MANUFACTURE & MARKETING OF KNITTED GOODS IN CANADA

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OF KNITTED GOODS IN CANADA

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TABLE OF CONTENTS

CHAPTER I

CHAPTER I - DEFINITIVE ~~OF~~ AND HISTORICAL INTRODUCTION

(a) Origin of Knitted Goods; Typical Home Industry - (b) Position in Relation to General Textile Field - (c) The Persistence of Domestic Competition - (d) Classification of Knitted Goods by Material of Manufacture -

(a) Origin of Knitted Goods; Typical Home Industry

Historical records and discoveries by antiquarians prove that everywhere in all ages, human beings have attempted to decorate themselves with fibrous materials of some sort. The development of industrial knowledge may be traced from early periods in the history of civilization, when fabrics were made by plaiting grasses and felting wool. Some writers claim that knitting cannot boast of the long ancestry possessed by spinning and weaving, while others insist that knitting is probably the oldest form of fabrication, since it is on the order of the netting used for fishing among primitive tribes. It is impossible to state definitely whether certain classical references allude to knitting, as the ancient writers would regard this as a type of weaving.

Spinning developed and cloth was woven on simple looms from the linen fibre of the flax plant, from wool and from silk. Hand-knitting, where the entire article is knitted on the hand-pins by the worker, added another method of making yarn into a fabric. English legislation of 1488 mentions knit woollen caps, and though hand-knitting was fairly common throughout Europe in the fifteenth century, especially in the making of hose, knitted

stockings were not in general use even at the beginning of the sixteenth century. Only the rich could afford stockings, the rest of the people using bandages of cloth or going bare-legged. An English grammar of 1530 gives the word "knit" in the specific sense, while other records of the period show that "hosen, bonnets and the like" were knitted by women in all grades of society.

The advent of the silk stocking is recorded in history, when reference is made to the fact that King Henry VIII wore knitted silk Spanish hose. The presentation to Queen Elizabeth,in the third year of her reign, of a pair of blank silk knitted stockings, by her silk woman, was a notable event, and seemed to give impetus to interest in the art of knitting, which spread widely throughout the country in the years that followed. Stockings were a high-priced luxury, and nimble fingers added many pennies to household coffers.

William Lee, an English clergyman, invented a hand-knitting machine which he perfected in 1589. How he came to think of a machine for knitting is not quite clear, as there is no proof to substantiate the story that Lee's sweetheart was so intent on her knitting that she had little attention to spare for him, and that watching her nimble fingers suggested the invention of the machine. Hand-knitting may be done with four needles, the work going round and round, and the finished article tubular in shape, or two needles may be used in a back and forth process making a flat piece. Lee first attempted to make a stocking in tubular form but was unsuccessful,

so he developed his stocking-frame which knitted and shaped a flat piece that formed a stocking when the edges were sewed together. In his machine he arranged a row of sinkers and dividers, and when a row of loops was built on the needles the operator stepped on the treadle, thus causing the sinkers to move downwards while the dividers remained stationary, thereby locking the loops. With the sinkers down, the operator laid the thread along the needles and outside the sinker nib, ready for the next row of loops.

Lee's brother James accompanied him to London where he sought to obtain the favour of the Crown through the intervention of Lord Hunsdon, a kinsman of Queen Elizabeth, who had become greatly interested in the machine, and who tried to persuade Her Majesty to give Lee a patent on his invention. Some historians account for the Queen's refusal by claiming that the machine would deprive a large number of her subjects of their means of livelihood, as it could knit ten times as fast as the best hand-knitters, and this would reflect unfavourably on her reign; others maintain that her true reason for denying the patent was the fact that the machine could make only coarse worsted stockings, while she was interested mainly in the finest of silken hosiery which had to be made by hand.

In his efforts to please the Queen, Lee made a frame having twenty instead of eight needles to the inch, on which he knitted a pair of silk stockings that were presented to Her Majesty. She accepted the stockings but refused her support, and Lee was forced to accept the invitation of Henry IV to transfer himself and his invention to France. He made Rouen

his headquarters and, with the aid of his brother, eight trained workers and eight of his English-built stocking frames, he began the manufacture of stockings. With the assassination of Henry IV in 1610 Lee's patronage ceased, and he died in poverty in Paris. The industry spread to many small villages however, where it was carried on mainly by Huguenots.

Lee's brother returned to England with some of the workmen and the machines, interest was renewed, and the industry began to grow. An organization was formed, and in 1657, the London Frame-work Knitters Company was incorporated by Oliver Cromwell. One hundred years later there were eight thousand of Lee's frames in use. In 1740 Jedediah Strutt made an important addition to Lee's invention, enabling it to produce ribs running lengthwise down the leg of the stocking. A revolving shaft turned by a handle appeared in 1769 which increased the speed, and Luther Barton introduced a mechanically-controlled arrangement by which shaped or fashioned pieces could be made for hosiery and underwear. A warp-knitting machine, by means of which the yarn is guided so that the loops interlock forming wales that run lengthwise on the face and crosswise on the back, and which is an important factor in the making of gloves, scarves, ties and outerwear, was introduced in 1775.

Jean Descroix, a Frenchman, invented the first circular frame in 1798, and twenty years later a fellow-countryman, Marc Brunel, introduced a machine with radiating needles of the spring-beard variety. Machines of this type are used in France today, since they form the basis of the standard circular frame with bearded needles. In 1847 Mellor brought into modern form the English loop-wheel circular frame, but Lee's spring-bearded needle had con-

tinued as the best form until Matthew Townsend of Leicester, England, revolutionized the entire industry in 1850 by his invention of the self-acting or latch needle. This invention made possible the modern plain and rib, straight and circular bar machines, as well as seamless hosiery machines. The latch needles simplified the introduction of power to the industry, and the speed in manufacturing was greatly increased. An American, Rev. I. S. Lamb, invented a flat machine in 1863, and an automatic seamless hosiery machine in 1879 was followed by the Scott and Williams machines.

For many centuries knitting by hand was a familiar method of making useful articles and garments, for though Lee's machine could knit ten times as many loops per minute as the hand worker, it was fairly complicated and required the use of feet as well as hands. However, the simple invention of William Lee remained the basic principle of machine-knitting for nearly three hundred years, and to him who died in poverty the world owes a great debt. Lack of interest in the development of knitting, inability to visualize the possibilities of the looped fabric, and machinery unimproved to any extent, caused knitting to persist as a home industry long after the spinning and weaving industries had become mechanized. Realization of the importance and widespread uses of knitted fabrics has been steadily increasing since the middle of the nineteenth century, and this accounts for the fact that the knitting industry, though centuries old, is considered a modern development.

(b) Position in Relation to General Textile Field

Knitting is the construction of a fabric with needles by a series of interlocking loops made of yarn. The needles are set to work by a carriage with cams which move them up or down in the process of knitting, while a pattern chain or wheel automatically measures the length of fabric already knitted and shifts the motion, thus changing the devices to obtain the required results. In weaving there are the tightly drawn warp threads in and out of which, by means of shuttles, are passed the weft threads forming an interlaced effect. The fundamental characteristic of knitted fabric is the chain effect produced by the looping of the yarn.

Each branch of the textile industry is separate and distinct in character, with the common purpose of turning fibre into fabric for clothing, furnishings and commercial uses. The wool, cotton, silk, rayon and flax industries are considered the primary branches of the general textile field, inter-related by the common purpose of supplying yarns to the converting industries of knitting and cloth-making, and by the necessarily similar processes of yarn construction, and the mingling of different fibres to produce striking effects.

Until 1850 knitting processes were confined to the making of hosiery, caps, mittens and heavy underwear, but the ingenuity of inventors, the vision of manufacturers, the application of power to machines, combined to advance and extend the possibilities of knitted products. The greater part of this development has actually taken place since the beginning of the present century, owing to changes in styles and clothing, occasioned by an improved standard of living, changes in social conditions, the increased purchasing power of certain communities, and the subsequent demand

for greater variety and individuality.

Generally speaking, knitted fabrics can be made in one-seventh of the time required for woven fabrics of similar quality. This rapidity in output lowers the cost of production and enables the manufacturer to sell his product for less than the woven material. Apart from price considerations, knitted goods have become increasingly popular because of their lightness, comfortable fit, and hygienic quality, due to the fact that they are less solid in texture than woven fabrics.

The development of the knitted goods industry, assisted by the demand for sports attire, has caused the industry, looked upon for centuries as a small offspring of the textile family, to assume the proportions of a major industry. The results of this are evidenced by the production of knitted goods in the United States, the country probably most responsible for this advance, which in 1909 was valued at $200,143,527 and had increased to $848,176,734 by 1923.

Today, the production and manufacture of textiles and clothing constitutes the greatest occupation of mankind, employing a greater number of workers than any other industry. Every progressive civilized country considers this the basic occupation of its people, and in every such country the development in the knitting industry has been notable, becoming in a few short years not merely a branch of the textile industry, but of sufficient importance to be reckoned as a separate industry.

(c) The Persistence of Domestic Competition

In spite of the Industrial Revolution, the mechanization of industry and similar factors, the art of hand-knitting has persisted to a greater extent than any of the former domestic industrial occupations, except perhaps lace-making. This may be due to the fact that hand-knitting is simple and easily learned, and does not require the concentrated attention of the worker. Moreover, the click of the needles, and the regular movement of the fingers, have a restful effect on tired nerves. Doctors have actually prescribed knitting for patients suffering from nervous disorders, and instances of this nature were not uncommon in military hospitals during and after the Great War, visitors frequently being surprised to find invalid soldiers industriously plying their knitting.

Needless to say, domestic competition has persisted almost entirely in the making of articles that were originally produced by the needles. In sparsely-settled communities many housewives make stockings for the children and socks for the men, as well as mittens, caps and mufflers. Inability to obtain the type of garments required, and the fact that many families in such circumstances have their own sheep from which they may obtain wool, probably accounts for much of this competition. However, men engaged in strenuous work frequently prefer the durability and comfort of hand-knitted socks, since they are usually made from a heavy yarn. For sportswear, too, hand-made sweaters and socks are generally considered superior to machine-made articles, as well as permitting of individuality.

The popularity of Shetland products is evidence of the fact that certain sections of the community cling to hand-made articles in the sphere of scarves, shawls, lounging jackets, and even underwear and sweaters. Bed-jackets are entirely made by hand since the demand is limited, and since it is difficult for machines to produce the necessary soft, lacy effects.

Hand-knitted jackets, bootees, bonnets, sweaters and suits are in great demand in infants' waar, and it is extremely doubtful whether machine-made articles will ever replace them. In every city and town are women who earn pin-money in this way, selling directly to the consumer, or to retail stores, or doing the work for a manufacturer. The reasons for this competition are not difficult to find: machinery is very expensive, the demand is limited and the costs of production are comparatively high. Moreover, machine-made articles, even though hand-finished at an increased cost, are never free from seams, and they lack the softness as well as the wearing quality of hand-made garments, and are less attractive in appearance.

There is also the psychological factor here that cannot be overlooked. Women everywhere desire dainty, fine garments for their babies, and usually finer grades of yarn are used for hand-knitting which is reflected, not only in the appearance and wearing quality of the garments, but in the laundering as well. The wool is free from oil or dirt that may be picked up from the machines; from impurities that occur in the mixed yarns that are frequently used, and from the hardness that usually results from the yarn being pulled and stretched in the machines. The

garments, too, are more loosely knit and are considered more hygienic.

As domestic competition persists chiefly in the making of garments for which knitting needles were first employed, so too it is restricted to a great extent to articles made of woollen yarn. There is practically no demand for hand-knitted articles of silk, cotton or linen, and yarns of these fibres are not easily obtained by individual workers.

On machine-made articles, however, there is still a certain amount of hand-work done in the finishing processes. Hand-operated machines are fairly prevalent too, particularly in England, in the trade of children's garments, where essential alterations and variations cannot be effected very profitably on the large-width, fast-moving machines. The finished article is quite expensive though, and can scarcely be included in the class of mass-production goods.

However, domestic competition persists today, having received an impetus from the war period probably, when women the world over spent their spare time knitting socks, mufflers and caps for soldiers, and it will in all likelihood continue to exist. The competition is limited, though owing to developments in machinery, and there is small chance that it will ever become a menace, in any sense of the word, to the industry as a whole. Still there is little possibility that it will ever be entirely eliminated, because even if hand-knitting from necessity should cease, there would always remain the psychological factor and the desire for individuality.

The knitting industry, then, may be said to be unique in that factors which have brought about standardization in other industries, causing the

cessation of domestic competition, have not succeeded in stamping out the art of hand-knitting. They may have limited or defined the market for hand-knitted goods, but hand-knitting has persisted and flourished.

(d) Classification of Knitted Goods by Material of Manufacture

Probably no branch of the textile industry uses as many grades of yarn and variety of fibres as the knitting industry. Camel hair, real cashmere, angora, alone or combined with wool, rayon, linen, cotton, silk; mixtures of rayon and wool, cotton and wool, silk and wool; all are being extensively used in the manufacture of underwear, stockings, sweaters, scarves, waistcoats, caps, bathing suits and fabrics. Wheeling, fingering, worsted, lamb's wool, naturals and creams are some of the grades employed. For hosiery an extended group including viscose, fine filament rayon yarns, hollow rayon yarns, lisle or mercerized cotton, are popular varieties. Shorter staple yarns given better results in regular knitting, as they allow of a greater internal yielding of the fibres of the yarn during the contortions of knitting.

(i) Wool

The first use of woollen fibres in the making of garments of all kinds is hidden by the misty curtain of time that covers both the history of sheep and the history of mankind. Wool could be easily obtained in early times, and the fibres were simple to handle as their natural wave or crimp held together readily during the more or less primitive spinning processes. The preparing of woollen yarn was a common home industry, and garments of wool were recognized as a valuable protection against

dampness, cold, and sudden changes of temperature. Woollen yarn was the first fibre to be used for hand-knitting and on Lee's machine.

Wool is not a straight fibre and the scaly surface of the projecting fibres holds an extra layer of air which increases the warmth of a garment. Woollen yarn is quite strong and elastic, and can absorb about fifty per cent of its weight of water without feeling wet. It takes and holds dye, and the strength of it is increased by twisting.

In the twenty-two countries in the world that produce wool in quantity, there are some two hundred different breeds of sheep. In Australia alone, the Government graded the wool produced there into eight hundred qualities. There are many grades used in knitting, but they may be summarily divided into a few classes: woollen yarn, with fibres lying in any or all directions with a fairly rough surface, and derived from certain breeds of sheep, or by blending wool from different breeds in order to obtain a uniform quality and eliminate a proportion of the waste; worsted yarn, with the fibres all parallel, necessitating long fibres and certain processes in the preparation and manufacture of it in order to obtain the smooth finish, fineness, strength and lustre which are characteristic of this grade; shoddy is the name given to yarn derived from discarded garments and waste, and through this is a means of conserving wool and lowering the cost of the finished article, the fibres are liable to be coarse and the yarn naturally lacks the strength of new fibre.

Wool is used to a greater extent probably than any other fibre because of its adaptability to a wide variety of garments. Good qualities of wool are strengthened by knitting and weak qualities tend to disappear.

The looped construction of knitted fabric, with its tiny spaces holding air, adds to the warmth of garments, and distributes the strain by its elasticity. Wool is used in knitting to make warm undergarments and hosiery, and comfortable and durable outergarments. The woollen sweater meets many present-day requirements; the "sports era" has caused an increase in the demand for woollen hosiery; and knitted woollen fabrics, a fairly new development, are attractive and practical for men's overcoats, ladies' suits and dresses; the softness, warmth and elasticity of woollen garments make them desirable for babies.

The chief disadvantages of knitted woollen fabrics are that they sag, stretch, and have a tendency to cling, causing them to lose their shape. Drop stitches will occur, and the material is difficult to handle in sewing, and seldom achieves the tailored smartness that may be obtained with woven fabrics. Steps are being taken,however, to eliminate these disadvantages, and a certain degree of success has been attained in these efforts.

(ii) Cotton

The demand for cotton in knitted garments may be attributed to the facts that it is the lowest-priced fibre, that it may be made to imitate silk or wool at much less the cost of either, and that certain groups of consumers desire garments that may be boiled in the course of laundering.

Spinning combines short cotton fibres into a yarn that is strong enough to be handled by the knitting machine, and it adds length and strength to the yarn, but as the spinning process for knitting yarn is

slightly different from that for weaving yarn, knitting yarns usually are spun to order. Sea Island cotton, considered the best grade, is not commonly used for knitting as the price of it is usually about four times that of other grades. Egyptian cotton, with fibres slightly shorter than Sea Island Cotton, is more commonly employed for knitting since it is more abundant and less expensive. The characteristic cream colour of balbriggan is due to the dark-coloured Egyptian cotton that is stained by the Nile mud. Cotton from the Southern States is even less expensive than the Egyptian, though as a rule the fibres are shorter, and it is more extensively used for knitted goods. Peruvian cotton, strongly brown in colour and harsh to the touch, is used to imitate wool.

Cotton fibres are short and require more twists to the inch than other fibres making the spinning easier; it is the dullest natural fibre and requires special treatment to obtain lustre, it breaks easily and does not take dye as readily as other fibres. Cotton yarns, however, absorb moisture quickly, especially if well-bleached, and this is an important factor in underwear. Frequently the bleaching is done after the fabric has been knitted and before it is made up, and this makes the cloth whiter and more absorbent. The mercerization process involves soaking the yarn in a lye solution, which causes the fibres to thicken and makes the cotton stronger, more lustrous, and easier to dye. Lisle thread, which is made from combed cotton long staple yarns that are tightly twisted and gassed, increasing smoothness and strength of the yarn, is used extensively for reinforcing silk hosiery, and as a substitute for silk in the tops and feet of socks and stockings. It will drop-stitch more easily

than fuzzy cotton yarn and is not as soft and comfortable, but it increases the durability of the garment in which it is used.

Cotton garments may be boiled or sterilized without damage to the fibres, if the yarn is heavy and fluffed the resulting garment is warm, and if spun finely and knit in an open mesh the garment is extremely cool. Cotton is in general use for underwear, for stockings, and to an increasing extent for sportswear, especially during the summer, when open-mesh garments of cotton are extremely desirable.

Wool was the first fibre used in knitting, silk is the most valuable, but cotton is used in the largest quantities.

(iii) Silk

According to legend, silk was woven in China five thousand years ago in the days of Fu-hi, whose Royal Queen personally tended the silkworms and invented a method for spinning the fibre. Since the early days of its use down to almost the present century, silk has been associated with things rare and royal. It was used primarily in the knitting industry to make fine hose for people of wealth in the fifteenth and sixteenth centuries. The improved standard of living associated with the twentieth century, has made the beauty and luxury of silk garments available to a new and larger body of consumers,and though silk plays a small part in the group of fibres used in textile production, high price and valuable characteristics have earned for it an important position.

Pure silk is divided into two grades; the thread silk, derived from

cocoons which are placed in an oven to kill the worm so that the covering remains intact, making longer fibres; and spun silk or schappe made from the covering of pierced cocoons and other waste, producing a shorter fibre usually, but costing only about one-half as much as thread silk. One strand of raw silk requires the covering from six cocoons, but as this is not strong enough for making most knitted fabrics, the strands are moistened, doubled, then twisted. Five strands twisted together and called a tram, form the silk yarn that is widely used in the knitting industry.

The industry of raising silk worms is chiefly carried on in Japan, China, Italy, France and Syria. Practically ninety per cent of the silk produced in Japan is imported into the United States, where it supplies about seventy-five per cent of the requirements.

Silk has many advantages which render it desirable. The fibres are naturally long and do not show the fuzzy surface and many projecting ends prevalent in other yarns, and the spinning process is simplified by the length and strength of the fibre. Dirt does not cling to the smooth surface of silk, and whatever dirt there is may be removed easily in laundering without detracting from the natural lustre of the silk.

Knitted garments of silk satisfy milady's craving for lovely things that are durable. Such garments launder easily and pack into a small space when travelling. Fineness, elasticity, absorbent qualities, beautiful range of colours, since silk dyes easily, add to their desirability. In underwear, pure silk garments are in demand for their thinness as well as for other qualities, but the comparatively high price limits the sale

of them. It is in the field of hosiery, perhaps, that silk reigns supreme, and here the limited supply of pure silk for knitting and weaving led to the discovery of artificial silk. In spite, however, of the improvements in chemically-produced silk, the person of taste prefers the pure silk article, and though silk garments are more widely used today than ever before, the price of them is fairly high, and they are still, to a certain extent, the garments of the wealthy.

(iv) Rayon

Ranged beside its cousins in the field of textile fibres rayon is an infant, a modern one, but progressing very rapidly. The name, rayon, was definitely given to artificial silk in 1924 to avoid confusion with pure silk. A Frenchman named Chardonnet, exhibited the perfected fibre at the Paris Exposition in 1900. The process of manufacture involves the conversion of cellulose, derived from wood pulp or cotton linters, into a thread by forcing the glue-like substance through a spinnerette which contains fine orifices of the size of thread desired. The streams thus produced form shiny fibres, when dry and hard, which are collected and twisted together to make the rayon yarn.

The advent of rayon has played an important part in the development of the knitting industry. The increasing demand for silk could not be supplied by the silk-worms, and the cost of a pure silk garment was beyond the price the average consumer could afford to pay. Rayon has brought silk-like garments within reach of a large proportion of the population, and improvements that have been, and are being, made from

time to time cause it to resemble silk more and more closely. The increasing use of rayon yarn may be judged by the fact that in 1912 the United States used one million pounds, while in 1925 fifty million pounds were required to supply the demand.

The hosiery and underwear branches of the knitting industry have benefitted to a remarkable extent by the invention of rayon. Where stockings and separate pieces of knitted underwear of pure silk retail in Canada from three dollars, the same article made of rayon retails around one dollar. Rayon has the appearance of silk at a much lower cost; it can be made into a heavy fabric without weighting; it has a smooth surface that sheds dirt and absorbs moisture; and it can compete with cotton or silk as regards durability.

In the entire textile field the invention of rayon has had an almost revolutionary effect. Not alone because of its comparative inexpensiveness, its popularity and its good qualities, but because it has necessitated new types of bobbins, needles, winding machinery, and other mechanical parts, as well as workers skilled in handling the new fibre.

(v) Linen

From the flax plant comes the linen fibre that was first used in Egypt, it is believed, about four thousand years ago. The fibre is fine and is longer than the woollen fibres. In the knitting industry it is made into a mesh fabric particularly open in texture that is especially desirable for underwear, since it is soft and very absorbent. From a hygienic point of view, linen mesh underwear is highly recommended by medical men, but the price of it prevents these garments from being in very great demand.

(vi) Combination of Materials

Various fibres are combined for knitting in different ways; the fibres may be mixed or blended before spinning, two yarns may be used side by side in a machine with adjustments for throwing one to the surface, producing a plated effect, two or more different yarns may be twisted together, or the yarns may be alternated in different rows during the knitting process for decorative effect.

The mixing of cotton and wool has many advantages, and is a common practice in knitting mills. Cotton costs approximately one-quarter as much as wool, and the mixed garment is accordingly cheaper than an all-wool one. The strength of low-grade wool is re-inforced by the addition of cotton, shrinkage is decreased, and the garment is not inclined to be too warm. The blended cotton and wool yarn is called wool mixture, and in plated fabrics the wool appears on the inner and outer surfaces and the cotton is hidden between the loops, or the fabric may be knitted with a row of part wool, one of all wool, and one of cotton.

Cotton and pure silk are usually combined in the plating, the silk appearing on the surfaces. This decreases the cost of the garment considerably while increasing the weight and durability.

A combination of rayon and cotton, usually done by the plating process, has many advantages. The stiffness and high lustre of the rayon yarn is diminished, the strength of the garment is increased, the tendency of knitted fabrics to drop-stitch is eliminated to a certain extent, and it makes possible the use of a finer thread.

Since wool is an animal fibre and rayon made of cellulose is a vegetable fibre, they react differently to dyes, and when combined, many interesting colour effects result. Many of the so-called silk and wool mixtures are,in reality, rayon and wool. Wool is combined with silk to make a thinner fabric, to decrease shrinkage, and to effect a more luxurious appearance.

The combining of silk with rayon is widely employed in the manufacture of underwear by means of the plating process. This combination has been found to be very satisfactory in adding weight to the fabric, giving it more body, and in greatly reducing the cost of the garment without detracting from its appearance.

CHAPTER 2 - DEVELOPMENT OF THE KNITTED GOODS INDUSTRY IN CANADA TO 1920

(a) The Home Industry Stage in Canada - (b) The Origin of Knitting Mills - (c) Developments in Labour and Capital Employed - (d) Organization of the Canadian Market and Methods of Distribution -

(a) The Home Industry Stage in Canada

In the early days colonies were regarded as existing commercially for the benefit of the Mother Country. The early French settlers in Canada were prohibited from manufacturing any of their requirements in order that industries at home would have an outlet for their products. In times of scarcity, when supply ships failed to arrive, the colonists were forced to supply their own needs, and the tentative efforts of these early settlers marked the birth of the textile industries in Canada. The Intendant Talon encouraged the colonists and he recorded in 1665 that he had in New France "the wherewithal of domestic make to clothe himself from head to foot."

The introduction of knitting needles into Canada is unknown, but from the early times settlers wore knitted caps and stockings of wool. The need for warm clothing, the influx of British peoples, a few of whom brought with them their hand-operated knitting frames, in spite of the prohibition against the export of machinery, and the arrival in 1760 of Scotch glove-knitters whose patterns were a part of their equipment, were important factors in the early development of the knitting industry.

For nearly a century after the British conquest, the knitting industry was confined to individual efforts, and the settlers had to depend on the endeavours of their women-folk for the warm knitted garments they re-

quired. Hand-knitted mittens, socks, scarves and caps were exhibited at small country fairs, and in many a community women sought the title of the best knitter in the country. New patterns were jealously guarded and the intricacies of the design were divulged to a select circle of friends only after due prestige had been acquired by the designer. Many of these women, never idle, would put a half-finished stocking into their bag as they sallied forth to visit with their neighbours, plying their tongues and their needles at the same time.

The fact that knitting mills and power machines are a fairly recent addition to Canadian industrial development may account for the prevalence and popularity of hand-knitted garments in Canada today. In sparsely-settled districts in Canada there may still be found the housewife who spins and cards the wool gathered from the sheep on the settlement, and who knits it into useful garments. This group of pioneers is not considered in the statistics compiled by the Dominion Government, however, which in 1926 showed 767 female piece-workers in the knitting industry, working outside any establishment, whose wages totalled $43,876. Two years later, in 1928, outside piece-workers had increased to 818 females and 11 males, who had joined the ranks of hand-knitters, and their wages totalled $53,904.

An interesting feature of the hand-knitting industry in Canada is the extent to which blind people have mastered this art. The Canadian National Institute for the Blind is listed as a knitting establishment, and though a certain amount of the work is done by machines, the greater part of their output in knitted goods is handwork.

Thus the art of hand-knitting, introduced into Canada by early settlers and pioneers, has persisted to the present day, and whereas in the early days hand-knitting was done by the housewife or her daughers to supply her family with the warm garments they required, today it is done by men and women in order to make a living, or to supplement a small income they may have. The art persists, but like so many of the arts, it has been commercialized.

(b) The Origin of Knitting Mills

The history of knitting as an industrial development in Canada opens with the arrival of Mr. W. E. Adams and his family from England in the spring of 1857. Mr. Adams brought to Canada three hand-knitting machines and a supply of yarns, and opened a shop in Belleville, Ontario, where he started to manufacture shirts, drawers, and hosiery of fine quality. His business flourished and in a few short years his supply of yarns was exhausted. To his dismay he discovered that he could not procure in Canada the kind of yarns he required. Early in 1860 he journeyed to Hamilton where he met and formed a partnership with Mr. Crane, who had opened a knitting mill at Ancaster the previous year, equipped with four power-machines, and a one-set yarn mill which supplied him with yarns. The two men added new machinery to the Ancaster mill and continued manufacturing knitted goods for some years.

In 1862 the present firm of C. Turnbull Company was established at Galt producing full-fashioned knitted woollen underwear for the first time in Canada. Three years later Joseph Simpson opened a mill at Toronto, in-

troducing circular knitting frames into the Canadian industry. Mr. James Watson of Hamilton acquired control of the Adams-Crane mill at Ancaster in 1867, resulting in Mr. Adams' removal to Paris, Ontario, where he formed a partnership with John Penman, laying the foundation stone of the knitting industry that has,ever since that time, been an industrial feature of Paris. Three years later Mr. Adams withdrew from the Penman Company and joined with Mr. Hackland at Paris in establishing the organization known as the Grand River Knitting Mills.

At that time, each year, practically, witnessed the establishment of new mills, the names of Moodie, Lennard, Forbes, McCrae, Galt Knitting Company, being prominent. Though power-machines were rapidly coming into general use, the hand-hosiery machine had not disappeared until the beginning of the present century. Actual development in this period of varying prosperity was most noticeable in the re-equipping of mills with new machinery, and an increasing measure of efficiency in manufacture. By 1900 there was a substantial number of fairly large plants manufacturing wool and cotton hosiery, underwear and sweaters, but the range of products was extremely limited, compared to the lines of knitted goods today.

The British Preferential Tariff introduced in 1897, and the influx of knitted goods from Germany encouraged by export bounty dealt a severe blow to the woollen and knit goods industries, and occasioned keen competition which the struggling young Canadian mills found difficult to cope with. It was only after the surtax of 33½ per cent was imposed on imports of German goods in 1903 that the knitting industry in Canada began to expand. The development of knitting to its present important position in

the textile field has occurred largely since the beginning of the present century, due not only to inventions and perfections in machinery and equipment, but to a great extent to changes in fashion and, as Ontario was the seat of the knitting industry at its inception, so through the years the greatest expansion and the most far-reaching changes in the industry have occurred there.

The development since 1900 has been rather striking in that the number of mills has not increased to the extent that might be expected, when increases in population, and in the variety of products is considered. The growth in the industry has been from a fairly large group of small mills, each employing a few hands, to a comparatively small group of mills, some very large, each employing dozens of workers. This growth from small scattered establishments to large and more concentrated units, as regards management and output, has been carried on so steadily, and with so little fuss, that the importance of the knitting industry is not widely recognized, or realized.

One of the outstanding examples of this development is the organization known as Penman's Limited, which was one of the first mills in operation in Canada, and which, as early as 1892, found it necessary to open a second mill. A year later this company acquired the Peninsula Knitting Company of Thorold, Ontario, the Coaticook Knitting Company of Coaticook, Quebec, and the Norfolk Knitting Company of Port Dover, Ontario. Since then the Watson Manufacturing Company of St. Catharines has been added and moved to Paris, the plant of the Canadian Woollen Mills Company of St. Hyacinthe, Quebec, has been acquired, the Anchor Knitting Company formed another link in the chain. In 1911 the Ellis Underwear Company of Hamil-

ton was purchased, and a few years later a worsted spinning mill was established at Waterford, Ontario, followed by the erection of a new plant at London, Ontario, in 1929. This organization has been established for sixty-two years and their claim is that they have never been content to rest on their laurels, but have ever been seeking improvement, These statements may be applied to the entire knitting industry in Canada if achievement is any criterion of progress.

(c) Developments in Labour and Capital Employed

Capital and labour developments in the knitting industry are indicative of general industrial changes, but are unusual in that the developments have occurred rapidly over a brief period of years. From one-man establishments requiring careful planning and saving, there have been evolved large companies with shareholders spread over the length and breadth of the land, and with employees ranging into thousands. As the industry was started with the small investments of individuals, so today, the capital employed has been derived almost entirely from the savings of Canadian people.

Possibly the best test of the importance of an industry to a given community is not the amount of capital invested in it, or even the value of its products, but the extent to which it gives employment and the amount of money it distributes in wages. The great value of the knitting industry to communities is, perhaps, the fact that a large proportion of the establishments are in centres of under 10,000 population, and also, the fact that, being a "light" industry, employment is provided for women as well as men. In 1917 there were 7,940 women employed in knitting mills and 3,539 men, while in 1928, 11,336 women were working in the mills and 5,073

men. This helps to check the gradual movement from small centres to large by affording congenial work for women.

The structure of Canadian knitted goods companies may be seen from table I in the appendix. The first census of industry appeared in 1871, and the succeeding decade shows a remarkable increase in the number of establishments, and an increase of seventy per cent in the average capital, due possibly to the need for new and better machinery. An interesting feature of the early development is that the total value of products was greatly in excess of the amount of capital and the value of raw materials. Establishments were small in this period with little capital, the worker's wages representing about one-fifth of the value of goods he produced.

The next decade, 1881 to 1891, witnessed a big reduction in the number of establishments with nearly double the average number of wage-earners, and a much larger average capitalization which might be interpreted as the result of amalgamations, and due too, possibly, to the fact that many small firms could not afford the new power machinery, and were forced to close down. In 1901 a further drop in the number of mills, a tremendous increase in the amount of capital invested, is recorded. There is a general upwards trend in wages and an increase in the average number of workers.

The following twenty years show the tremendous expansion that has occurred in the industry. The number of establishments more than doubled, the total capitalization increased over 900 per cent, the average capitalization increasing about 300 per cent. The comparatively few employees in 1921 to the capitalization, the size of the establishments, and the value

of the products, bespeaks the efficiency in management and the intense mechanization that is characteristic of the industry. Wages almost trebled in this period, due partly to the war, and partly to the fact that with increased mechanization came the demand for increased efficiency on the part of the worker.

In 1871, each worker produced goods valued at $812, and in 1921 the average production was $3,875, while prices had only doubled. Wages, too, quadrupled, and while the average capitalization increased 183 times, the number of establishments increased only 11 times, the number of wage earners 38 times, and the average value of products 16 times. In 1901 there were only three knitting establishments with an output of over $200,000, in 1921 the average output was $288,894.

(d) Organization of the Canadian Market and Methods of Distribution

In the early days of hand-knitting and the hand-machines, the producers of knitted goods sold their products directly to the consumer. For the most part, these articles were made for individual customers on special orders. The next step toward marketing involved the tradesman whose contact with a larger group of customers enabled him to take orders which he distributed among local workers, sometimes supplying the wool himself, and selling the finished garments at a profit. In some instances this distributing work assumed sufficiently large proportions to encourage a tradesman to devote his whole time to it.

The development of the factory system in England preceded Canadian development, and when knitting mills equipped with hand-machines were organized in Canada, power-machines were in general use in the United Kingdom.

Canada, among other colonies, had been accustomed to buying manufactured goods from the Mother Country, hence Old Country goods imported by wholesale firms dominated the Canadian market. By 1860 the effect of the financial crisis had not entirely disappeared, and new industries met with little encouragement from the wholesale trade, in spite of the tariff introduced in 1858 to foster native industries.

The pioneers in the knitting industry, having no method of reaching more than a few retailers direct, had recourse only to the wholesalers who were reluctant to handle domestic lines. After some persuasion, they were induced to try the new goods, and when their travelers showed them to the retail merchants they met with an immediate reception. Until the end of the nineteenth century, practically all consumption goods reached the retail merchants through the wholesale houses, to which the manufacturers made their deliveries.

With increased transportation facilities and the development of large retail stores, manufacturers were encouraged to deliver directly to the stores, the wholesaler no longer carrying a stock of domestic goods, but merely managing the selling of the goods and reaping his commission. The amalgamation of knitting mills, the tremendous increase in capitalization and in output, the desire of merchants to deal directly with the producer, led to the gradual organization of a selling staff connected with the mill. This development became a necessity when knitwear advanced beyond merely hosiery and underwear, as merchants were inclined to view this evolution with timidity, since their knowledge of looped fabrics was limited. Trained salesmen were required who could explain the manufacturing processes and the advantages of knitted garments. So today, each mill has its trained representatives who visit the retail merchants, exhibit their range of samples,

alleviate doubts, gain suggestions or criticisms from customers via the retailer, and play their part in distributing more quickly the products of their mill.

CHAPTER 3 - THE MANUFACTURE AND MARKETING OF KNITTED GOODS, 1920-1929

(a) Relative Position of Knitted Goods Industry in General Textile Field - (b) Technical Improvements in Production - (c) Changes in Consumer Demand - (d) Influence of Style on Inventories and Obsolescence - (e) Relative Influence of Imports -

(a) Relative Position of Knitted Goods Industry in General Textile Field

The important position achieved by the knitted goods industry is evident from a study of the tables in the appendix. Table II gives the statistics of all the industries included in the textile group. The knitting industry stands sixth in the number of establishments but second in total and average capitalization, the cotton textile establishments having an average capitalization of $1,244,661, the knitting industry $375,860, and second in the number of employees. In salaries and wages paid, the knitting industry takes third place in the aggregate amount distributed, but the average wage is comparatively low, due to the fact that the majority of the workers are women, who receive lower wages, as a rule, in industry,and also to the fact that industries paying higher wages are settled, for the most part, in larger centres where the cost of living is higher, necessitating the distribution of more money among the workers. In the next three groups, cost of materials used, gross value of products, and value added by manufacture, the cotton textiles are in the lead, women's factory clothing coming second, and the knitting industry a close third.

The clothing industry is a converting industry purchasing the finished cloth from the woollen and cotton industries. The knitting industry,though a converting industry to the extent that the products as they leave the mill are ready for the consumer, is, in reality, more akin to the woollen,cotton

and silk industries, since like them, it receives the fibres in various forms from the spinning mills and converts it into fabric as well as finished garments, and is therefore more of a secondary industry like cloth-making.

Thus in comparing various branches of the textile group as to materials used, the true converting industries are not taken into consideration. In Table III, the quantity in value of raw materials consumed in the group of secondary and cloth-making industries is given. This table paints an even clearer picture of the important part played by the knitting industry. In every type of fibre used the knitting industry is either the largest or second largest consumer. In the final totals given, it will be seen that the knitting industry uses 34.99 per cent of the raw materials employed in all textile manufacturing industries in Canada. The wool is obtained from several countries including New Zealand, Australia, and the United Kingdom, as well as domestic wool. Some Egyptian cotton is used in the knitting industry, but the greater part of the raw cotton comes from the United States. Silk is imported almost entirely from Japan, but the artificial silk, or rayon, is obtained mostly from Canadian plants.

(b) Technical Improvements in Production

One of the most important improvements in recent years is Cotton's patent frame, built for making eighteen to twenty-four articles of hosiery at one and the same time, which has been in great demand, to cope with the vogue for silk and rayon stockings. It makes very fine gauges possible, and is built with the needles in definite tricks, instead of in pairs or threes in a lead. Owing to the great width of the machines, however, an

equitable temperature must be maintained day and night, or the tiny adjustments begin to alter, and flaws and defects occur. Specially trained operators are required and considerable manual expertness. Incidentally, these operators earn very high wages. In the hosiery trade, developments have been mainly in the direction of increased patterning facilities and ever finer gauges.

A card system has been introduced which makes possible a greater diversity of patterns for manufacturers with a modest outfit. Patterns within a width of six inches can be repeated identically right across the width of the garment or fabric, the opening and full places signalling to appropriate the levers which operate the changes. In this way a narrow width of needles may be provided with new patterns very rapidly and at a low cost. The race-track flat-knitting machine is one of the most remarkable inventions connected with flat-knitting. This produces fancy patterns on the reverse plating principle, which throws the design to the outer surface, using two colours for the ground, and makes it possible for garments to be worked in continuous lengths.

The speed in warp looms, in which the harns are placed side by side by side like the warp yarns in weaving, has been increased considerably, ball-bearings have been introduced wherever possible, and the time in leverage has been reduced. Looms are built 120 to 160 inches wide, and they can run at a speed of 150 to 200 courses per minute at this width. If the fabric is turned through a right angle, a herringbone stripe appears, and this has become immensely popular.

The principle of knitting is recognized to be about as perfect as is

possible, but developments might be made toward increasing the speed, though even at the present time the knitting machines have scored an advantage over the weaving looms in the rapid production of fabrics. Despite the present degree of perfection, the majority of machines in the knitting industry are constantly undergoing changes in their construction, and this is one of the most severe taxes on capital for the manufacturer. New attachments and improvements are designed at short intervals, and should he choose to ignore these developments, the manufacturer would soon find himself hopelessly out-marketed by his competitors.

The popularity of artificial silk has influenced mechanical developments in knitting to a marked extent. Machines that would wind cotton, worsted or cashmere yarns satisfactorily were discovered to be unsuitable, in most cases, in dealing with the new fibre. This led to the introduction of new methods in winding, with contact winders of glass, porcelain, or some other substance with a smooth, hard surface. New machines, with a stop motion set to operate simultaneously in the event of drag on the yarn, have made their appearance; new yarn feeding and tensioning devices, with improved forms of swifts to carry the skeins, and bobbins of highly-polished wood or aluminum, have been designed; and improved construction of the screw spindle and riser mechanism, to eliminate all unnecessary friction, has been arranged. The stationary needle cylinder on circular machines produces knitted web of good texture cheaply, while the moving cylinder lends itself to the production of fancy tuck stitches in larger pattern effects, that are especially desirable. In 1928 there were 14,693

power knitting machines in Canada, and 388 hand-knitting machines.

From the lowly stocking-frame with its bearded needles, its simple dividers and sinkers, and its foot-controlled treadle, technical improvements have created the complicated knitting machine of today, with its thousands of parts, operated by steam engines, turbines, electric motors, its demand for soundly-constructed housing facilities and climatic arrangements, its engineers for installation and maintenance.

(c) Changes in Consumer Demand

Probably in no branch of the textile group is there an example so outstanding of the far-reaching effect of consumer demand on the development of an industry. For centuries the looped construction characteristic of knitting, was considered suitable only for a very limited range of garments, including hosiery, caps, mittens, and later, underwear. Eventually sweaters and cardigans were added to the group of knitted articles. Vision was clouded for hundreds of years, and it was not until the beginning of the present century, practically, that the veil was definitely lifted, and the knitting industry showed possibilities of great expansion. This has resulted in knitted goods departing from the narrow channel of staple necessities, and winging their way to the heights of fashion.

The growing confidence of the general public in the durability and economy of knitted goods has given the required encouragement to manufacturers, who chafed at the restrictions placed upon their products by custom. No longer are they confined to the production merely of utility garments but are branching out to the development of tweeds, blankets, overcoatings, and plushes. Three factors, apart from actual improvements in

machinery, have contributed to this expansion: the fulling or shrinking of the fabric, which produces something of the firmness of woven cloth, and the napping of the surface that conceals the looped construction of the knitted article; the improved quality of rayon which has added a new and desirable fibre; and the prevalence of warp-knitting, which has created a demand for the thin double fabric it produces to replace the fine woven materials, formerly used in the making of lingerie.

Within recent years the demand for fancy knitted fabrics has increased, and season after season fashion requires, and has been led to expect, something new in knitwear. Frequently, a high class product, embodying new features, is made slowly, and often laboriously, on hand-controlled machines. A sure demand is created for a certain class of goods, provided they can be marketed quickly and at a not too prohibitive price, by the desire on the part of the general public to emulate the ladies of fashion who appear in these newly-conceived garments.

Since the time of Queen Elizabeth women everywhere have shown a preference for silk hosiery, but not until the present century has it been possible to cater to, or supply effectively, this general demand. The invention of rayon fibre, and the improvements in hosiery machines, have brought silk, or rather artificial silk, hosiery within the monetary reach of practically everyone. The effect of this demand on the development in the manufacture of hosiery in Canada has been very noticeable. In 1919 full-fashioned hosiery machines were introduced into the Canadian knitting industry, and within a year they were producing 500 dozen pair per week. Ten years later there were sixteen mills equipped with nearly 400 machines, with an output of approximately 2,500 dozen pair each week.

Manufacturers of lower and cheaper classes of goods have been anxious to eliminate some of the more obvious defects in their products, in order to reproduce with greater exactness the more expensive lines, and those supplying garments of better quality have been equally desirour of increasing their output by speeding-up production and reducing overhead. A natural desire has arisen to market the highest possible quality at a price to suit the pocket of the average man in the street. This desire has been fostered by the fact that consumers, generally, require smart appearance in knitted goods, which could be obtained only by the utmost efficiency in manufacturing processes.

Fashion's demands are responsible for the introduction of many new selecting devices, for the exploitation of old methods, for designing in new ways, and for alterations in mechanical construction to facilitate higher knitting speeds. The call made on the resources of the machine-builder supplies the necessary urge or driving force for the experimental designer, and focusses his attention in a definite direction, with the result that frequently a machine introducing some entirely new features is evolved. An example of this is the French beret, so very popular a few years ago, a knitted article with a heavily-napped surface that closely resembles a woven fabric, that resulted from an attempt to introduce some change in knitted caps.

The use of rayon fibre for hosiery reached such a degree of perfection in its imitation of silk, that it rapidly spread to the manufacture of underwear and lingerie. In this respect,however, the unconditional guarantee, formerly attached to many lines of knitwear, has been withdrawn

generally, since inexperience on the part of retailers and consumers in laundering and handling rayon fabrics, led to heavy losses being incurred by the return of damaged merchandise to the manufacturer. Moreover, when rayon goods were introduced it was deemed desirable and necessary to create an extensive demand for them and to inspire confidence in them. Successful advertising accomplished both these ends.

These changes in consumer demand, from utility to the addition of fashionable outergarments and more luxurious underthings, from woven fabrics to knitted fabrics, have brought about a near-revolution in the knitting industry. And not only have they affected the knitting industry, but the repercussion has been felt by all the subsidiary industries from machine-building to spinning, and by other cloth-making industries on which the adverse effect will be more noticeable as time progresses.

(d) Influence of Style on Inventories and Obsolescence

For many years changes in style had little or no effect on the producing or marketing of knitted goods. Retailers could order their staple requirements months in advance, and manufacturers could be making one season the goods that would be required for the next. Moreover, there was little change in the type of garments or in the range of fibres used from season to season, and it was not considered absolutely essential for stocks to be cleared each season. Wholesalers too, were able to carry supplies from year to year, and manufacturers could arrange a set of samples that would be satisfactory for a few years at least. By studying their sales for a previous season they could prepare some time in advance their possible requirements for a subsequent season, with a minimum of

the element of chance. The bulk of knitted goods especially, were in demand almost entirely during the cold months, the mid-seasons usually being slack periods.

With the advent of style in Knitwear the old security in production disappeared, and this, applied at first to outerwear and the newer branches of the industry, has invaded the precincts of former staple lines. Underwear and hosiery are now as changeable as the seasons, and each has assumed an important place on the fashion sheet. Rayon yarn, once shiny and fairly coarse, has been developed to a very close imitation of pure silk, and fineness and dull lustre finish are essential. The same change applies to hosiery, and here, too, cotton tops have been replaced to a great extent by stockings that are silk from top to toe, fine and ever finer gauges are demanded, and colour, a feature that once seemed stationary and unchangeable, now varies with every whim of fashion.

For many years, in the face of changing styles in women's attire, men's knitted wear was considered the stronghold of stability. But even here, not fashion, but the desire for variety and individuality has caused rapid and startling changes. A visit to a men's wear shop will reveal a variety of cardigans, sweaters, hose that emphasizes the general instability in the form of demand. The decrease in the sale of woollen or mixture undergarments is very marked, but this is offset by the increasing demand for light cotton or rayon underwear. Colours and styles in men's underclothing display almost as great variety as in women's, and this development of male "lingerie" has occurred largely within the last few years.

Each season necessitates a new group of knitted garments, heavy outdoor sports clothes for Winter, medium-weight for golf or street wear in the Spring, light weight, almost transparent, knitted fabrics for Summer, and a moderately heavy weight for cool, Fall days. Radical changes in outerwear necessitate similar changes in underwear and lingerie. Fashion magazines mention pyjamas for lounging hours, and knitting mills put forth every effort to get them to the consumer. Bathing togs, glorying for a few seasons in the simplicity of the one-piece bathing suit, must now include a beach cape, beach trousers, a bag for accessories.

The effect of these changes on the marketing of knitted goods has been rather remarkable. Stocks are cleared and renewed almost monthly in retail stores, wholesalers have found it to be practically impossible to risk carrying a stock of knitted garments, and, for the most part, they have discontinued their lines of knit goods. Manufacturers have been forced to increase their speed in production, making in one month a line that would have required from six to nine months a few decades back. They must employ fashion designers, visit style centers, study the trend in clothes of woven fabrics, as well as knitted, in order to forecast the demand and be prepared to meet it. Rapid turnover is essential today in the competitive market, and the element of chance is more marked. Manufacturers and retailers may hazard a guess as to the success of certain lines, but noone can be sure. Naturally, this reflects on inventories. The "hand-to-mouth" buying that was a feature of the post-war period of depression, has never actually disappeared. The time has been extended to month-to-month buying

for the most part, but the principle has become synonymous with successful merchandising. "Long" profits are not longer in vogue, a smaller profit three or four times a year or more often, on a given sum, is considered much more advantageous than a big profit once or twice a year. Speed in manufacture and speed in merchandising are essential in business today.

Rapid style changes not only tax the resources of the machine-builder to meet them, the manufacturer to cope with the installation of new machinery and the vagaries of fashion, the retailers to sell the goods quickly and at a profit before they become obsolets, but they provide a greater number of jobs each season in preparing the merchandise, in handling the materials for manufacture, in the field of technical engineering and commercial art, in the distribution of the goods in the carrying as well as the selling to the retail trade, and im the handling of stocks, the keeping of inventories and the final sale of the goods to the consumer. The lengthening of skirts, the addition of capes or trousers to beach togs, the vogue for pyjamas, the demand for greater variety in design, for silk in underwear, each a comparatively simple matter in itself, all reflect on every branch of manufacturing and marketing to make them more complicated, to increase speed and efficiency. Truly, these changes are characteristic of industry in general today, the results, probably, of mechanization.

(e) Relative Influence of Imports

From the tables IV and V in the appendix, the relation between imports and domestic production may be traced. Certain classifications are

omitted in the statistics available, particularly in connection with imports, the goods being listed under the fibre that comprises the greater part of their content. In "Knitted Outerwear," no importations are recorded, yet there is imported knitted outerwear on sale in many shops throughout Canada. This class of goods is comparatively small, however, since it is mostly novelty or "high" fashion merchandise, and is admitted under the general heading of "fancy knitted goods." Then, too, the available statistics give hosiery compiled as to quantity and value, but for all other knitwear only the value, or selling price at the factory, is given. These shortcomings introduce an element of inaccuracy that cannot be avoided along with the admitted possibility of error in the figures themselves, since a small proportion of knitted goods is produced in other industries and is not included here.

It is evident, however, that importations of hosiery and knitted goods play a small part in Canadian consumption. In 1928 imports of woollen hosiery supplied 69.9 per cent of the Canadian demand, 65 per cent of these goods, or 93 per cent of the total imports, originating in the United Kingdom, but this is the only instance where British or foreign manufacturers dominate the market. In cotton hosiery, the total imports account for 26 per cent of Canadian consumption, 20 per cent of this merchandise coming from the United States. In silk, artificial silk and full-fashioned silk, imports represent only 15.8 per cent of the total consumption, 12 per cent of them of American production. These comparisons are based on the quantity of hosiery sold in the Canadian market.

Imports of cotton underwear are negligible, since the Canadian mills dominate the market, supplying over 98 per cent of this class of goods sold in Canada. Imports of artificial silk underwear are so very small they can be little else than sample lines. Of the woollen underwear, 18½ per cent is imported, 17½ per cent being of British manufacture, but only 2 per cent of the consumption of fancy knitted goods is other than Canadian, 1½ per cent of this originating in the United Kingdom. Of the knitted fabrics sold in Canada, 4.34 per cent is imported, the United Kingdom supplying 1.56 per cent and the United States 1.76 per cent.

In valuation, Canadian mills supply 91.17 per cent of the home market, undisputed masters of the field, except in woollen hosiery and cotton hosiery, imports of the latter being just one-quarter of the total consumption. Developments in the manufacture of cotton hosiery in Canada have increased so rapidly in the last few years that even the foreign competition that exists, may soon be eliminated.

(f) Substitution of Silk and Artificial Silk for Cotton and Wool

The sword of Damocles hung by a silken thread and through the ages the strength of this longest natural fibre has never been disputed. Garments of pure silk have been silent symbols of richness and love of beauty from very early times, and always a certain aura has surrounded them. The increasing popularity of pure and artificial silk may be attributed to the natural desire on the part of practically every woman to adorn herself luxuriously, and the advent of artificial silk has made it possible for a

new and large group of consumers to satisfy this desire. This development, as has been pointed out previously, has taken place largely within the last two decades, and is due, to a great extent, to the demands of women.

It is woman's privilege to be permitted to change her mind, and the truth of this adage is evidenced by the drastic change in women's garments. At the beginning of the present century cotton textile mills produced millions of yards of madapolam, batiste, French lawn, and similar cottons, to supply the demand for underskirts, corset covers, blouses and other apparel. Flannelette or flannel underskirts and nightgowns were an essential part of every woman's wardrobe, and Swiss embroideries in tremendous quantities were required for trimmings.

Today rayon fabrics supply the greater part of the demand for underwear materials. With better heating equipment in houses, and the participation of women in sports, simpler and lighter clothing is required: substantial cotton, lisle and woollen hosiery has, at one time the only varieties available to the greater mass of the population, been supplanted to a certain extent, by sheer stockings of rayon and silk. The effect of this has been to increase output and to necessitate more mills, since silk fibres have a greater tendency to run because of their smooth character, and their length of life is short, owing to their fineness.

The increased wages of the war and post-war periods, resulting in a higher standard of living, have led to a greater demand for silk and novelty hosiery, as well as silk underwear, on the part of both men and women. The

manufacture of full-fashioned silk hosiery in Canada in the last decade had been greatly developed, and whereas cotton, lisle and woollen hosiery were a decided factor in production even fifteen years ago, today they have been relegated to the decreasing branch of staple lines in women's apparel. The development in the manufacture of silk and rayon underwear has been expanding very rapidly during the past few years, and now represents an important part of the knitting industry.

In studying the figures in table VI, it must be remenbered that there is no sex division in production and imports, and that hosiery and underwear figures include apparel for men and children as well as women. Of the total consumption of hosiery in Canada in 1928, woollen and wool mixtures supplied 31.3 per cent of the requirements, a decrease of 14 per cent from the 1926 figures. Cotton and mercerized hosiery supplied 35.5 per cent of the consumption, while silk, artificial silk and full-fashioned hosiery supplied 33.1 per cent. The comparatively high percentages of cotton and wool hosiery consumed is due to a great extent to the fact that children's stockings are almost exclusively composed of these fibres, while the percentage of silk hosiery is almost entirely female consumption. Available figures for the consumption of underwear are very misleading since only the values of imports are given, and as all wool and pure silk garments are much more expensive than artificial silk or cotton, no true comparison of the actual quantities consumed can be derived.

The influence of advertising on the substitution of silk and artificial silk for cotton and wool has been very great. The psychological appeal to vanity has been featured, and coloured bill-board and magazine advertisements, showing beautiful women wearing hosiery and garments of silk, have

been very effective. The hints couched in seductive phrases, that to be fashionable a woman must wear silk stockings to complete her ensemble, and that silk underwear is essential for the smartly-fitting gown, have taken the form of a challenge that has been far-reaching and generally accepted.

(g) The"Brand"Factor

While fashion magazines indicate the trend in wearing apparel, which acts as a guide for producers as well as consumers, manufacturers,noting changes in style, try to create a demand for garments that will be durable as well as "in the mode." Having attained a certain quality in their products manufacturers have found it desirable to identify them in the eyes of the consuming public. Since knitted goods frequently reach the consumer in the original container in which they are delivered by the mill, and bear the mill label or identification mark, the practice of branding the goods has become quite general, as the directness of the merchandising makes effective control possible. An attractive name, embodying some feature of the products, a name that is easy to remember yet unusual, or merely the name of the mill, are the broad classifications of brands. With aggressive advertising stressing certain features of a garment, and an offer of some inducements in the form of various guarantees, a new product, or a standard product from a new mill may be successfully launched.

No manufacturer can afford to expend money on advertising and equipment unless an increase in the demand for his products will result. Once the demand is created the original standard of quality and the features stressed in the advertising must be maintained. The "Brand" campaign is carried on through the newspapers, through magazines and on bill-boards.

To date, knitted goods have not been advertised over the radio, though this may come in time. The public is encouraged to ask for merchandise bearing a certain name, and is led to expect a certain degree of service from these goods. If the product substantiates the claims for it made by the advertising slogans, consumers demand it. Trade-marked merchandise implies a definite quality to the average consumer, and if the goods are satisfactory they inspire confidence. There is a general feeling prevalent that a manufacturer, whose products bear a name associated with his establishment, will not risk losing business and will replace unsatisfactory garments in order to retain his customers. Every year a certain loss to the manufacturer is incurred in this way.

Large sums are spent every year by manufacturers for advertising trade names in order to acquaint and remind the public of certain products, and for perfecting manufacturing processes to ensure an even quality in output. On the other hand, the gain is reckoned in the increasing demand for certain lines, if they have proven satisfactory, and the definite prices that may be maintained. For the far-sighted manufacturer of good merchandise who gives true value, the expense of advertising and the loss occasioned by returns are offset by the knowledge that the market for his products is steadily widening.

The retailer profits from the advertising campaign paid for by the manufacturer and is assured of a fair profit and solid prices. Moreover, he acquires a reputation for handling goods of a certain quality and this reflects favourably on the other merchandise in his shop. There are groups of retailers however, who object to the fixed selling price attached to

most branded products, some desire more profit, others are satisfied with less. For the most part, though the retail selling price is seldom definitely specified, there is a tacit understanding between retailer and producer that the merchandise will be sold at around fifty per cent advance on the wholesale price. Manufacturers who are anxious to maintain this price have occasion at times to refuse to deliver their products to a store that sells them at a lower price, since it is an acknowledged fact that price-cutting reacts unfavourably on the demand for well-known lines.

CHAPTER 4 - INFLUENCE OF TARIFF CHANGES ON THE INDUSTRY

(a) Canadian Fiscal Policy with Regard to Textile Industry to 1896 - (b) British Preference and its Influence on the Industry - (c) Subsequent Changes in Textile Schedules - (d) Comparative Study of Textile Tariff Schedules Affecting the Knitting Industry.

(a) Canadian Fiscal Policy with Regard to Textile Industry to 1896

The climatic demands for warm clothing, the immigration of British peoples from the textile manufacturing districts of England and Scotland, the initiative of the Canadian people and the early beginnings in cloth-making made by French settlers made it evident that textile industries should be an essential and primary feature in the economic progress and development of Canada. British colonies, however, possessed comparatively few industries, obtaining most of their manufactured goods from Europe, and until Confederation manufactures made little progress owing to lack of marketing facilities, transportation, unhampered interchange between the various provinces, and, most important of all perhaps, lack of capital. With the opening of new districts, the union of the various colonies and more stable government, foreign capital was attracted to Canada and the demand for manufactured goods increased.

As early as 1858, in the Canadas, a tariff of 17½ per cent was placed on the import of woollen goods. It was intended as a measure for obtaining revenue but reacted favourably on the young industries that were being established. It was not until 1878 that a protective tariff was adopted, placing a duty of 35 per cent on imports of socks and stockings of all kinds

and knitted goods, and other textile manufactures. From this period manufacturing developed remarkably and the knitting industry showed considerable growth, most of the present mills having been extablished by 1890. In spite of this high duty manufacturers in the United Kingdom continued to supply a large part of the Canadian demand owing to better-established industries, sentiment in Canada, lower conversion costs, accessibility to machine-builders, and a general timidity on the part of retail merchants to handle the new domestic manufactures with which they had had no experience and of whose quality they were often dubious. Moreover, years of varying prosperity and political strife in the Dominion gave little incentive to manufacturers to expand.

(b) British Preference and its Influence on the Industry

The elections of 1896 ushered in a change of government. For eighteen years the protecticnist policy of Sir John A. MacDonald had been a feature in Canadian politics but the accession of Sir Wilfrid Laurier to the office of Prime Minister inaugurated a modification of this policy. The McKinley tariff shut British woollen manufactures from the United States and mill owners in the United Kingdom sought other markets for their goods to offset this loss. There was a general feeling in Canada favouring British Preference, though on the part of manufacturers this was interpreted as the desire to raise the general tariff rates, and granting preferential treatment to Great Britain by allowing manufactured goods from the United Kingdom to enter the Dominion under the then existing rates, thereby according preference without causing distress to Canadian industries, since the existing tariffs were the minimum under which they could make substantial

progress.

However, the Laurier administration placed a different interpretation on this desire for preference and in 1897 they reduced the General Tariff rates by one-eighth in favour of British goods, followed a year later by a further reduction of one-third. The effects of these reductions were immediately noticeable, though the full force of them was held up for some time by the dislocation of trade incidental to the South African war.

Before the conclusion of the war however, competition in the Canadian market became intensely keen. Many woollen mills were forced to close down and with the reduction of one-third off the General Tariff rates in favour of the United Kingdom in 1901, the situation became acute. The number of knitting establishments decreased, small towns depending wholly or part on knitting and woollen mills suffered intensely, the spinning industry depending on Canadian mills almost ceased to exist,

In many cases, Canadian products were of as good quality as British goods, but manufacturers with a small output, limited market and limited capital were handicapped as against British manufacturers whose home market, foreign trade and more extensively mechanized industries assured them of a greater demand with the ensuing larger output and lower production costs. The expansion in the entire textile industry in general was halted and Canadian production was reduced to supplying one-third of the home market. In a few short years British whollens dominated the Canadian market supply-

ing over 90 per cent of the imports. Aided by an export bounty cotton hosiery and underwear from Germany flooded the Canadian market and helped to make bad conditions worse. In 1903 a surtax of 33-1/3 per cent of the General Tariff was placed on German goods and brought an end to the dumping.

In 1906 the Canadian Customs Tariff was divided into three classes, the British Preferential Tariff, giving the lowest duty rates of 22½ per cent in the case of knitted goods; the Intermediate Tariff giving lower duty rates than before to countries making trade treaties with Canada, 30 per cent on knitted goods; and the General Tariff rate of 35 per cent. The surtax on German goods was removed in 1910.

The effect of these tariff changes and preferential treatment were not nearly as disastrous to the knitting industry as to the woollen and spinning industries. The surtax on German goods, the developments in knitting machinery, the increasing popularity of knitwear assisted the Canadian industry. Moreover styles in knitwear followed the trend of American rather than European fashions, the style factor was already beginning to assert itself, and domestic manufacturers catered to the requirements of the Canadian public in fashion as well as quality, especially in the production of staple lines of heavy underwear and sweaters. The necessity for greater speed in marketing aided the Canadian mills too, as they could supply the growing demand more quickly. The British manufacturers, on the other hand, catering to world markets, were not inclined to produce special lines for the small proportion of consumers in Canada, nor were their products designed to meet the climatic conditions of the country.

Moreover, wholesale establishments, though anxious to get business, would not readily stock more of imported merchandise than they were certain to dispose of, and when the demand was greater than they anticipated, they were forced to supply their customers with domestic products.

Thus, though the textile industry in general suffered a decided setback when the British Preferential Tariff was inaugurated, the knitting industry, somewhat purged it is true, was able to expand, owing to the fact that merchandising was more easily and directly controlled, since the finished product reached the consumer bearing the mill label, and style changes, seasonal requirements, and the question of stocks and deliveries gave the Canadian manufacturer a decided advantage over foreign competitors.

The British Preferential Tariff inaugurated as a reciprocal tariff in 1897 became a direct preference with the repeal of reciprocal arrangements in 1898. The Tariff Act of 1907, retaining the preference of one-third established in 1900, is, with various amendments, still in force. No formal trade agreements have been made between Canada and Great Britain, but this preferential treatment has been in operation continuously since its inception.

(e) Subsequent Changes in Textile Schedules

Under the Borden administration in 1915 a special war tax was imposed on imports of knitted goods of five per cent on the British Preferential Tariff and seven and one-half per cent on the Intermediate and General

Tariff rates. This was continued during the Coalition Government, the distribution and price of raw wool was controlled and the price at which contract work was to be done was established. New machinery was difficult to obtain even at tremendously enhanced prices, but the Canadian mills were gradually equipped with new and more efficient machinery, with the result that by 1919, when the war tax was removed, the industry, although lacking sufficient machinery to meet the normal demands of the home market without working day and night, was even more efficiently equipped than before the war.

The general slump in trade throughout the world in 1920 that continued in 1921 resulted in losses in inventories, incurred by rapidly falling prices, and cancellation of orders. The mills, however, by utilizing every possible method to increase efficiency and decrease production costs, managed to readjust themselves to the new conditions.

Changes in the preferential treatment accorded to British goods were made in the Robb budget of 1922, coming into effect in 1923 with the reduction in the British Preferential Tariff to 18 per cent. In order to encourage importers to have goods shipped directly by water through Canadian ports, the Canadian Parliament granted a ten per cent discount off the duty when goods of British origin entered the country in this way. The effect of these reductions was to greatly increase imports from Great Britain, and the import of woollen socks and stockings alone increased from 2,813,860 pairs in 1921 to 8,101,572 pairs in 1923.

The French Treaty came into effect in September, 1923, establishing a flat duty of 25 per cent on imports of woollens. As the French franc at

that time was steadily depreciating, importations of woollens from France were unduly stimulated, though the effect on the knitting industry was negligible in spite of the fact that the new low tariff rates were extended to goods coming from Italy, Belgium and Switzerland, as imports of knitted goods from these countries consisted mainly of a few novelty lines and hand-made infants' wear. Lower wage scales and depreciated currencies in European countries intensified competition, and in order to retain their markets, English manufacturers were forced to sell at cost or below cost, with the result that importations during 1925 and 1926 showed a big increase. The effects of these increased English imports were felt in the knitting industry mainly in the demand for underwear, socks and stockings.

The development in the manufacture of full-fashioned hosiery in Canada, especially in silk and artificial silk, and the ability of Canadian spinning mills to supply the various grades of yarn suitable for knitting, increased the share of the Canadian manufacturer in the home market and offset the reverse occasioned by increased imports to a certain extent. Other factors, previously mentioned, of seasonal requirements, style changes, stocks and deliveries, as well as the comparatively high efficiency attained by the mills, have enabled the knitting industry to expand.

Today the greatest menace is not from European centres with their well-established industries, but from Japan manufacturing silk goods, especially, for export only, with rates of wages approximately one-sixth of the Canadian

level. As the existing tariffs are applicable to prices at which the goods are sold in the country of origin, and Japanese goods have no such price, the matter of evaluating them is extremely difficult, and the problem is one for the present protectionist government to solve, since the decrease in imports from Europe ~~are~~ is being offset by a corresponding increase in imports from Japan.

In the first Bennett budget of September 1930, certain changes were made in the tariff schedules affecting knitted goods. Cotton socks and stockings were established at the following rates:

		1928
British Preferential Tariff -	20%	20% less 10
Intermediate "	27½%	27½% " "
General "	30%	30% " "
Most favoured nations "	27½% less 10	

Woollen socks and stockings showed a similar change, the new rates being:

More than $1.50 lb.

British Preferential Tariff -	27½%	27½% less 10
Intermediate "	32½%	32½% " "
General "	35%	35% " "
Most favoured nations "	32½% less 10	

More than 90¢ lb. and less than $1.50 lb.

British Preferential Tariff -	25%	25% less 10
Intermediate "	32½%	32½% " "
General "	35%	35% " "
Most favoured nations "	27½% less 10	32½% " "

Artificial silk stockings with no silk content

British Preferential Tariff -	25%	25% less 10
Intermediate "	32½%	32½%
General "	35%	35%
Most favoured nations "	32½% less 10	

		1928
Cotton knitted fabrics show slight increases		
British Preferential Tariff -	20%	18%
Intermediate "	27½%	27½%
General "	30%	30%
Most favoured nations "	25%	
Woollen knitted fabrics have higher duties imposed		
British Preferential Tariff -	27½%	22½% less 10
Intermediate "	35%	30%
General "	35%	35%
Knitted garments, more than 90¢ lb.		
British Preferential Tariff -	20%	20% less 10
Intermediate "	30%	30%
General "	35%	35%
Most favoured nations "	25%	25%
Not more than 90¢ lb.		
British Preferential Tariff -	25%	25%
Intermediate "	30%	30%
General "	35%	35%
Most favoured nations "	25%	25%

(d) Comparative Study of Textile Tariff Schedules Affecting the Knitting Industry

The textile industry in England was built and strengthened under successive reigns of protectionist monarchs. The export of raw wool to the British Colonies of America was prohibited in 1689, since it might lead to manufacture in competition with workers in England. Even wool working machinery could not be sold beyond England's shores, and consequently the most skilled workers, the best machinery, the greatest experience and technical knowledge regarding the manufacture of textiles, were to be found in Great Britain.

Not until the inauguration of the era of Free Trade in 1845 and the embargo against exports of machinery was lifted, could other countries begin

to compete with England. After eighty years of varying degrees of Free Trade, foreign manufactures are beginning to dominate the English home market, as well as competing actively in the foreign markets. In 1926 British manufacturers of hosiery and knitwear of cotton and wool applied to the British Government for a duty of 33-1/3% on importations of these classes of goods, since, owing to lower rates of wages or depreciated currencies, manufacturers in Germany, Czecho-Slovakia, France, Japan, and Italy, were enabled to sell their goods in England at prices in most cases below the actual cost of material and labour. This request is still being vigorously pressed. Great Britain has a duty of 33-1/3 per cent on silk and artificial silk manufactures, including stockings, with a preference of one-sixth in favour of Canada.

Protection in the United States dates from 1816 but in 1861 a policy of protection to the wool grower as well as the woollen worker was inaugurated, providing an ad valorem duty and the compensatory duty, the latter giving protection to the raw material. As a result, the woollen industry in the United States is now greater than that of Great Britain, farmers in the United States producing two and one-half times the weight of raw wool produced in Great Britain. In the last few years the mills in the United States have manufactured more raw wool in producing goods for their home market than Great Britain did for her home market and foreign trade.

A comparison of the tariff rates on imports into Canada and Australia is interesting in that both are new and partially developed countries needing population, both are members of the British Empire with strong bonds of trade and sentiment for England, and in both countries the keenest competition for the home market comes from manufacturers in Great Britain.

The Australian tariff schedule is designed to encourage and build up manufacturing industries paying wages to workers in the textile industry on a par with workers in other industries. On the average, the actual percentage of duty payable on the invoice value of textile goods shipped from Great Britain into Australia is double the duty on similar goods shipped to Canada. In both countries the raw material enters free of duty.

Goods imported into Canada are supposed to be valued at the fair market price as sold at wholesale for consumption in the country of origin. This makes no allowance for depreciated currencies, or for the fact that, as goods enter Canada at over five hundred Customs ports, and not over five per cent of these goods are opened and examined, it is impossible to have appraisers qualified to evaluate all goods fairly.

In Australia it is taken for granted that imported goods are more or less commercially dumped. Hence, to the invoice price is added freight charges to the place of exit from the exporting country, and the invoice price including the freight charges is advanced by 10 per cent before the duty is assessed. Australian duties, then, shown in their tariff schedule, are increased by 10 per cent of the amount of the ad valorem duties.

CHAPTER 5 - CONCLUSIONS

(a) Present Status of the Knitting Industry - (b) Classification of Competition in the Industry - (c) Position for Present Degree of Protection to the Knitted Goods Industry - (d) Impressions as to the Future of the Industry

(a) Present Status of the Knitting Industry

Within recent years the most notable developments in the knitting industry have been in the establishment of mills, such as the Julius Kayser & Company Limited at Sherbrooke, for the manufacture of full-fashioned hosiery and silk underwear, in additions and plant renewals, and in mergers among knitting mills in the formation of large organizations. The expansion of the Penman organization, manufacturing hosiery, underwear, outerwear, bathing suits for men, women and children, has been cited previously; the J. R. Moodie Company of Hamilton absorbed the Eagle Knitting Company and manufactures a fine grade of underwear in wool, cotton, rayon and mixtures, for men, women and children, as well as a special line of knitted baby garments; the Harvey Knitting Company of Woodstock acquired control of the Zimmerknit plant in Hamilton a few years ago, and in October, 1930 became a part of the present organization known as the Woods Underwear Company of Toronto, a young establishment which had previously taken over the York Knitting Mills in Toronto. This group of important manufacturers of underwear, hosiery, lingerie and bathing suits, is now the largest organization of its kind in Canada.

The Monarch Knitting Company of Dunnville, Ontario, has gone farther afield in the variety of their products, marketing hosiery, underwear, outerwear, bathing suits, knitting yarns and knit fabrics. The Knit-to-Fit Company of Montreal produce lingerie and underwear as well as high-grade

outerwear and sportswear for women and children. R. Forbes Company Limited, of Hespeler, Ontario, a subsidiary of the Dominion Woollen & Worsteds Limited, is the only completely equipped plant in Canada for manufacturing knitted goods through every process from the sheep's back to the finished product.

Many Canadian firms have well-established trade names that are a byword in Canadian households. A few of these may be mentioned: Orient, Kayser, Debutante, among silk hosiery, Lavender Line, Hygiea, Vanta, Penman's, Ceetee, are some of the underwear brands.

The general tendency in the knitting industry in Canada is towards the development of larger companies, with increased production, more concentrated and more efficient management, and a wider range of merchandise. The expansion of the industry to the point where it is classed as a major manufacturing industry, among the first twenty in importance, has occurred largely since the beginning of the present century. This growth from a mere side-line to an industry capitalized at approximately $60,000,000.00 has been carried on steadily with little fuss of stock promoting due to the fact, probably, that 94 per cent of the capital invested in the industry is of Canadian origin.

(b) Classification of Competition in the Industry

(i) As between Canadian knitted goods companies

Competition keeps alive the spirit of enterprise and is a necessary factor in the expansion of an industry. Proof of this principle may be found in the knitting industry in Canada. The limited market, the comparatively small amount of exports and the competition from mills in the United Kingdom encouraged by the introduction of the British Preferential Tariff,

have compelled Canadian manufacturers to produce many classes of goods in order to keep their plants running. Throughout the knitting industry there is not one instance of a mill having a monopoly on the output of a particular article.

Competition exists in every branch of the industry: in the purchasing of fibres there is competition between imported and domestic yarns, there is competition between the various grades. Costs of production must be kept at a minimum in order to market the merchandise at the lowest possible price since the competition among finished products is intensely keen. One manufacturer produces an article containing a high grade of yarn, the style is smart, and even though the article is fairly expensive, a growing demand is created. Another manufacturer copies this popular garment in a lower grade of yarn, probably with cheaper labour, and undersells the original article. This type of competition seems scarcely just, but it exists in every branch of the clothing industries, and manufacturers of high-grade merchandise can avoid it only by producing styles and designs that are difficult to copy and by marketing them quickly.

Each knitting mill in Canada manufactures on an average about three groups of knitted articles, and the seriousness of the competition in each group is apparent from the number of mills producing the same type of garments as shown below:

Knitted gloves	6
Knitted fabrics	14
Silk knitted goods	4
Jersey cloth	10
Artificial silk hosiery	13
Cashmere hosiery	20
Cotton and lisle hosiery	18
Silk hosiery	39
Woollen and worsted hosiery	26

Woollen knitted goods	8
Sweaters and outerwear	56
Silk sweaters and outerwear	4
Artificial silk underwear	27
Balbriggan underwear	9
Flat-knit underwear	7
Silk knit "	15
Cashmere "	2
Knitted "	23
Men's fleece lined underwear	5
Children's underwear	11
Bathing suits	29
Knitted caps	8
" scarfs	17
Wool mitts	22

It is evident that monopolies in knitted goods are practically beyond the realms of possibilities, especially since there are no actual restrictions concerning the establishment of new organizations. Such competition not only keeps the manufacturer on the alert to obtain new business and increase his sales, but it is a safeguard for the general public in that it prevents any fixing of prices, and assures the average consumer that he, or she, is paying the minimum price for the knitted garments purchased.

(ii) Competition as between materials

In the early stages of knitting, wool was the only fibre used. Silk became popular to supply the demand for silk hosiery in the fifteenth and sixteenth centuries. The use of cotton and fine cashmere yarns followed the introduction of machinery and the manufacture of knitted underwear, but wool was the chief fibre employed throughout the industry as a whole until recent times. The substitution of silk and artificial silk for cotton and wool has been dealt with, and the result of this substitution is signified by the tremendous expansion in the establishment of mills for the manufacture of silk and artificial silk hosiery and underwear. Linen has never held an

important place among the fibres used in the knitting industry, due to its high price, to the fact that its use is limited to a comparatively small range of products, and because it has never been in great demand for knitted goods.

The primary branches of the textile industry, that is, the conversion of the raw wool, cotton, silk, cellulose and flax, into the finished yarns, are in constant competition with one another, though inter-related owing to the demand for mixed yarns and by the necessarily similar processes of manufacture, to supply yarns to the various mills, preference swaying from one fibre to another according to the influence of prices, fashions, merchandising and advertising efforts. Competition exists not only between one fibre and another, but between the fibre produced in one country and the same fibre produced in another country. Since the introduction of British preference into the Canadian tariff, woollen yarns, especially from mills in the United Kingdom, have made competition in the Canadian market as against domestic yarns. Similar competition exists with raw wool from Great Britain, New Zealand, Australia and the Canadian wool. Due to the comparative scarcity of silk, necessitating developments in the production of silk cocoons in various countries, previously mentioned, competition in the marketing of this fibre has not been serious, but with cotton, competition between various grades depends chiefly on the crop which in turn determines the price. For example, if Egyptian cotton were extremely plentiful and the crop in the Southern States were poor so that the lowered price of Egyptian cotton were on a par with the higher price of American cotton, buyers would probably prefer the Egyptian grade which

would then create serious competition for American cotton to cope with.

The production of artificial silk does not depend on crop fluctuations or the droughts or disease that may affect animals, but on the industrial progress of a country. The development in this fibre seems to be toward self-sufficiency of each nation, and even in England there is a tariff on importations of rayon fibre. Thus, in the field of materials, or fibres, competition though affected by changes in style, is also affected by general marketing conditions in the range of textile fibres.

(iii) Competition with other fabrics

Competition between knitted and woven fabrics began with the early use of knitting needles when knitted hosiery replaced the bandages of cloth or high boots that were formerly used. When it was learned that underwear could be fashioned from the knitted fabric produced by the first machines, the gradual replacement by knitted fabric of woven materials for all types of undergarments began and has been slowly evolved over a period of three hundred years.

Other developments in the knitting industry, bringing the production from a very limited range to the present-day lines of knitted goods, have had their effect on various branches of woven textiles. Some of these changes have been mentioned in Chapter 3. The substitution of knitted outerwear in suits, dresses, coats, and sports clothes, for similar garments of woven fabrics, is becoming more noticeable each season. Warp-knit fabrics may be used in much the same way as woven materials, serges, tricotines, and heavy woven coatings are being replaced to an increasing extent, and the warp-knit fabric is generally napped so that the looped formation is not noticeable.

Wool-knit fabric, though sold originally to the clothing trade to be used in the manufacture of ready-to-wear garments, is becoming an ever-increasing factor in the retail trade. The great width in which knitted fabrics are obtainable make them especially economical for garments which require large pieces, and due to the rapidity with which knitted fabrics are manufactured, they are usually less expensive than similar woven fabrics. Moreover, changes in designs and textures can be effected more easily in the manufacture of knitted fabrics and at much less cost, making it possible to produce a greater variety of patterns and cloths and enabling consumers to attain a greater degree of individuality in their dress. The production of knitted fabrics except rayon, has not as yet become definitely established as a distinct branch of the knitting industry. Such fabrics are produced in Canada by concerns which make other knitted goods, and few very definite names have been given to them as they are frequently sold by the name of a woven cloth which the knitted fabric closely resembles in finish and weight.

(c) (i) Position for Present Degree of Protection to the Knitted Goods Industry

Agriculture and the making of textiles for clothing are considered the two great basic industries of the world, as food and clothing are the chief essentials of life. Adam Smith evolved the principle that the wealth of a nation will depend upon the extent to which it can provide productive employment for its own people. The production of goods and of wealth is carried on by three main groups: (a) Men engaged in agriculture, (b) men engaged in industry, and (c) women engaged in industry. Prior to the factory system clothing was made by women in the home, and today, in Canada, the clothing and textile industries are the largest employers of women industrial workers.

In order to sustain a comparatively high standard of living throughout the country, there must be substantial "light" industries employing women to supplement the "heavy" industries that employ men. A balanced industrial structure is necessary if Canada is to utilize to the greatest extent the productive power of her people.

The knitting industry, employing a greater percentage of women than men, is the type of "light" industry required in Canada, and owing to certain economic factors, it is an industry that requires protection. That there is a difference between costs of production in Canada and England, the United States, or other European countries, is an acknowledged fact. The United States, with manufactured rayon, raw cotton and raw wool available at home, with a domestic consumption possibly ten or eleven times as great as in Canada, with a tariff wall that eliminates foreign competition, with production sufficiently great to encourage the making of machinery and repair parts, is in a particularly advantageous position to produce cheaply.

England's industrial development was firmly entrenched under the traditional policy of protection inaugurated in the time of Edward III and continued by successive monarchs into the reign of Queen Victoria in 1845. The era of Free Trade had come, but under centuries of protection England had acquired the best machinery, the most skilled workers, and the greatest experience and technical knowledge. During the past few years English manufacturers have been asking for protection as they are losing ground rapidly in their home market.

The small domestic market compels the Canadian manufacturer to extend the classes of goods he produces in order to keep his plant running, thus lessening his ability to standardize his production as is done in England and Scotland, as well as limiting the variety of his designs and patterns

to a certain extent. Rates of wages are lower in England and in Europe than in Canada. English manufacturers actually send raw materials to continental countries to be spun, or buy yarns there at lower prices than they can produce them for in England. The British manufacturer has the advantage of obtaining machinery from British builders, and are close to the centres where they may obtain repair parts.

In Canada, manufacturers must import their machinery either from the United States, Great Britain or Germany, and on every imported machine and repair part they must pay duty, and sales tax on the duty paid value. In Canada, too, apart from wages being higher owing partly to proximity to the United States and the Canadian membership in American Labour Unions, more solidly-constructed buildings are required to withstand the climate, expensive heating plants must be maintained, and sales tax must be paid on building materials.

All these factors, the necessity of having sufficient "light" industries to form a properly balanced industrial structure, of maintaining a comparatively high standard of living involving higher wages, the greater costs of production in Canada, due to higher wages and fixed charges as well as the limited market, the natural adaptability of the people for manufacturing clothing, the climatic conditions of the country demanding a variety in the quality and class of goods produced, the efficiency and high standard of the Canadian mills, point to the desirability of protection in the knitting industry, as well as other branches of the textile group.

(c) (ii) Position Against Such Protection

The argument of price is always advanced by advocates of Free Trade, who maintain that a protected industry demands higher prices than are necessary for their products, that such industries, so long as they have sufficient protection, are not concerned about increasing their efficiency, nor of improving their merchandise or entirely satisfying the demand. Some or all of these points may apply to certain Canadian industries, but none of them can be attached to the knitting industry.

In the first place, though Canadian manufacturers supply practically all of the domestic demand, except in woollen hosiery, a large proportion of which comes from England, internal competition is so keen in every branch of the industry that no producer is able to make more than a legitimate profit on his goods. The influence of style and seasonal changes is so great that a manufacturer must market his goods quickly in order to sell them, and this necessitates efficiency in production and management. The wider range of knitted goods produced by Canadian mills is proof of the extent to which they are catering to the general demand.

That industries which are not especially adapted to certain countries should not be protected, is another Free Trade or low tariff argument, since it is maintained that goods should be produced only in countries that are most suited to such manufacturing. The industrial expansion in England was founded, not on the "naturalness" of the industries, but on the protection accorded to these industries enabling them to develop unmolested and assuring them of the domestic market.

Moreover, the knitting industry is, and should be, natural to Canada. Knitting was done by the early settlers and hand-knitting has continued to a great extent to the present day. Wool-growing is economical and profitable

in Canada and should be encouraged. Power is cheap in Canada, and the stability of the Government and internal developments make it an attractive investment-ground for foreign capital. The population is ridiculously small for the size and productivity of the country, but there is every possibility that the next few decades will see a big increase either by natural growth, by selective immigration, or both. In Canada, too, the need for warm clothing in all sections of the country at times makes it essential that the manufacture of fabrics for clothing should be an integral part of commercial life.

(d) Impressions as to the Future of the Industry

At present, Canadian mills are supplying about 90 per cent of the domestic requirements in knitted goods. The best machinery and the best materials are used, and the claim is made that Canadian knitted products are second to none. The extent to which domestic products monopolize the Canadian market is sufficient proof of the value of them in the eyes of the public. During the last decade there has been a world-wide development in the knitting industry in the manufacture of knitted rayon lingerie and underwear, and of fabrics and full-fashioned hosiery. Canadian mills have maintained their place beside the leaders in this expansion so successfully that there has been no establishing of British and foreign branch factories in Canada, apart from a few silk hosiery establishments that have a percentage of American capital invested in them. This principle of leaving the Canadian market to Canadian manufacturers has been generally accepted owing to two factors: 1, the efficiency and high standard of production in Canadian mills, and 2, the comparatively small size of the market making it unprofitable to produce goods suitable only for the Canadian consumer.

The knitting industry in Canada has not become localized to the same extent as other industries, as each province except Saskatchewan has its representative mills. The industry received its initial start in Ontario, however, and the greatest concentration is apparent there, the largest organizations having their headquarters in Ontario as well as branch factories. The tendency today is toward large and still larger organizations formed by the amalgamation of two, or three or more, mills manufacturing the same classes of goods in an attempt to standardize the output to a certain extent.

The greatest need of the Canadian mills is larger markets, The Canadian market is secure, but the well-equipped domestic mills seem to be on a leash restraining them from manufacturing as much as they are able to because of the limited consumption. Greater markets involving increased output would help to lower production costs and would enable Canadian manufacturers to compete with manufacturers of the United Kingdom and elsewhere in the world markets.

Canada is essentially a wool country, it is one textile fibre that can be grown here economically and it is one that is in great demand. The quality of Canadian sheep is undoubted, and the prizes won by sheep and lambs from Canada at the Chicago International Stock Show are ample proof of it, sheep fit into the business of mixed farming as no other farm animal does, and every Canadian farm should have its flock of sheep. The only hope for the Canadian manufacturer to compete successfully in the international markets is for him to have an advantage in some respect over other manufacturers. Cotton and pure silk must be imported into Canada but with the prevailing climatic conditions there should be no need to import wool.

Various public men in Canada today are advocating extensive trade with Oriental countries maintaining that Canada's hope in world trade lies there. China, at any rate, would be interesting from the knitting industry point of view, her tariffs are low and her potentialities are very great.

The remarkable expansion in the knitting industry during the last seventy-five years augurs well for the future. The increasing popularity of knitted goods of all kinds, the improvements that are continually being made in machinery and manufacturing processes, bespeak an ever-growing demand, and an increasing replacement of woven goods by knitted fabrics.

With an increase in the production of wool and the manufacture of artificial silk, both developments as natural to Canada as any other country in the world, with comparative proximity to countries producing cotton and silk, with larger markets permitting of increased output which, combined with cheap power and high-grade workmanship, should involve a lowering of costs of production, there is every reason to believe that the knitting industry in Canada may greatly extend its present boundaries and that Canadian knitted goods may become highly competitive in world markets. The road ahead is a long one, but judging by the distance travelled in the past seventy-five years and the obstacles that have been surmounted, continued progress at the same rate during the next three generations, will surely bring Canadian knitted goods to the forefront in international trade. From comparative obscurity during some hundreds of years the industry has expanded within a brief period to the point of assuming an important position, not only in the general textile group, but in industry as a whole. Present developments point to a very promising future in every branch of the knitting

industry in general, new uses are being discovered every few months for fabrics of looped construction, and though competition at present is not very intense as against woven fabrics, there is every indication that it will become more and more serious as time goes on.

APPENDIX

TABLE I

Development in Labour and Capital Employed

Year	Number of Establishments	Capital	Average Capital per Establishment	Wage Earners	Wages Earned	Average Wage-Earners per Establishment	Average Wages	Cost of Materials	Average Cost of Materials	Value of Products	Average Value of Products
1871	11	$52,525	$4,411	245	$39,233	22	160	$92,764	$8,433	$199,122	$18,102
1881	83	630,821	7,600	1556	316,805	18	204	780,270	9,400	1,385,730	16,816
1891	64	1,364,546	21,321	2266	485,144	35	214	948,469	14,819	1,982,687	30,979
1901	52	3,723,197	71,600	3687	889,882	70	241	1,979,951	38,076	3,857,519	56,728
1910	68	11,938,029	175,559	8050	2,527,631	118	314	6,904,217	132,696	13,393,854	257,574
1921	127	37,906,361	298,475	*9470	6,559,892	74	692	18,960,491	149,925	36,689,534	288,894

*This does not include 976 salaried employees who earned $1,839,381, an average of 7 per establishment, with an average salary of $1,884.

Relative Position of the Knitted Goods Industry in Textile Group.

1928 Industries	No. of establishments.	Capital	Employees	Salaries & Wages	Cost of Materials used	Gross value of Products	Value added by Manufacture.
Cotton Text. yarn & cloth thread, waste batting, etc.	84	103,551,541	23,779	19,810,303	53,608,847	94,048,231	40,439,384
Woollen Text. cloth, yarn, carpets, wool. goods	120	41,533,322	8,247	7,684,079	19,925,850	34,687,290	14,761,440
Hosiery & knit goods.	158	59,385,994	17,591	14,750,894	30,801,854	57,502,779	26,700,925
Fabric Gloves & Mittens	7	1,013,932	383	305,802	450,082	1,048,979	598,897
Clothing, Women's factory	444	25,557,610	16,351	16,685,894	36,233,645	63,326,501	27,092,856
Clothing, Men's factory	218	27,263,996	11,879	13,085,548	24,567,328	48,477,178	23,909,850
Furnishing Goods, Men's	159	21,064,504	9,909	7,270,875	17,321,124	30,314,552	12,993,428
Hats & Caps	159	8,164,615	4,917	4,879,405	8,290,055	16,973,193	8,683,138
Silk Goods & Silk	16	26,159,703	3,933	3,441,549	4,638,717	10,897,273	6,258,556
Corsets	16	4,917,408	1,418	1,124,284	2,055,416	4,246,948	2,191,532
Oiled & Waterproof clothing	18	1,238,488	359	426,614	826,524	1,724,394	897,870
Bags, Cotton & Jute	19	6,684,706	1,065	999,633	12,494,239	14,283,396	1,789,157
Cordage, Rope & Twine	14	12,173,549	1,330	1,533,017	7,624,155	10,839,961	3,215,806
Awnings, Tents & Sails.	58	2,069,798	560	608,260	1,509,610	2,634,715	1,125,105
Linen Goods	6	1,032,567	201	166,360	297,461	545,541	248,080
Flax, dressed	14	317,252	133	52,477	78,662	232,710	154,048
Dyeing, Cleaning & Laundry Work	375	23,592,606	11,669	10,626,331	3,007,047	23,618,823	20,611,776
Grand Total	1,885	365,721,591	113,724	103,451,325	223,730,616	415,402,464	191,671,848

Raw Materials used in Textile Industries - 1928 in values.

Materials	1. Cotton Textile Industry (yarn & cloth)	2. Woollen Textile (cloth) Industry.	Silk Industry	Hosiery & Knit Goods Industry	Total Value of Raw Materials
Raw Cotton	25,850,778	107,670		770,894	26,729,342
Raw Silk		922	2,342,750	352,981	2,696,653
Dyed, Bleached or treated cotton.	300,755				300,755
Grey Cotton	7,075,735				7,075,735
Domestic Wools		993,496			993,496
Imported Wools		2,728,612			2,728,612
Nails & tops of Wool		1,194,796		1,953,231	3,148,027
Yarns					
Cotton	1,430,590	417,921	260,578	4,143,110	6,252,199
Mohair	403,739	270,227			673,966
Art. Silk	756,990	5,506	418,349	4,262,010	5,442,855
Silk		73,892	76,958	3,359,575	3,510,425
Woollen		15,000	11,535	3,707,034	3,733,569
Worsted		1,878,620		4,445,049	6,323,669
Merina		2,575		734,692	737,267
Mercerized				1,347,333	1,347,333
Other	22,509			28,866	51,375
	35,841,096	7,689,237	3,110,170	25,104,775	71,745,278
				25,104,775	71,745,278

1. This is exclusive of the cotton thread industry.
2. " " " " " woollen yarn " and the carpet, mat & rug industry.

ARTICLES	Value of Canadian Products	Value of Canadian Exports	Value of Can. Consumption of Domestic Products	Imports from United Kingdom	Imports from United States	Imports from other Countries	Total Value of Imports.
Hosiery							
Woollen or worsted	3,385,826			2,161,695	41,600	33,578	2,236,873
Merino-mixed	1,783,925						
Mercerized	265,256						
Cotton	1,637,587			29,407	616,418	96,955	742,780
Art.Silk	2,985,713			311,111	390,105	32,640	733,856
Silk or Silk mixed	3,051,323						
Full fashioned	7,097,205			62,621	566,275	41,594	670,490
Cashmere	802,123						
All other	30,921						
	21,039,879	411,890	20,627,989	2,564,834	1,614,398	204,767	4,383,999
Underwear							
Cotton							
Combina	3,848,648						
separate	5,693,825	160,273	9,282,200	19,040	58,142	24,136	101,318
Merc.comb.	1,810,222						
separate	1,826,150		3,636,372				
Art.silk	1,053,283						
separate	2,956,553		4,009,836	718	1,282	664	2,664
Silk & silk mixed combs.	137,479						
separate	20,651		158,130				
All wool	1,030,058						
separate	1,456,079	36,977	2,449,160	425,901	14,623	12,326	452,850
	19,832,948	197,250	19,535,698	445,659	74,047	37,126	556,832
Fcy knitted goods	1,080,431		1,080,431	20,146	152	5,331	25,629
Art.silk knit	594,124		594,124				
Knitted fabr	1,317,804		1,317,804	20,667	23,260	13,365	57,292
" outerwear	9,375,488		9,375,488				
" all other	4,262,105		4,262,105				
	57,502,779	609,140	56,893,639	3,051,306	1,711,857	260,589	5,023,752
			56,893,639				5,023,752

CANADIAN CONSUMPTION OF HOSIERY - 1928

Socks & Stockings	Canadian Production	Canadian Exports	Totals	Imports from U.K.	Imports from U.S.	Imports from other countries.	Total Imports
Cotton- dz.pr.	1,622,715		2,174,896	11,538	437,522	103,121	522,181
Silk " "	514,735		601,789	8,386	75,142	3,526	87,054
Art.Silk " "	663,491		909,351	61,704	176,910	7,246	245,860
Wool,worsted	790,736		1,544,018	514,362	35,442	3,478	553,282
Silk,full fash.	587,913						
Mercerized	112,827						
Merino or mixed	487,425						
Cashmere	160,622						
All other	5,158						
	4,945,622			595,990	725,016	117,371	1,438,377

TABLE VI

Substitution of Silk and Artificial Silk for Cotton & Wool

ARTICLES	1925 Canadian Production	1925 Imports	1925 Total quantity in Can. Markets.	1926 Canadian Production	1926 Imports	1926 Total quan. in Can.mark.	1928 Can. Production	1928 Total Imports	1928 Total quantity in Can.Mark
Hosiery-dz.pr.									
Woollen & worsted	979,667	548,800	1,528,467	1,075,982	567,781	1,643,763	790,736	553,282	1,344,018
Merino & mixed	356,373		356,373	455,862		455,862	487,425		487,425
Mercerized				127,456		127,456	112,827		112,827
Cotton	802,468	492,828	1,294,296	825,538	540,061	1,365,599	1,622,715	522,181	2,144,896
Art.Silk		12,900	12,900	375,307	20,025	395,332	663,491	245,860	909,351
Silk or silk mixed	995,985	64,861	1,060,846	827,166	86,811	913,977	514,735	87,504	602,239
" full fash.							587,913		587,913
Elastic	308		308	307		307			
Cashmere							160,622		160,622
All other	260,309		260,309	154,300		154,300	5,158		5,158
	3,395,110	1,119,389		3,841,918	1,214,678		4,945,622	1,408,827	
			4,514,499			5,056,596			6,354,449

TABLE VII

COMPARATIVE STUDY OF TARIFF SCHEDULES AFFECTING THE KNITTING INDUSTRY

GOODS	CANADA			AUSTRALIA			GREAT BRITAIN		UNITED STATES
	Br.Pref.	Inter.	Gen.	Br.Pref.	Inter.	Gen.	Empire Pref.	General	
Cotton Hosiery	20%	27½%	30%	30%	45%	45%	no tariff		50% if fashioned 30% " cut
Woollen Socks & Hosiery	27½%	32½%	35%	45%	60%	60%	no tariff		50¢ lb.plus 50%
Artificial Silk & Stockings	25%	32½%	35%	30%	45%	45%	33-1/3% less 1/6	33-1/3%	45¢ lb.plus 65%
Cotton Knitted Fabrics	20%	27½%	30%	35%	50%	50%	no tariff		45%-warp.knit 35%-other.
Woollen Knitted	27½%	35%	35%	45%	60%	60%	no tariff		50¢ lb.plus 50%
Knitted Garments n.o.p.	20%	30%	35%	45%	60%	60%	no tariff		45%

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The Circle-Bar Knitting Co. Limited, Kincardine, Ont.
Julius Kayser & Co. Limited, Sherbrooke, Que.
Penman's Limited, Paris, Ont.
R. Forbes Company Limited, Hespeler, Ont.
J. R. Moodie Co. Limited, Hamilton, Ont.
Woods Underwear Co. Limited, Toronto, Ont.
Holeproof Hosiery Co. of Canada, Limited
Legation of the United States of America, Ottawa, Ont.
Regent Knitting Mills Limited, St. Jerome, Que.
Joseph Beaumont, Glen Williams, Ont.
Monarch Knitting Co. Limited, Dunnville, Ont.
Niagara Silk Co. Limited, Brantford, Ont.
R. M. Ballantyne Limited, Stratford, Ont.
Henry Davis & Co. Limited, Toronto, Ont.
The Chipman, Holton Knitting Co. Limited, Hamilton, Ont.