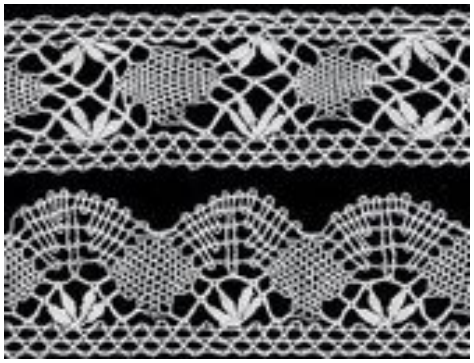

But many motifs have reached us to the present day: *marabilla, ganapán, simona, gitana, fieita, rosario, peineta, eses, flor, corredor de Camelle, picos, ramo, corazón, berberecho, tambores, estrada de Muxía, etc.*

Recreation of an early 20th century photo for the 2017 poster.

https://www.youtube.com/watch?v=JMaX4j3EuU8

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CHAPTEL 4: SPORTSWEAR TEXTILE INDUSTRY

The history of sports probably coincides with the military training existence, which aimed in keeping fit and in good fighting condition. The earliest signs (15.000 BC approx.) of sport activity (sprinting and wrestling) have been found in the Lascaux caves in France. In Egypt, 4000 year-old monuments indicate that a number of sports activities (wrestling, long jump, swimming, rowing, shooting, fishing, ball games, athletics etc) had already been developed and regulated. The first time in history that sports were formally instituted was in 776BC in Olympia and the games were called Olympiads (also known today as Olympic Games). The games took place in Olympia every four years and they lasted until 393AD. In the first Olympiad consisted of a unique sprinting game. More sport events like wrestling, long jump, javelin throw, discus and many others were added shortly afterwards. In the middle age entire villages and towns were competing to each other in rough and sometimes violent ball games like Shrovetide and mob football in England, caid in Ireland, calcio Fiorentino in Italy and many others (Wikipedia, 2016).

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In each period of time and each region the sports clothing varied, for example the clothing was sometimes fancy, as "kariginu" for the ball game kemari in Japan, or very light, as in the ancient Egypt. In the early Olympic Games the athletes were wearing a light type of loincloth held up by a band that went around the athlete's waist. It is not known for sure how it is started but it is known for sure that from 720BC the athletes in Olympic Games were competing naked, as an expression of their masculinity and their strength (Swaddling, 1999).

In 1896 the International Olympic Committee revives the ancient Olympic Games in Athens, Greece. Since then, the Olympic Games are organized every four years with a few exceptions. Olympic Games was the first global sport event and we can investigate the evolution in sportswear clothing by following the sportswear in the Olympic Games.

In the first modern Olympic Games only men could take part while women starting taking part a few years later, in the second modern Olympic Games. The outfit for men at that time was shorts and short-sleeved cotton shirts, while women wore something more "formal" and less "convenient" due to the social position of women at that time. In 1904 the usual apparel was

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thigh-length baggy shorts and cotton vest and in 1908 the specific apparel is part of the rules. For the marathon, competitors "must wear complete clothing from the shoulder to the knees". In the Olympic Games of Stockholm in 1912 some women competitors demonstrate a controversial short knee-length skirt in gymnastics and women swimming events become part of the Olympic program. The heroism of women in World War I puts pressure to accept female competitors with respect.

In 1922 the Fédération Sportive Feminine International is established and Suzanne Lenglen, a French tennis player, innovates by wearing a knee-length skirt at Wimbledon tournament. In the Olympic Games of Paris the traditional wool fabric starts to be replaced by lighter and cooler fabrics such as satin, silk and jersey cotton. Sportswear becomes fashionable and women swimsuits get more practical.

In the Australian Olympic Team in 1932 both women and men demonstrate tracksuits as patriotic official uniforms. In 1936 Berlin Olympic Games, Dassler Brothers persuade Jesse Owens to wear a pair of their track spikes. Jesse Owens won four gold medals in front of the eyes of Adolf Hitler and created a lot of attention not only for his "fist" in the medal ceremony but for his new spike-shoes. In the World War II, Dassler Brothers join the Nazi Party and after its end each brother followed his own career. The oldest brother (Adolf) creates the Adidas brand and the youngest brother (Rudolf) creates Puma brand. After World War II stretch jersey fabrics are more widely used and female sportswear converges very much to the male sportswear.

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In 50s and in 60s the rise of synthetic fabrics like elastane, spandex and lycra allows the competitors to wear more functional and fashionable sportswear. The next decade leotard shows up in women's gymnastics and trousers begins to be the outfit for women on and off-duty. In 80s, men shorts are high-cut revealing hips and slightly baggier compared to 70s tight hotpants. Yet, elastane and spandex is used by almost all sportsmen and sportswomen. Although sponsors exist since the ancient Olympic Games, the Olympic Games in 1984 in Los Angeles were the first to be fully funded by corporations such as Puma, Nike, Adidas, Reebok etc. Teams and individuals are wearing uniforms emblazoned with their sponsors.

In 90s technology starts to get involved in athletes clothing. In 1992 in Barcelona Olympic Games trendy tracksuits are manufactured in order to keep athletes warm their races. Yet, the athletes apparel is particularly the same for both men and women. In Sydney 2000 we see the futuristic "swiftsuit" for sprinters and "fastskin" for swimmers. The technological innovations allows greater ease of movement through the air and water, respectively. In Athens 2004 we see high-tech streamline zip-up bodysuits and in London 2012 we see huge corporations competing in sportswear. For example, Nike introduces the super aerodynamic suit for athletics "Pro TurboSpeed". Adidas and Puma produce superlight with breathable hi-tech material running shoes specialized for each running event and Speedo creates a swimming suit which reduces drag in the water even more (Julie, 2013).

Overall we may say that in our days, sportswear is a combination of technological innovation, stylish fashionable outfit and, for a lot of people, a way of life.

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CHAPTER 5: TEXTILES AND LITERATURE

WEAVING WORDS

WEAVING PEACE

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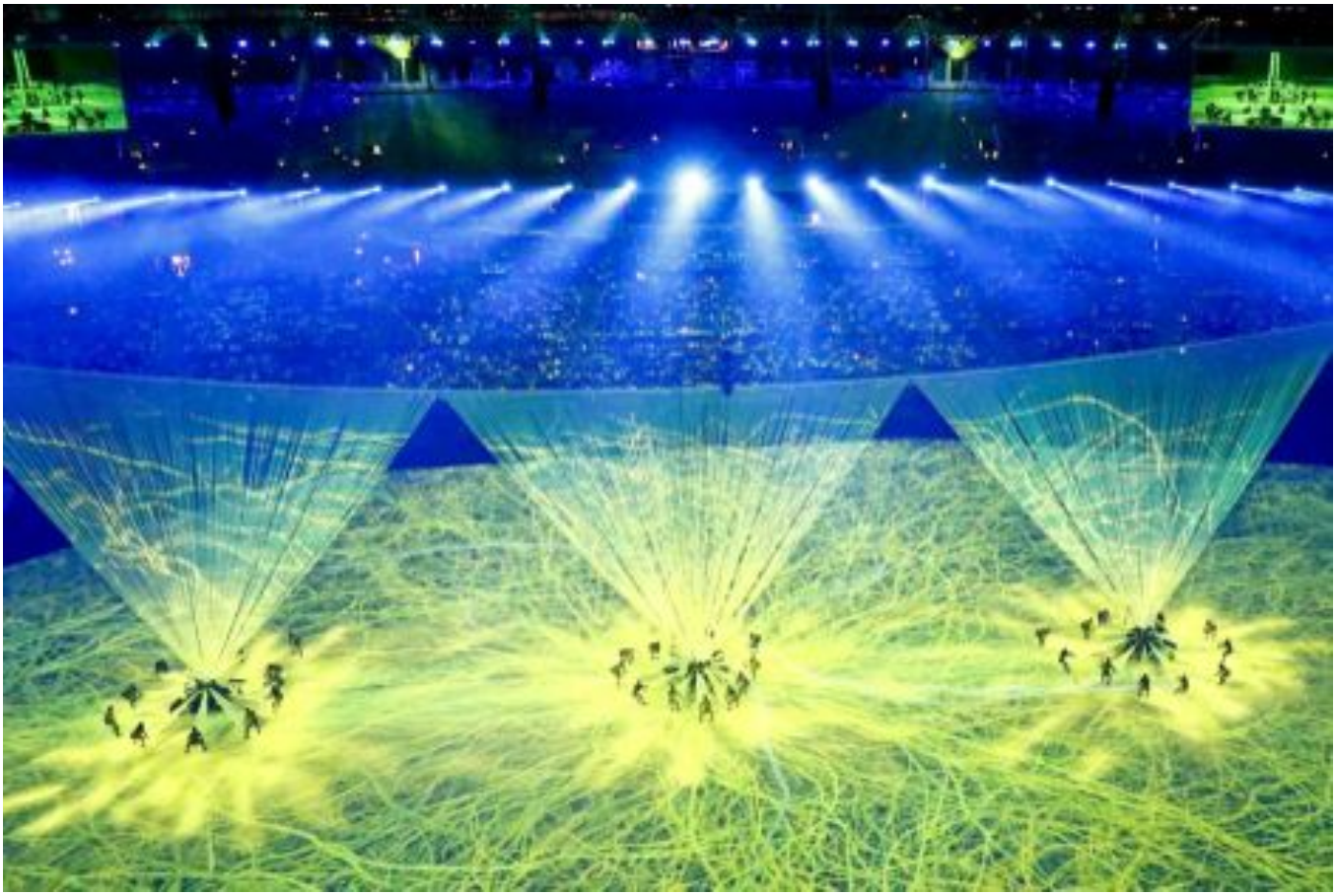

Rio Olympic Games 2016 - Weaving at the Opening Ceremony

In many literary pages we can see the brushstrokes of the writers dedicated to the description of the clothes of the characters in real word paintings. And some of these characters have even influenced the way people in the street dressed. In the mid 1770's a peculiar clothing fashion swept across Europe. For no immediately apparent reason, young men started dressing in yellow trousers, blue jackets and open-necked shirts. It turned out that these 18th century fashion victims all had one thing in common; they had all been exposed to the first novel of Johann Wolfgang von Goethe, The Sorrows of Young Werther.

But textile activities have also been the subject of texts that make us see, hear, smell and feel a number of sensations, taking us on a tour of an interactive museum.

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DORES TEMBRÁS, O POUSO DO FUME (THE DREGS OF SMOKE)

for me
the tin of buttons
the industrial magnet of the pins
little and quiet
among spools of acrylic yarn
the sound of the sewing machine
and measuring tapes that measured everything
bobbins like treasures
scissors like teeth
fashion magazines from Paris
not to be cut
and the tiny upholstered stool
to see everything

para min
a lata dos botóns
o imán industrial dos alfinetes
quediña
entre bobinas de fío acrílico
o son da remalladora
e cintas métricas que o medían todo
canelas coma tesouros
tesouras coma dentes
figuríns de Paris
para non recortar
e o banquiño forrado
para miralo todo

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What was lost
washing white handkerchiefs
the only thing mum allowed
tiny red hands
shivering
half painted little nails
that bar of yellow soap
endless
and I
wanting to use the brush
and mum
no way
for handkerchiefs
there was no need
and there I go
resembling her
in the river down
little wool cardigan
wet cuffs
roll up your sleeeeves
and foam with no scent
the most important thing
was to make foam
rub against the stone
the handkerchief
and mum
teaching me to squeeze it well
then
with a wooden peg
I attached my handkerchief to the line

O que se perdeu
lavando panos brancos
o único que mamá consentía
manciñas vermellas
atarecidas
uñitas a meio pintar
aquel taco de xabrón lagarto
inesgotábel
e eu
a querer usar o cepillo
e mamá
que non
que para os panos de peto
non era preciso
e veña
eu igualiña ca ela
no río d'abaixo
chaquetiña de la
puños mollados
remanga os puuuuuños
e escuma sen recendo
o máis importante era facer escuma
frotar contra a pedra
o pano de peto
e mamá
a aprenderme a escorrelo ben
despois
cunha pinza de pau
prendía o meu pano no tendal
qué limpiño quedaba

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how clean it was
teaching me the chore
relentlessly
impeccable
with a perfection that hurt
the master of the craft
and the heir of the ceremony
in the river down

ensinarme a faena
implacábel
impecábel
cunha perfección que doía
a mestra do labor
e a herdeira da cerimonia
no río d'abaixo

MANUEL RIVAS, O MÍSTER & IRON MAIDEN

At the back of the kitchen, the mother was making bobbin lace flowers. That industrious sound belonged to the natural order of the house. It made itself noticed when it didn't exist.

"Ao fondo da cociña, palillaba flores de encaixe a nai. Aquel son industrioso pertencía á orde natural da casa. Facíase notar cando non existía."

The mother stopped making lace and that had the effect of a suspense soundtrack.
"A nai deixou de palillar e iso tivo o efecto dunha banda sonora de suspense."

SEAMUS HEANEY, THE HAW LANTERN, 1987.
Clearances 5

The cool that came off sheets just off the line
Made me think the damp must still be in them
But when I took my corners of the linen
And pulled against her, first straight down the hem
And then diagonally, then flapped and shook

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The fabric like a sail in a cross-wind,
They made a dried-out undulating thwack.
So we'd stretch and fold and end up hand to hand
For a split second as if nothing had happened
For nothing had that had not always happened
Beforehand, day by day, just touch and go,
Coming close again by holding back
In moves where I was x and she was o
Inscribed in sheets she'd sewn from ripped-out flour sacks.
…
La frescura que desprendían las sábanas recién descolgadas de la cuerda
me hacía pensar que la humedad estaba aún en ellas.
Pero cuando cogía mis puntas de la tela
y tiraba contra ella, primero directo el dobladillo
y luego en diagonal, estiraba y sacudía
el tejido como una vela al viento de través,
soltaba un golpe ondulante seco.
Así estirábamos, doblábamos y acabábamos mano a mano,
la fracción de un segundo, como si nada hubiera sucedido
pues nada había que no hubiera sucedido siempre.
De antemano, día a día, sólo el toca-y-vete,
acercarse de nuevo tras la marcha atrás
en movimientos donde yo era la x y ella era la o,
inscritos en sábanas cosidas por ella, hechas de sacos de harina desgarrados.

Death of a Naturalist

All year the flax-dam festered in the heart
Of the townland; green and heavy headed
Flax had rotted there, weighted down by huge sods.
Daily it sweltered in the punishing sun.

Bubbles gargled delicately, bluebottles
Wove a strong gauze of sound around the smell.
There were dragonflies, spotted butterflies,
But best of all was the warm thick slobber
Of frogspawn that grew like clotted water
In the shade of the banks. Here, every spring
I would fill jampotfuls of the jellied
Specks to range on window sills at home,
On shelves at school, and wait and watch until
The fattening dots burst, into nimble
Swimming tadpoles. Miss Walls would tell us how
The daddy frog was called a bullfrog
And how he croaked and how the mammy frog
Laid hundreds of little eggs and this was
Frogspawn. You could tell the weather by frogs too
For they were yellow in the sun and brown
In rain.

Then one hot day when fields were rank
With cowdung in the grass the angry frogs
Invaded the flax-dam; I ducked through hedges
To a coarse croaking that I had not heard
Before. The air was thick with a bass chorus.
Right down the dam gross bellied frogs were cocked
On sods; their loose necks pulsed like sails. Some hopped:
The slap and plop were obscene threats. Some sat
Poised like mud grenades, their blunt heads farting.
I sickened, turned, and ran. The great slime kings
Were gathered there for vengeance and I knew
That if I dipped my hand the spawn would clutch it.

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Muerte de un naturalista

Durante todo el año el dique de lino supuraba
en el corazón del pueblo; verde y de cabeza pesada
el lino se pudría allí, aplastado por enormes terruños.
A diario chorreaba bajo un sol de justicia.
Burbujas gorgojeaban con delicadeza, moscardones
tejían una fuerte gasa de sonido en torno al olor.
Había también libélulas, mariposas con lunares,
pero lo mejor de todo era esa baba caliente y espesa
de huevos de rana que, a la sombra de las orillas,
crecía como agua coagulada. Aquí, cada primavera
yo llenaría los tarros de mermelada con gelatinosas
motas para poner en fila en el alféizar de la casa,
y en el colegio, sobre estantes, y esperaría y miraría
hasta que los puntos engordasen estallando en ágiles
renacuajos nadadores. La Señora Walls nos contaría cómo
a la rana padre se le llamaba rana toro
y cómo croaba y cómo la mamá rana
depositaba centenares de pequeños huevos y eso eran
babas de rana. También se podía predecir el tiempo por las ranas
pues eran amarillas al sol y marrones
bajo la lluvia.
Entonces, un caluroso día cuando los campos apestaban
a boñiga de vaca sobre la hierba, las airadas ranas
invadieron el dique de lino; yo atravesaba los marjales
agachado y al son de un áspero croar que no había oído
antes. El aire se espesó con un coro de bajos.
Justo al pie del dique ranas de gordas barrigas sé mantenían alertas
sobre terruños; sus nucas sueltas latían como velas. Algunas saltaban:
el slap y plop eran amenazas obscenas. Algunas se sentaron
dispuestas como granadas de barro, con sus calvas cabezas pedorreando.

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Me sentí enfermo, di la vuelta y corrí. Los grandes reyes babosos
se reunían allí para vengarse y supe
que si metía mi mano las babas la agarrarían.

https://www.youtube.com/watch?v=sgsaB4NRSak

EMILY DICKINSON

Of Brussels — it was not —
Of Kidderminster? Nay —
The Winds did buy it of the Woods —
They — sold it unto me

It was a gentle price —
The poorest — could afford —
It was within the frugal purse
Of Beggar — or of Bird —

Of small and spicy Yards —
In hue — a mellow Dun —
Of Sunshine — and of Sere — Composed —
But, principally — of Sun —

The Wind — unrolled it fast —
And spread it on the Ground —
Upholsterer of the Pines — is He —
Upholsterer — of the Pond —

¿Viene de Bruselas? No.
¿De Kidderminster? Tampoco
Los vientos la compraron en el bosque
Y me la vendieron.

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El precio es favorable
El más pobre puede pagarlo.
Está al alcance del frugal bolsillo
Del mendigo
O del pájaro.

Está hecho de trozos pequeños y fragrantes
El matiz: castaño maduro.
Está hecho de sol y marchitez mezclados,
Pero principalmente de sol

La desenvuelve el viento
Y la extiende en la tierra.
Él es el tapicero del pinar,
El tapicero del estanque.

The spider holds a Silver Ball
In unperceived Hands--
And dancing softly to Himself
His Yarn of Pearl--unwinds--

He plies from Nought to Nought--
In unsubstantial Trade--
Supplants our Tapestries with His--
In half the period--

An Hour to rear supreme
His Continents of Light--
Then dangle from the Housewife's Broom--
His Boundaries--forgot—

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La araña lleva en invisibles manos
Un ovillo de plata
Y baila suavemente para sí y desenvuelve
Hilos de perlas

Cose de nada a nada
Con trato insustancial,
Suplanta con los suyos -en la mitad del tiempo-
Nuestros tapices.

Solo una hora para alzar suprema
Continentes de luz
Y luego –de la escoba de la mujer colgando-
Se olvida de sus tramas.

AZORÍN. LAS CONFESIONES DE UN PEQUEÑO FILÓSOFO, 1904.

XXIV

LAS TENERÍAS

Cerca del colegio, a un lado, estaba situada una tenería... ¿No os inspiran un secreto interés estas viejas tenerías españolas, estas tenerías de Ocaña, estas tenerías de Valencia, estas tenerías de Salamanca que están al lado del río, no lejos de la casilla ruinosa en que vive la Celestina? Yo siempre he mirado con una viva emoción estos oficios de los pueblos: los curtidores, los tundidores, los correcheros, los fragüeros, los aperadores, los tejedores que en los viejos telares arcan la lana y hacen andar las premideras. Y recuerdo que cabe estas tenerías, que yo veía siempre curioso y ávido, había una callejuela que se llamaba de Las Fábricas.

¿Qué fábricas eran éstas? Eran esas pequeñas fábricas que hay en los pueblos vetustos y opacos: tal vez una almona; luego, al lado, una almazara; después, más lejos, acaso uno de esos viejos alambiques de cobre que van destilando lentamente, asentados en grandes anafes negruzcos...La calle era corta, de casas bajas, sin revocar; no vivía nadie en ellas; durante el

invierno, los cofines del piñuelo puestos al sol en las puertas, indicaban que estaban trabajando las almazaras; de cuando en cuando se asomaba un hombre con el traje grasiento, y los arroyuelos de alpechín corrían serpenteando por medio de la calle.En tanto, en la tenería se oía de rato en rato el bullicio de los zurradores; el viento arremolinaba ante la puerta los montoncillos de cerdas y lanas; y sobre los tejados pardos y bajos, a lo lejos, se escapaba de una pequeña chimenea el humo tenue de las almonas o del sosegado alambique.

Glosario

Tenería,Curtiduría: Sitio o taller donde se curten y trabajan la pieles

Tundidor: El que iguala con tijera el pelo de los paños.

Curtidor: Persona que tiene por oficio curtir pieles. (aderezar las pieles).

Correcheros, guarnicioneros: Operario que trabaja o hace objetos de cuero, como maletas, bolsos, correas.

Aperador: Encargado de cuidar de la hacienda del campo y de todas las cosas pertenecientes a la labranza.

Tejedor: Persona que tiene por oficio tejer.

Arcar: ahuecar la lana

Premideras: Listones de madera que sirven de pedal para mover el telar.

Almazara: Molino de aceite.

Almona: Jabonería, fabrica de jabón.

Anafes: Hornillo generalmente portátil.

Cofines: Cesto o canasto de esparto, mimbre o madera.

Piñuelo: Cisco (Carbón vegetal menudo) con el hueso de las aceitunas después de prensada en el molino.

Alpechín: Líquido oscuro y fétido que sale de las aceitunas cuando están apiladas antes de la molienda, y cuando, al extraer el aceite, se las exprime con el auxilio de agua hirviendo.

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BOB DYLAN. BOOTS OF SPANISH LEATHER

Oh, I'm sailin' away my own true love
I'm sailin' away in the morning
Is there something I can send you from across the sea
From the place that I'll be landing?

No, there's nothin' you can send me, my own true love
There's nothin' I wish to be ownin'
Just carry yourself back to me unspoiled
From across that lonesome ocean

Oh, but I just thought you might want something fine
Made of silver or of golden
Either from the mountains of Madrid
Or from the coast of Barcelona

Oh, but if I had the stars from the darkest night
And the diamonds from the deepest ocean
I'd forsake them all for your sweet kiss
For that's all I'm wishin' to be ownin'

That I might be gone a long time
And it's only that I'm askin'
Is there something I can send you to remember me by
To make your time more easy passin'

Oh, how can, how can you ask me again
It only brings me sorrow
The same thing I want from you today
I would want again tomorrow

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I got a letter on a lonesome day
It was from her ship a-sailin'
Saying I don't know when I'll be comin' back again
It depends on how I'm a-feelin'

Well, if you, my love, must think that-a-way
I'm sure your mind is roamin'
I'm sure your heart is not with me
But with the country to where you're goin'

So take heed, take heed of the western wind
Take heed of the stormy weather
And yes, there's something you can send back to me
Spanish boots of Spanish leather.

DEREK WALCOTT, OMEROS, 1990.

"She braided the tourists' flaxen hair with bright beads
cane-row style, then would sit apart from the vendors
on her sweet-drink crate while they bickered like blackbirds

over who had stolen whose sale, in the shadows
of the thatched hut with T-shirts and flowered sarongs.
Her carved face flickering with light-wave patterns cast

among the coconut masks, the coral earrings
reflected the sea's patience.
…"

trenzaba como en juncos los cabellos de lino de los turistas

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con cuentas brillantes, luego se sentaba aparte de los vendedores
sobre su cajón de refrescos, mientras ellos reñían como mirlos

acerca de quién se le adelantó al otro robándole la venta, entre las sombras
de la choza de techo de paja, en camiseta y floreados sarongs.
Su cincelado rostro titilaba con los dibujos de las ondas

luminosas proyectados entre las caretas de coco y las arracadas de coral,
que reflejaban la paciencia del mar.
…”

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"THE END OF ART IS PEACE"
SEAMUS HEANEY

DARE2WOW.ME

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