

Technological reasons for entering knits in the fashion of the 20's

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Abstract: During the 20s of the 20th century knitted upper garments for the first time entered the fashion. This fact is well known, and historians and theorists of clothing described various social reasons for entry of knitted fabrics into the fashion. Without neglecting the social reasons, this article provides some technical reasons for entry of knitted fabrics into the fashion. The article follows development of knitting machines through the time immediately before knitted fabrics come into fashion, and concludes that the development of machines had an impact on entry of knitted fabrics in the fashion of the time.

Key words: knitwear, 20's, technology of knitting, fashion

1. INTRODUCTION

Shortly after the WWI, a major change came about in fashion. Dresses with long trains gave way to above-the-knee skirts. Corsets were discarded. Female outfit became looser and more formless in fit. The shoulders became broader, hips narrower and hair shorter. At first, many were unwilling to accept the new style, but they embraced them from around 1925. The flapper style (known to the French as the 'garçonne' look) became very accepted specially among young women. In menswear there was a growing mood of casualness. Men had a diversity of sport outfits available to them, including sweaters and short pants, commonly known as knickers. Fair Isle patterns became very popular for both sexes.¹ With Fair Isle sweaters and matching socks knitwear turn out to be widely used for outerwear. Especially since knitted fabric start to be used by famous designers like Coco Chanel and Jean Patou.

Looking at fashion magazines such as the *Pariška moda* (Paris fashion) or *Svijet* (World), we can easily notice that the cotton or silk knit jersey is relatively lot in use for a simple day dresses (Fig. 1), the knitted fabric is sometimes combined with lace, the edges are strengthened or contrasted with woven fabric, and the details are accentuated with embroidery.² Driving a car requires a special sports knitted dress with a hood that protects the hair (Fig. 2).³ Evening dresses from knitted fabric were worn very rarely, sometimes combined with a fine luxury silk fabric. Croatian fashion journalists of that time had problem how to call knitted materials, so they used English words "jersey" and "sweater", or French "tricot", which also illustrate novelty of knitted fabric in fashion.

We can say that knitwear itself, as a textile material, these years have entered into vogue. Previously used as a

convenient, elastic material for underwear and sportswear, is flourishing as the material of which the modern outerwear is made. This phenomenon has been noticed long ago, and dress historians and theorists have described the social reasons of the popularity of knitted fabrics, such as liberation of the body from the restraint garments, but we should not ignore the technological reasons. This article will be precisely, by comparing changes in the fashion field and technological changes, deal with the impact of the development of knitting machines of the 20s and their influence on the entry of knitted fabric into fashion.



Figure 1 "Dress for afternoon of silk jersey (5122)", *Pariška moda* (The Paris fashions), 1920, No. 7, Zagreb



Figure 2 "Model S. Talbot: Sport dress especially for the car. Sweater dress in light brown, decorated with pleats in three tones." Svijet ilustrirani tjednik (World illustrated magazine), Zagreb, No. 10, vol. 1, 10.IV.1926.

Although in the 20s knitwear is in the fashion, it not becomes in the 20s popular for the first time. Over the few periods in the past it was used a lot and at least at two periods knitted items were truly modern. In all these periods observed is the interaction between fashion demand and technology progress.⁴

During the Elizabeth's reign in England (1558th-1603rd) the fashion of extremely short trousers and long knitted socks from fine worsted wool or expensive silk was developed.⁵ Previously, kids and lower classes did wear rough knitted socks, and socks were useful, but not fashionable clothes. It was recorded a wide range of colours of socks - the colours of peach, green, red, white, fawn, red and brown. The type of American wood was used to make black, blue and purple. According to the advertisement of colourists from 1607th in France, men's socks were dyed in up to 50 shades, mostly in pink and beige shades of colour, with interesting names like "merry widow" and "lost time".⁶

On the most expensive silk stockings ankles were decorated with gold and silver embroidery.⁷ It is well known that in Spain and Italy fine stockings begin to knit and wear earlier than in England, but we generally known less about the knitting in these countries. At the beginning of Elizabeth's reign (1558) Spanish expensive stockings were increasingly imported into England, and at the end of her reign (1603) England exported stockings of fine worsted wool in Spain, Italy, Germany, France and the Netherlands. The amount of demand, and size of industry of handmade stocking we can estimate if we know that in the late 16th century about

200 000 English knitters produced about 20 million pairs of stockings a year.⁸ It was exactly in this period that the first flat knitting frame was invented, which shows the influence of fashion, through the fashion demand, on the development of technology.

Second times, great fashion demand for knitted fabrics occurs in the second half of the 18th century. That was a very modern knitted lace that decorates the dresses (edges of the sleeves, neckline), as well as the lace gloves and stockings.⁹ Mesh knitted fabrics were embroidered and from embroidered lace the sunshades, gloves, mitts, scarves and shawls, purses, vests and other modern products were made. The famous lace industry in Nottingham was born. Large quantities of knitted lace were exported to France. The French themselves developed technology for making lace knits, and technology spread in Vienna and the surrounding area where also had developed production of knitted laces.¹⁰ But knitted upper garments really become fashionable for the first time in the 20s of the 20th century.

2. SOCIAL REASONS OF KNITWEAR POPULARITY IN THE 20'S

2.1 Rast popularnosti sporta

As leisure time increased more and more people became engaged in sports activities. Along with the already popular cycling and football, motorcycling and golf are becoming a new sports enjoyed by richer ones, a common entertainment was tennis, or hunting.

People engaged in sport needed to let the body breathe and enable it to move as easily and freely as possible. Knitted fabrics with its porosity and elasticity have the required characteristics, and were becoming indispensable for sportswear. Undoubtedly, the foundation of sportswear had been laid in the 19th century, but the phenomenon of the mass produced sportswear really begin in the 1920s.¹¹



Figure 3 "Skiing in Pljesivica" Svijet ilustrirani magazin (World illustrated magazine), Zagreb, No. 1, year 1, 6.II.1926.



Figure 4 "Sports suit of jade green silk tricot (8948)", *Pariška moda* (The Paris fashion), No. 4, 4 April 1925th, Zagreb

As knitted garments for men really became fashionable women readily wore the same knits too. Free from corsetry and wearing simplified clothing modern women were able to involve in sports (Fig. 3). Soon swimming, golf and tennis were the obsessions of young ladies. Items like sweaters and turtleneck and pullovers come out directly from sportswear, but become fashionable garments for leisure time, for men and women equally. A typical sporty look (for men) is knee-short sports pants called plus-fours, pullover in vivid colours and socks to the knees.

Since the knitted garments become garments for leisure time, it begins to wear at more occasions, and has been developed toward a simple daily dress, like the one shown in Figure 4.

2.2. Female emancipation

Socio economic changes that happened during the First World War to a large degree changed the position of women. The war had given a woman an alternative to domestic employment. They worked on the land, as nurses, on buses or in factories. "During wartime, many young women experienced freedoms previously unheard at, such as talking jobs, shortening skirts, driving cars, and cutting their hair."¹² After the war ended woman reluctantly left their positions. And society was used to see a women employed. Slowly women were breaking down old attitudes, for instance women were given the vote. The emergence of female emancipation after World War I also brought about the liberation of the body from too narrow and too long clothes that impede movement, the corset was discarded and new fashionable underwear and stockings appeared.¹³

From the elastic knitted fabric could not be constructed tight clothes that constrict the body, but fluid jersey become

perfect for the new line of modern dress. Knitted shirts and sweaters are combined perfectly with skirts and suits of the practical working women. Knitted clothes, in the beginning used for sports, become clothing for leisure time, and finally clothing of practical working women.

2.3 Personal influence of well known designers

Coco Chanel was an important figure in fashion at the time. She obviously helped popularize the use of jersey knit and knitwear for women's clothing. *Vogue* in 1916. declared: "Chanel is master of her art, and her art resides in jersey" and "Jersey and chic are synonymous."¹⁴ She worked in beige, navy, or black jersey fabrics, cut in simple shapes without waist definition. By 1920 the silhouette of her clothing designs has come to be the epitome of 20's. With the attitude that functional cloths should be the foundation of modern dress, designs knitted pullovers and cardigans of working women.¹⁵

Jean Patou was like Chanel leading promoter of the look that dominated the 1920s. The style of Jean Patou was characterized by an intentional minimalism which brought him reputation, especially in the America.¹⁶ He was well known for two-piece sweater and skirt outfits in comfortable wool or silk jersey. Most famous of his garments were the sweaters, with their clean lines, Cubist style motifs, and mixture of luxury and practicality.¹⁷ Chanel and Patou designed a machine-knitted clothes.¹⁸ Another well-known designer of that time - Elsa Schiaparelli use knitwear in collections, but handmade. Schiaparelli's trompe-l'oeil sweater from 1927 become famous.¹⁹

3. TECHNOLOGICAL REASONS FOR THE POPULARITY OF KNITTED FABRICS IN THE 20'S

Although the social reasons for the growth of popularity of knitted fabric are undeniable, this article aims to show that there are also technological reasons for the growing popularity of knits in the 20s, and that impulse in the development of machines from the early 20 century has an impact on the growing popularity of knitted fabrics. It is noted that throughout the history of fashion the demand wakes technology development, and so demand for knitted fabric had impact on the further development of certain types of knitting machines.²⁰

3.1 Development of circular knitting machines

Circular knitting frame was slowly developing through the entire 19th century, but initially was poorly received because the English knitting industry, by far the strongest in the world, was not interested in that way of working. Work on a circular machine did not require skills of workers on a flat machine. In contrast to the circular, flat frames (later machines) which develop since the 1589th knit the fully-fashion,²¹ and not cut-and-sew fabric, so knitted clothes made on flat frames had nice edges and fine, thin seams. Knitwear from circular knitting machine forms the tube of different diameters - from small, suitable for the manufacture of stockings and sleeves, to the diameter of the body, and even broader fabric. Fabric must be cut and sewn; the seams

were thick to prevent ravelling. The circular knitted machines at the time could not knit fabric for quality clothing and stockings were baggy folding on the ankles and knees. It is clear that such garments could not be fashionable. Although circular machines were not encouraged by fashion, they were stubbornly developing.

Famous among early circular machines become *tricoteur* patent from 1816, developed by Marc I. Brunei - Frenchman who moved to England.²² It was a small, cheap machine attachable to table, which effectively knit tubular fabrics. Tompkins at America in 1846 made circular machine with bearded needles which smoothly knit fleecy or plush fabric. Its knitting diversity become quite popular until it was not pushed at the end of the century by machines with latch needles.²³

In 1849 English circular frames, on the basis of a Brunell *tricoteur* patent, was developing by few constructors - Mosses Mellor, Peter Clausen, and Bertholet.²⁴

Knitting machine constructed by the Belgian Peter Claussen becomes important for the transition to an industrial mode.²⁵ The most significant progress is introducing Claussens carved wheels it knitting different patterns.²⁶ The most famous producers of circular frames and constructors of various ancillary devices for sampling and making different kinds of fabrics such as single and double-sided plush, mesh and plating knitted fabrics were Honore Frederic Fouquet and Charles Terrot.²⁷ Such samples are often knit up to date, despite an enormous increase in possibilities of circular machinery (Fig. 5). Important progress of circular machines was to knit rib fabrics. Such a machine was constructed by the Thomas Thompson of Nottingham in 1853.²⁸ Although the cut-and-sew fabric had to be tailored and cut, and the seams were rough, the knitted fabric from circular machinery was of high quality, and they were faster than the flat machinery, which had already enabled faster and cheaper production of knitted fabrics.

Precisely these faster frames / machines enable greater availability of the knitted fabric and growing popularity of knitted underwear in the second half of the 19th century, as well as the development of swimwear from fine stretch knitted fabrics (Fig. 5 and 6).²⁹

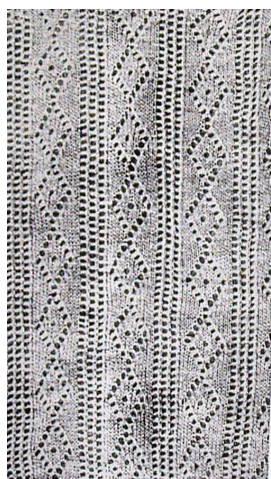


Figure 5. Petinet, circular knitting machine, end of 19th c.

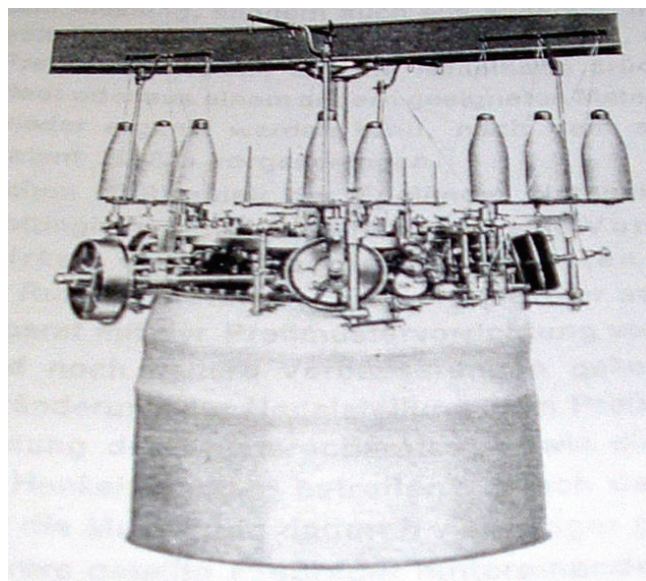


Figure 6. Circular knitting frame, Terrot, Stuttgart, 1859.

Dr. Jaeger significantly contributes to promoting and popularizing woollen underwear. At the International Health Exhibition in 1882 he recommended wool knitted underwear that does not constrict and not deform the body. Croatian citizens also accepted the recommendations (Fig. 7).³⁰



Figure 7: Shirts of Professor Jaeger, a trading house Vienna's bazaar, Zagreb, 1895.

The following important finding is an installation of other needle bar, respectively circular plate above the existing cylinder with needles. D. Griswold patented this construction in the 1878. He embedded latch needles in the rotating circular plate, with cams for needle guidance, and thus enabled the production of the single and ribbed tubular knitted fabrics according to any needle distribution.³¹

Wildt in England in 1892 constructed circular knitting machine with double-headed latch needles allowing the development of purl tubular knitted fabrics and in 1900 Wildt & Co. developed hosiery machine with double-headed latch needles located in two cylinders. That same year Stretton S.D. & Sons, in Leicester, made a similar machine.³² These machines enabled the production of machine-knitted sports socks to the knees in bold purl relief patterns, which were worn with pants to the knees - which were already mentioned in this article. The commercial success of such machines will come only with a Bentley Komet of the 20's.³³ - at the same time when fashion for this socks reaches a climax, and the demand for socks encouraged engineering.³⁴

In 1912 a Komet was produced, two-cylinder machine where cylinder rotates, and not, as was usual until this time - a cam. It becomes the standard used until today.³⁵

Circular knitting machines were becoming faster, and had up to 96 knitting system, or in one cylinder revolution 96 rows of knitwear could be knitted. They were usually constructed with 16 systems. From the foregoing it can be concluded that at the late 19th and early 20th c. circular knitting machines intensively developed. All these inventions enabled them not only to knit better socks, but with the machinery of a wider diameter to knit different patterns (plain, open-work, tuck, fleece, ribbed, striped) of knitted fabric for underwear. In addition, these machines were very fast, and at the market becomes available a large amount of fine knitted jersey. Therefore, we believe, together with the change in social climate, which was already mentioned in the article, timely development of circular knitting machines enabled and had an impact on the popularity of knitted fabrics in the fashion of the 20's. Whenever knitwear entered the fashion, fashion was through its demand encouraged further development of some kind of knitting machines. Consequently, the circular knitting machines with latch needles developed the increasing possibilities of patterning. In Chemnitz, in 1921, jacquard circular machine was constructed, which allows creation of different patterns in colour, and in 1927 steel tape for patterning was introduced.³⁶

4.2 Development of flat knitting V-bed machine

Flat frames / machines has been developing since the 1589, and they mostly knitted fine stockings, knitted in cut, with the rear seam. From the second half of the 19 century grows a production knitted underwear and knitted outerwear (mainly for sports). In 1910 socks still make 50.2% of the production of the knitted fabric, underwear already have gone to 31.0% of production, outer clothing now makes significant 10.1%, gloves were fallen to 3%, and there were 5.7% of other nonspecific knitted fabrics produced.³⁷

Upper clothing (pullover, thick shirts and cardigans) was produced on V-bed knitting machines with individually movable needles. This type of machine was constructed about the time when production of upper knitted clothes starts to rise - in 1863 - and was constructed by the Rev. Isaac W. Lamb, with Townsend and Groz help (Fig. 8).³⁸ It was Matthew Townsend that invented a brand new needle - a latch needle. The best known and most influential application of latch needles was just in V-bed knitting machines, where with the help of new cams allows machines to create different single and double-faced structures.³⁹

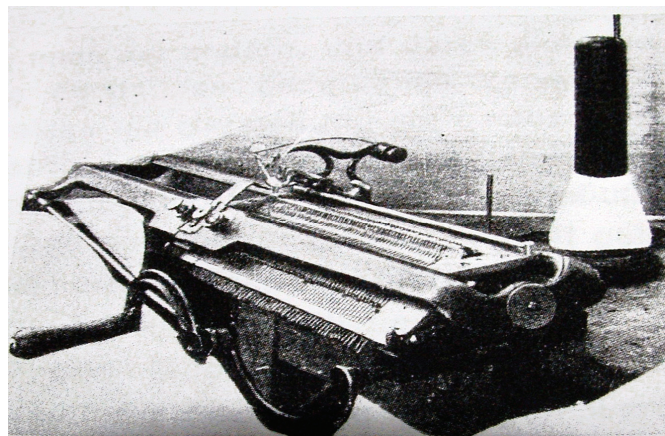


Figure 8. The earliest knitting machines from Issac W. Lamb; from 1863

The machine was intended for households and small workshops, and was powered by hand, but quickly enters the factories. These hand-knitting machines because of new invented latch needles and cams, have at that time the greatest ability to create different patterns, but in small gauges. Because of that V-bed machines could work only bulky, heavy knitted fabrics. They were excellent for making upper knitted garment because in the second half of the 19th c. it was clothing for sport, for example, a popular cycling (Fig. 9), and such clothing is initially in dark colors, and heavy - which perfectly meets low gauges of those V-bed machines.



Figure 9. Use of knitted garment in cycling, cycling race in the Maksimir, photographer unknown, 1898., courtesy of the Zagreb City Museum.

Upper knitted garments, by the end of the 19th century and in the beginning of the 20th century, were more and more worn, and the V-bed knitting machines have been developed correspondingly. Successors of a small hand knitting machine in the 20th century developed into a special branch of flat knitting industry, known for the highest opportunities of designing. Until 20's of the 20th century hand-knitting machines built in the engine, and in the 1926 Stoll developed first jacquard machine with engine.⁴⁰ At the same time Stoll developed knitting machines to produce purl jacquard, with needle beds under 180 degrees with two-headed latch needles. Both machines, to make jacquard, used punch cards. Lack of V-bed flat knitting machines with built in engines was that they had lower opportunities of designing patterns than hand knitting machines. And they could not knit dimensionally shaped, but cut edge fabrics. Machines with built in engines faster and with far less human effort knit increasingly popular knitted fabrics for outerwear, and allow production of functional and comfortable shirts and cardigans, with simple geometric motifs as they were in fashion.

5. CONCLUSION

It is known that knitwear becomes fashionable in the 20's of the 20th century. Sometimes is simplified considered that knitwear, at that time, for the first time become fashionable, although few times before, in the history, various knitted products were becoming very popular.

The well-known reason for the popularity of knitted fabrics in the fashion of the 20's are awakened desire for an elastic material that does not impede the body, and are perfect for sports activities (which have also become modern). In addition, a new line of casual dress does not require a firm material, and there is a need for practical outfit with knitted shirts and sweaters for the employed, emancipated women.

This article mentions the additional reasons for the popularity of knitted fabrics in fashion of the 20's, and this is a timely development of knitting machines that enable the mass production of knitted fabrics.

The circular machines were rapidly developed and the end of the 19th and early 20th century, becoming a very quick, and at the market becomes available a large amount of fine knitted fabric, or jersey. Therefore, we consider that the timely development of circular knitting machines allowed and had an impact on the popularity of knitted fabrics in the fashion of 20's.

V-bed knitting machines, which were used for making heavy sweaters, are being developed simultaneously with the development of upper knitted garment. The V-bed knitting machines to the 20's of the 20th c. used the engine, and in 1926th the first engine jacquard machine was developed. All this enabled a larger production of the required knitted fabrics, and fashion for its part certainly gives encouragement to further development of knitting machines.

NOTES

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- 5 This fashion of fine knitted stockings started during the reign of Queen Elizabeth but had evolved from the attire of the Renaissance period. Such garments were illustrated for instance in the 15th and 16th century paintings of the Italian painters such as Benozzo Gozzoli, Procession of the Magi, 1459, Fresco, Palazzo Medici-Riccardi, Florence. <http://www.wga.hu/frames-e.html?html/g/gozzoli/3magi/index.html>, accessed: 17.06.2010.
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7. The knitted stockings with their elaborate embroidery can be seen for instance in William Larkin's painting, Richard Sackville, 1613, oil on canvas, http://en.wikipedia.org/wiki/William_Larkin, accessed: 17.06.2010.
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