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CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XI.

TORONTO, DECEMBER, 1894

No. 12

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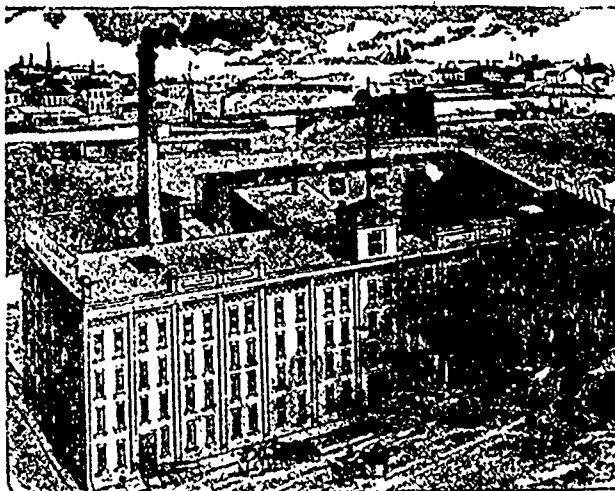
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REVIEW OF TRADE.

The wholesale dry goods trade of the past month has been of a spasmodic character. Of course little is expected of December, but the cold snap by which the month was ushered in gave indications of a brisker retail trade, and consequently more sorting up of heavy goods than usual. The mild spells which succeeded somewhat dissipated this hope; though holiday trade throughout the country is reported very fair.

On the whole it is likely that the general results of stock taking will show that the year 1894 has not been nearly so bad as many feared, and certainly at the present moment the outlook for the New Year is not discouraging. Paper maturing in December has been met fairly well, while there is a growing tendency among retail houses to approach more nearly to the

cash basis of doing business, a great many having found by experience the advantages of getting the discounts for cash payments, instead of being "carried" by their wholesale friends. The far-seeing retailer is beginning to see that to be "carried" means generally to fall. This tendency to a cash basis of trade, though slow, is at least an encouraging sign of the times.

Among the woolen mills—who have been, of all the textile manufacturers, most in the dumps—there is now, we are glad to note, a more improved feeling, for not only is wool very low in price, but enquiries among the trade show there is a better prospect for orders for the coming year. Those who have made special efforts to bring out novelties have been rewarded with success, while the mills who acted on the advice given in this journal, and identified their name with standard lines of goods they were not ashamed to own, have not regretted the step. The result of such a large production of anonymous goods has been that goods of really fine texture and of good wearing qualities have been sold to the consumer as foreign, while no doubt a considerable amount of poor foreign goods have been palmed off as Canadian. Thus the home manufacturer who makes a good standard quality of goods has appeared under a double disadvantage before the consumer, and many are beginning to see their position, and some are now having their name or trade-mark put on every piece of goods at intervals of three or four yards, so that it cannot be taken off.

SILK WEAVING TRADE OF FRANCE.

According to a report of the United States consul in Lyons, the centres of silk weaving in France have changed very considerably since the introduction of the industry. New centres have sprung up and attained greater or less prosperity, while at the same time cities in which silk weaving was once of the highest importance have turned their attention to other industries. In the 15th century, Rouen contained several looms, but now there is hardly a loom in the whole city, and the same may be said of Orleans. Shortly after the Popes established the silk industry in Avignon, its brocades, brocatelles and damasks acquired a great reputation, and were sought from all parts of the world. This culminated in 1715, when there were 5,000 looms in operation, and the total production was valued at \$3,000,000.

Then, when the Popes lost control, the city began to decline, its weavers migrating to Nimes, Lyons and other places, and at present what looms there are are engaged on the plain cheap goods. Another of the great silk centres in early times was Tours, but for the last sixty years the industry has been declining, and at present only about a thousand looms are employed. In Paris there have been a few looms at work ever since the thirteenth century, but it was not until the beginning of the present century that the output began to assume much importance. At present there are about 25,000 looms in the French capital and the adjoining districts, chiefly employed in the weaving of silk and silk-mixed goods, such as galloons, fringes, cords and all sorts of trimmings and passementerie, approaching in value to \$14,000,000. In Calais the industry is of comparatively recent origin, dating principally from the introduction of figured tulles, in 1836. At present the number of looms engaged is about 1,800, and the annual production is about \$10,000,000, though it is subject to great variations. At Saint Chamond, silk weaving has been established ever since the thirteenth century, though it has experienced many ups and downs since that time. At the beginning of the present century its manufacturers began to confine their attention chiefly to braids, and these have acquired a world-wide reputation. The value of the output is about \$300,000, and nearly three-quarters of this amount is exported. Ribbon weaving was established in St. Etienne about the beginning of the 17th century. The industry was almost destroyed by the revocation of the Edict of Nantes, but received a new impulse in 1760, when a new loom was introduced permitting the weaving of several pieces of ribbon at one time. By the end of the 18th century the number of looms in St. Etienne was 6,000, and in 1850 this had increased to 30,000. In recent years the output has reached \$20,000,000, of which about a third is exported. The most important centre of all, not only of France, but of Europe, is of course Lyons, and this city is a very good example of the extraordinary ups and downs to which most of the French silk centres have been subject. When the Edict of Nantes was revoked in 1685, Lyons possessed 10,000 looms for broad goods, and 8,000 for ribbons and galloons. Within a few years all but 2,500 of these had been driven out of the neighborhood. A hundred years later, however, Lyons had regained its position as the producer of the richest kind of goods, and their superiority in taste and execution enabled its manufacturers to reconquer the markets of the world. In 1750 the number of looms was 9,000, and this had increased to 18,000 forty years later. Then came the Revolution, and all Lyonese industries were completely ruined, the dawn of the 19th century finding the city in possession of only 3,000 looms. With Jacquard looms, Lyons began once more the arduous ascent of the hill of prosperity, until in 1850 the number of looms was 60,000, and the production was valued at \$50,000,000, three-quarters of this being exported. There are now in Lyons and the surrounding district

about 80,000 hand-loom and 25,000 power-loom, and the total production is valued at about \$80,000,000 per annum. The quantity of goods produced is now greater than it has ever been before; it constitutes two-thirds of the production of France, and one-fourth of the total production of the world.

NATURAL COLORS IN COTTON.

The natural colors in wool have been utilized in many textile fabrics, and very fine effects produced by their skilful combination, but no one until recently had any idea that the old time staple, cotton, would show any color.

It is always white in the cotton belt of the United States, but in the northern part of Peru, South America, it grows in a variety of colors, and, what is most singular, different shades of the same color exist and grow in the same locality. A sample before the writer shows a group of colors, shading out from a dark terra cotta, through various tints, to a perfect white, the whole being composed of delicate tints, as if nature in one of her freaks had condescended to teach artists how to shade colors.

The fibre of the Peruvian cotton seems to be of a different character from that of United States production, it being more in the nature of wool. The plant which produces it varies from that of the States in that it grows to the height of ten feet. Its cultivation is now quite limited, owing to the scarcity of rain in the valley where it is grown, and for this reason the entire product is monopolized by one firm in London, England. In that country it is used in the manufacturing of fine merinos, blanketings, etc., and is often mixed with wool in the making of coarser fabrics, to which purpose it is specially adapted.

The small quantity raised, and the fact that it cannot be grown in any other locality, render it an easy matter for one party to control the whole production, and, consequently, the price is now considerably higher than the ordinary cotton. There is no other remedy for this than the finding of some means whereby a greater quantity of the article can be grown. The valley of the Piura, the only spot in the wide world where this peculiar plant flourishes, is wonderfully fertile, provided it can be sure of a continuous moisture. This secured, the valley will be able to supply the world with an abundance of cotton already dyed by nature's own hand, and ready for use. It is highly probable that the colors are lasting.

The Peruvian Government has taken the matter in hand, and Alfred F. Sears, an American engineer, and for a long time member of the Peruvian corps of engineers, has been granted a concession for the irrigation of the great valley where the cotton is produced. The project is a grand one, no less than the gathering of the waters of several rivers into one great reservoir, which is capable of being so enlarged as to shed the needed moisture over millions of acres. This done, the Piura valley will produce the cotton in quantities sufficient to defy monopolists, and also give it to the world

at a much less price than that now demanded. A company has been formed in New York having for its purpose the irrigating of the great valley upon the plan devised by Mr. Sears, and the work will be begun at once. It is thought that in two years from the present time a much larger production of the cotton will be realized. Mr. Sears is only interested in the irrigation of the valley, and is not a producer of the cotton.

Scientists have endeavored to ascertain the cause of the different shades of color in this peculiar fibre, and have come to the conclusion that, inasmuch as it grows nowhere else but in the valley of Piura, it must be something in the chemical properties of the soil in that locality.

HOW WORSTEDS ARE MADE.

Worsted is generally classed under the head of wool goods, without any distinction as to their special construction. The manipulation of the wool to make a piece of worsted differs very much from that necessary for the production of woollens; although both are composed of wool, they are really two different materials.

The cloth obtains its name from the description of yarn used in its production, for in making worsted cloth the yarn must be what is known as a worsted yarn, which is very different from any other kinds of yarn made from wool used in making worsted fabrics. A worsted yarn is made entirely of pure wool direct from the sheep's back, and must be of sufficient length to permit of being combed. This is a very important distinction, for other wool yarns may be made from wool that has before seen service in a garment and been re-converted into a wool substance called shoddy, and being mixed with a greater or less amount of pure wool, according to the yarn desired to be produced, is again converted into a yarn, which is known to the trade under the name of woollen yarn. Worsted yarn is made not only of wool in its first stage from the sheep's back, but from wools sufficiently long in staple to permit of being combed.

After the wool is taken from the sheep's back it is passed on to men trained in ascertaining the various qualities of wool, and by them sorted into the several grades that the fleece contains. The number of qualities or grades of fineness of the fibre in a fleece varies according to the breed of the sheep. Some classes of wool contain as many as fifteen distinct varieties. By the quality of wool is meant its adaptability to produce so many yards of thread to a given weight.

In the making of a piece of cloth all the warp or filling threads must be of an even and regular thickness, as well as those of the warp or chain threads. After being sorted, the desired quality of wool to produce a certain yarn is taken into the mill and thoroughly washed by a machine in warm water and soft soap. All the grease and dirt are removed by this process, and it is then passed on to what is termed a carding machine; this opens out the fibres of the fleece and places them perfectly straight, so that a continuous rope of wool is run off the machine.

The fibres of the wool vary in length, some being long enough for a worsted yarn, while others are not. In the process of washing and the natural growth of the wool, some of these fibres become worked into little balls or pin-head specs, which, if permitted to pass into the yarn, would make a specked effect in the cloth. These must be removed, and in order to do this the wool is combed.

A wool comb is of various constructions, but the principle of all is the same, in that the wool is drawn through fine steel pins, which permit the straight and clear rope of wool to pass through rollers, while the short, knotty bits of wool are carried into another receptacle. The long and combed wool is known to the trade as tops, while the short knotty portion is called noils. The former alone is used to produce worsted yarn, and the latter is used for making a woollen yarn chiefly to be employed in the construction of blankets, although it is equally serviceable for making woollen cloth, or woollen dress goods.

After the wool tops leave the comb they are passed through a series of machines fitted up with movable rows of fine steel pins, and drawn out by rollers, so that by continually mixing a regular and even rope of wool is produced, which is passed from one process of drawing out to another, and gradually reduced in thickness. Each process will reduce the weight of wool in a given length entering the machine from four to twelve times, so that in the last process of yarn making—that of spinning—a perfectly even and fine thread is produced and wound upon bobbins.

The process of spinning is now completed, and the next thing to be considered is the design and color of the cloth. If the finished piece is intended to be all one solid color, the yarn is kept in its natural color until the piece is woven, and then it is dyed the proper shade; but as fancy worsteds have more than one color in a piece, these different colors are obtained by different colored yarns, which are either dyed the required color as soon as they leave the comb or after the yarn is spun.

The color has a great deal to do not only with the beauty of the garment, but with its wear. Some colors are fleeting; indeed it is almost impossible to get a color to resist the power of the sun, except by the use of indigo in the process of dyeing in one way or another. Goods that have indigo bottoms, or are solid indigo dyes, are as fast as any natural color.

In a piece of fancy worsted the effect is obtained by the arrangement of the colored yarn in the warp or chain, and in the warp or filling. The arrangement of the design in the warp or chain is done by the man who prepares it for the loom. Knowing the pattern that is wanted, he counts the requisite number of threads in one color, and places them in their proper position in the mechanism of the loom, and the proper number of threads of the other color, until he has counted and arranged the whole number of threads across the breadth of the piece. The warp or chain is then put in the loom, and the length design of the cloth is shown.

The cross design of the piece is accomplished in the weaving by means of the shuttle containing the proper colored yarn. Weaving is not an easy thing, for the weaver requires not only long training, but a great deal of patience and skill. It is very interesting to watch the growth of the design in the piece as it is being woven, but there are many trials to be borne and difficulties to be conquered before the patience of the weaver is rewarded by the finished piece of work. After the piece leaves the loom it is taken to be examined, and whatever defects in weaving have been made are then marked and the pieces are passed on to trained sewers, who remedy them by sewing in the right colors at the broken places. Generally the pieces are made perfect by this method, but if the fault is too serious they are sold as seconds.

On leaving the hands of the sewers, the piece is taken and thoroughly washed in hot water and soap. This is done so perfectly, that any oily or dirty matter that may have been acquired in weaving is freed from the piece. The fancy piece of worsted is then dried, and run across some revolving knives, so that any stray hairs which may have come up in the process of manufacture are shorn off the surface of the piece. It is next taken to be pressed between steam-heated rollers, which accomplishes the same result to the piece that a hot iron does to the shirt at the laundry. A bloom is given to the fabric, and after being again examined for defects, it is rolled on boards, wrapped in paper, and is ready for the market.

SULPHUR COLORS IN DYEING.

It may now be about three years, says a German paper, that the mohair yarns of a certain Berlin dye-house made a decided sensation by the brilliancy of their colors. They were the same bright colors which before that time used to be dyed upon bleached yarns, but the shades were much clearer and had something luminous about them, while those dyed in the ordinary way appeared bright only as long as they were not placed side by side with the others. The difference appeared to be attributable only to the method of dyeing, since it was not perceived in the case of one special color only, but all had this remarkable lustre. By way of experiment better bleached yarns were used, the sulphur bleach was replaced by the hydrogen peroxide bleach; a noticeable improvement took place, but the same result was by no means obtained. Only after some considerable time of fruitless attempts it became known that in that much envied and closely watched factory all colors were sulphured after dyeing, without distinction, whether they were produced upon bleached or naturally white wool. Thus the problem was solved; experiments actually gave the same brilliant colors as those of the Berlin factory. To day the production of "sulphur colors," as they are briefly called, is a generally introduced process which is not only in Berlin, but in Mulhouse, Apolda, etc., generally applied for light colors.

The yarns are dyed upon a soap-bath at 30-35° C., and particular care must be taken that the dye-baths are clear lathering but not milky looking. This is the principal trick in trade, and is not so easy to carry out as it might appear. We had in a certain factory water of only 8° hardness (German computation), and it was impossible to obtain by one boiling with soap the correct clear bath. When soap was added and the bath heated to the boil, lime-soap was formed upon the surface; it was skimmed off and the boiling continued, when lime-soap was again formed, and so on for almost an hour, and yet the bath was not perfectly clear. If the yarn was now entered, supposing that now all was right, the yarn appeared dull and sticky, and could not be used.

It is remarkable with what readiness the various books have accepted the statement that the water can be purified with soap, and how difficult it is to carry out. It may be that, where only a superficial purification is required, it can be done with soap, but where, as in the case of this article, clear soft baths are the first condition of success, I do not believe that the object can be obtained by boiling off with soap, except soft river water or condensed water can be had. For this special purpose a correction of the water must be resorted to, and we obtain the best result by boiling off the water with oxalic acid, and then adding soda until the water showed neutral reaction. After the boiling, the water is allowed to settle, when the clear is drawn off into another wooden tub, from which the required supply for the dye-bath is drawn.

MANUFACTURERS, in making up their pieces of cloth for the market, will do well to see that the boards on which they are done up are sound. The other day the writer was shown a piece of woollen cloth in which sad havoc had been made by a wood worm. The worm had been left in the wood, and in boring his way out perforated the entire piece, cutting a neat hole through 30 or 40 thicknesses of cloth.

THE official report on the Canadian exhibits at the Chicago World's Fair, though late in appearing, contains some interesting notes. Referring to textiles the Canadian commissioner quotes the opinion of Henry Latzko of the Austrian commission, who had charge of Austrian textile fabrics and who had been representative at the Centennial Exhibition. Mr. Latzko says: "I have examined very carefully all the exhibits of Canadian textiles, and I am full of admiration of nearly all those beautiful exhibits which show the enormous progress the Canadian industry has made. The textiles exhibited were highly creditable as well in the department of cottons and woolens as in silks. Canada has, in my opinion, made most wonderful progress in the sixteen years which have elapsed since the Centennial Exposition, and I can candidly say no other nation which exhibited has shown such progress as Canada. The comment on Canadian silks had special reference to the fine exhibit of Belding, Paul & Co., Montreal.

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A MONTREAL correspondent writes to the New York *Evening Post* to the effect that Canadian woolen manufacturers are seriously considering the question of exporting cloths to the United States. We do not know the source of his information; indeed, so far as we can find, the chief manufacturers in this country know nothing about the matter at all. Of course, as has always been the case, there will be a few samples sent across the line and a few orders taken. In some lines the American manufacturers are distinctly behind those of Canada, and the latter also have advantage in

the greater variety of designs which they produce. But given these advantages, and granted that there may be some sort of a demand for Canadian goods from the States, this is still very far from the state of things which the *Post's* correspondent apparently has in his mind's eye. Our manufacturers have to remember that the American market is protected by a duty amounting in some cases to 50 per cent., and to say the least, American consumers are hardly likely to be so struck with the superiority of Canadian goods as to render them willing to pay that much extra for the privilege of getting them.

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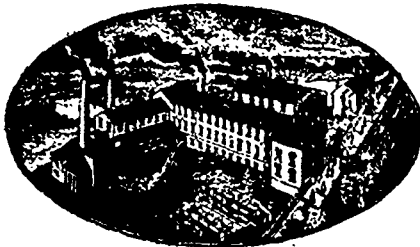
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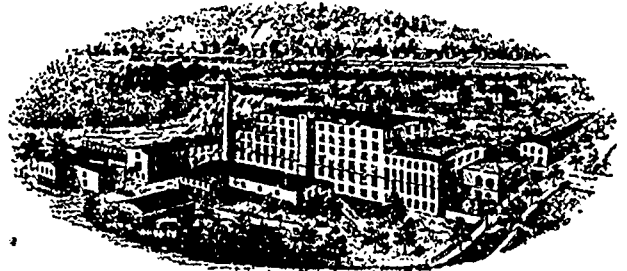
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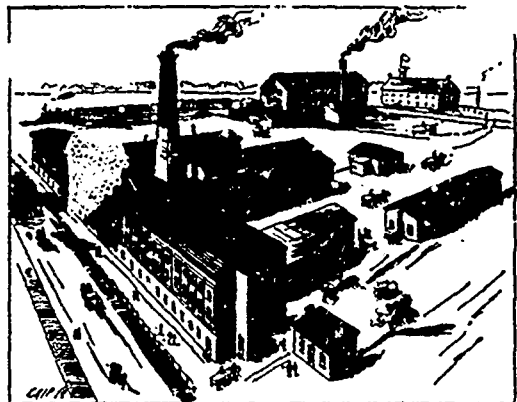
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FULLING WOOLEN, SHODDY AND CHEVIOT GOODS.

The question of fulling woolens, shoddies and cheviots has often been asked and as often answered. It is one of those departments in which each man thinks his own method is the best. A correspondent of the *Leipziger Monatschrift* has asked it once again, and Mr. R. Leiffert has replied. "One man," he says, "asserts that much time and soap is saved by fulling before scouring, while another dispenses with the washing for want of a washing machine. It is very easy, however, to institute simple, comparative experiments with a view to ascertaining the best process. For certain single-colored pieces the fulling before scouring will scarcely do, and for the goods mentioned to be fulled before scouring is absolutely wrong. In washing and fulling woolens, shoddies and cheviots very satisfactory results are obtained with the following method:—For washing, use only a mild soap, which, in solution, is to be poured cold on the pieces. Lyes and warm water are to be avoided. Perform the washing as quickly as possible, then whizz well and place the cloth into the fulling mill. The cloth is fulled in a cold state with hard, not soft, soap, and this is done as rapidly as possible. After fulling, rinse quickly, whizz well, and either dry at once or enter into the gig. Care is to be taken here, also, that the cloth is not moistened with warm water, nor left long in a wet condition; in fact, the cloth should never lie for any length of time in a wet state, or, what is worse yet, be hung up. One or the other effect color will always alter somewhat by continued fulling. Such colors, however, can be toned up again in the sulphuric acid bath, a process which, on account of convenience, is best performed in the same washing machine in which the cloth was rinsed after fulling. Whenever the water escapes clear, take out the piece, fill the washing bowl half full of water, and pour sulphuric acid into it until the water has a sourish taste. If the piece contains many effect colors, the bath may be a trifle sharper. It is well to experiment with a sample. Let the piece run from five to ten minutes in the sour bath, and then draw out all the plugs. When the bowl is empty, put in the plugs and fill with pure water. Let the piece run again from five to ten minutes, and finish by whizzing."

THE DIFFERENT METHODS OF DYEING WOOL.

The capacity of the animal fibre to absorb dissolved dyestuffs from the bath, without the employment of any agent, enables the wool to be dyed by simply introducing it in the heated solution. The coating becomes so heavy that it cannot be removed by simple washing. To a certain extent, also, it resists the action of soap and other similar agents. The dyeing process differs, however, when the dyestuff is generated by the action of one agent upon another which are respectively termed the dyeing principle and the mordant. In such cases the dyeing process varies according to the nature of the substances employed and according to the result to be effected. There are four methods of dyeing:

(1) The simple dyeing method; (2) the mordanting method; (3) the developing or saddening method; and (4) the one-bath method. A combination may also be formed from the several methods.

The first method requires no explanation. The soluble dyestuff is simply absorbed by the wool fibre, and the boiling temperature augments the absorbent capacity. The gradual raising of the temperature to the boiling point ensures the equal coloring of the wool. Nearly all the artificial dyestuffs may be fixed in this manner.

In the second method the wool is first impregnated with a solution of the mordant, generally a metallic salt, after which the mordanted wool is entered in a solution of the actual dyestuff.

The third process is a reversal of the previous one, the immersing of the wool in the dyestuff solution taking place before the mordanting bath. Usually the mordant is added to the exhausted dyebath.

The one-bath method is similar to the third process, but differs in one feature. A color lake, insoluble itself, but made soluble by proper agents, is introduced directly into the bath.

Discussing this subject, a German authority says: "The dyeing of black on wool with logwood and potassium bichromate will serve as an illustration of the mordanting method, which is used for the greater part of the woods, as well as the so-called natural dyestuffs, in combination with different chrome, iron, tin, and alumina mordants, and is almost exclusively employed for dyeing with the alizarin colors. The wool is mordanted at the boil with 3 per cent. potassium bichromate, with a trifling solution of sulphuric acid, and boiled from one hour to one hour and a half, after which it is washed and dyed with from 30 to 50 per cent. logwood. The result is a nice blue black, which, with a percentage of fustic, changes into a deep or coal black, or with a larger quantity into a green black. Dyeing with other dyestuffs and mordants is performed in an analogous manner. The great advantage of this method, without taking into account the great saving of dyestuff, as both mordanting and dye-baths can be preserved for future use, is that full and fast shades are obtained on the wool. The fastness is perhaps due to the deep penetration of the mordant, the formation of the color lake being more in the interior of the fibre than upon its surface, and thus offering a greater resistance to injurious influences. Another advantage is the ease with which the color may be shaded. If the dyebath has been kept a little paler than the desired shade, the dyeing of a swatch shows at once if the shade has been matched, and indicates what ingredients, if any, are to be added to the bath.

"The saddening or developing method is rather more limited in its range of application. Still, it has the advantage of saving much time, and thus cost, while its drawback is the loss of dyestuff, as the remainder of the bath, because of the mordant introduced, must be thrown away. The colors produced by this method are not so fast as those obtained by the mor-

danting process. The shading also requires an extensive experience in dyeing, since the color must be dyed previous to the saddening. A corrective dyeing can take place after the saddening only by using a large excess of dyestuff, for the reason that a small quantity of it would exert no influence whatever, owing to the excess of mordant, and would only result in producing a precipitate, which, again, is soluble only in an excess of the mordant. Hence, additional dyestuff and mordant would have to be used, thereby causing much loss of these materials. When other dyestuffs, however, such as indigo, carmine or tar colors—substances which dye without further mordanting—are added to the bath, it is done at the expense of fastness, and this, of course, is injurious to many colors that are intended to be fast against fulling.

“When the saddening is performed in a separate bath, as with cutch colors, the method becomes a direct reversal of the mordanting process. Let us take the dyeing of colors fast against fulling with camwood or barwood in combination with other dyewoods, as an illustration of this method. It is the difficult solution of the dyestuff that necessitates the previous saddening. When, therefore, it is desired to produce red-brown and similar colors by the saddening method, it is necessary to boil from one hour to one hour and a half with 30 to 80 per cent. dyewood, and sadden with $1\frac{1}{2}$ to 2 per cent. potassium bichromate, and for certain shades a trifling percentage of alum in addition.

“We now come to the one-bath method. As with the aniline colors, we here deal with a prepared color lake, which is soluble only in the dyebath by means of an acid, generally oxalic acid. The one-bath method is often used for dyeing black, or the so-called direct black. The dyeing substance is a color lake precipitated either by sulphate of iron or copper, in the form of a paste, from a logwood decoction. This, together with a certain quantity of oxalic acid, is added to the bath. The wool is boiled in this mixture of dark-brown color-lake solution for from one to two hours, until the black is developed. Fustic, or logwood extract, may be used for shading. A chrome black produced according to this method is offered to dyers. It is a logwood decoction boiled with potassium bichromate in correct proportion. The precipitate is collected, and is used as a dyestuff in an oxalic acid solution. This chrome black, however, is inferior to the direct black.

“The one-bath method may be used for all those color lakes which can be dissolved in the dyebath. For instance, it is employed for cochineal and tin chloride, fustic and tin chloruret, alizarin and alumina mordants. The advantages of the one-bath method are easily appreciated, because the dyer obtains the most speedy results by the simplest means. As regards fastness, these colors are largely inferior to those obtained by the mordanting process, but this feature is frequently of secondary importance, and therefore the method can be pronounced very simple and cheap.

“There is still another way of dyeing wool. This

is the combination of the mordanting and the saddening methods. The following example is an illustration: To produce a black that will resist a strong fulling, first dye a chrome black according to the mordanting method, and after the dyewood bath enter the wool in a weak warm solution of potassium bichromate. This causes a more complete oxidation and fixation of the loosely adhering color particles, and produces a thorough fastness against fulling. This method may also be employed for other colors. For instance, mordant with 2 per cent. potassium bichromate, and dye in from 30 to 80 per cent. camwood. Then draw through a one-half per cent. weak chrome solution. This method is highly recommended for black or dark colors on yarn which is to be woven with light or white yarn and afterwards fulling, for in such cases a smutting or bleeding of the colors must be absolutely avoided. Although particles of colors dyed after this process may peel off, they cannot be absorbed by the lighter colors, but drop off in the rinsing, because they then form a firm color lake.”

CHEMISTRY IN TEXTILE MANUFACTURE.

Chemistry plays a much more important part in manufacturing than is evident to a casual observer, and without the knowledge it has brought to bear on many departments of this industry, they would be in a very crude state, indeed, compared with what they are to-day. Without its aid we should be ignorant of the chemical composition of different raw materials, such as wool, silk, cotton, etc., and also of the causes why these necessitate different treatment in the same process of manufacture.

When, however, the composition of each of these materials is studied, the different effect which the same treatment has upon them is self-evident. Neither should we, without the assistance of the science, be aware of the compounds which cause what is known as “hard water,” and of the various means that are to-day employed to soften it.

For the best methods of manufacturing soap, oil, and many other compounds essential to the manufacturer, we are also indebted to this science. How often, for instance, have manufacturers been troubled with the oil from the loom staining the pieces of cloth. To obtain an oil which, whilst stainless, possessed all the essentials necessary to the thorough lubrication of the machinery, was impossible without the aid of chemistry, and to-day these oils are extensively used on account of this valuable property. Were it not also for the assistance it affords we should be unable to test the purity, quality, and strength of the compounds to which we have just referred. Yet these compounds may be very easily adulterated, and hence it is important that they should occasionally be tested, both on account of the possible presence of impurities themselves, and also because of the injury these impurities may do to the wool or cloth affected by them.

As to dyeing, chemistry is the very foundation of it, a thorough and complete acquaintance with it being

essential to satisfactory work. The dyeing of union cloths, composed as they are of two such different materials as wool and cotton, presented at first difficulties which it seemed impossible to overcome. To-day two processes of dyeing and two or more different kinds of dyewares are employed, and it speaks well for the aid chemistry has been to the manufacturer when these operations can be carried on without detriment either to the wool or cotton.

Formerly many of them were done by "rule of thumb," but, happily, these unreliable and irregular methods are being replaced by newer and more reliable, because more scientific principles.

Science is by far the best guide whenever chemical change takes place, and the more complete our knowledge of it the more useful it will be in many of the processes of manufacturing, which are composed entirely of chemical changes following each other in rapid succession. A considerable saving could be effected by extracting the oil from soap suds, but such a process would have been unknown had it not been for the invaluable aid of chemistry. This, however, is only one of a vast number of ways in which this science has assisted in avoiding waste and in improving different processes of manufacturing. The extraction of burrs from wool, and of cotton from union cloths by means of sulphuric and other acids, are two other cases in point, so that in almost every phase of cloth production we see the most wonderful results achieved by this science. Neither is it possible to believe that we are at the end of the good results that may be obtained by the application of chemistry to this art; on the contrary, we are of opinion that the science is in its infancy in this respect, and that much greater benefits are to be obtained from it.

Improved methods of scouring and dyeing will undoubtedly be inaugurated whereby less waste and more efficient work will be accomplished. A large amount of dye refuse is at the present day allowed to pollute almost any stream, but we look to this science to extract all the coloring matter from the dye water before it leaves the dye-house, and make it suitable for further use. In many places manufacturers are handicapped with an indifferent supply of water, and even where there is an ample supply it is often turbid and almost unfit for use. It is for chemistry to find out how this water may be purified at a mere nominal cost, and, also, how water which has been used for dyeing and other purposes may be so cleansed of its ingredients that where a copious supply of fresh water is not at hand it may be re-utilized for other and similar purposes. Neither is it impossible to think that this science has lent all the aid it can to the abatement of the smoke nuisance, and to the large waste of fuel which is constantly taking place in every factory. We believe that this difficult question is solvable by means of a study of chemistry, so that not only will our factories cease to pollute our atmosphere with smoke, but also a considerable saving will be effected in fuel.

WHITE ON WOOL

Mr. Hofmann, of Dresden, communicates to a French paper some remarks on the process employed in Germany to obtain a good white on wool:

"It is known that with the agents usually employed in the bleaching and scouring of wool, the latter is left with a tint more or less yellow, which is sensibly different from the results obtained in bleaching cotton or silk.

"All attempts at destroying this yellow tint by means of the complementary blue colors, in a manner similar to what is done in bleaching cotton, paper, etc., have failed with wool. Attempts have been made for a long time past to give wool a whiteness by impregnating it with a white body, such as the carbonate of magnesia, but, however well such a white dressing acts in giving whiteness, it has had to be given up, owing to the fact that on storing it gradually comes off in the form of dust, which is very disagreeable.

"The author proposes to use for the white dyeing of wool an ammoniacal solution of copper oxide, with which the wool is impregnated. It is then passed through a bath of sugar or weak acid to fix the copper. The author speaks of the 'vegetablising' of the wool by this treatment. By treating the gelatinous cellulose with an ether bath it is rendered opaque and white.

"To arrive at the same result, F. V. Hallab uses hydrosulphite of soda and indigo. The effect produced is a double one: the hydrosulphite acts as an energetic bleaching agent on the wool, and at the same time as a solvent for the indigo, which is deposited in the process in an insoluble form on the surface of the wool, so that it may penetrate more fully and equally into the wool fibre. By afterwards submitting the treated fibre to the oxidizing action of the air, the indigo is reproduced, and the blue so formed acts as a complementary color to the yellow of the wool, destroying it, so that the wool appears white.

"It is very difficult to obtain a perfect equilibrium between the blue and the yellow, which is necessary to obtain perfect results, although many attempts have been made with indigo extract, ultramarine, aniline blues, etc. The best process is given in the *Deutsche Farber Zeitung* as follows. The solution of sodium hydrosulphite is prepared by taking 7 parts of zinc powder, or 20 to 30 parts of granulated zinc, and placing in a solution of bisulphite of soda, containing 200 parts of actual dry salt. The mixture is made in a closed vessel, which is shaken up from time to time during the space of one hour, then the insoluble matter is allowed to settle and the clear liquor drawn off for use.

"The wool is carefully cleaned and scoured; it is then immersed in a bath of cold water containing indigo in a fine state of division. In this bath it is well worked until every part is wetted out and the indigo is deposited evenly over the surface of the wool. The hydrosulphite bath, prepared in the manner described, is reduced until it has a strength of about 7 to 10° Tw. Into this is now plunged the wool impregnated with the indigo, and at

the same time a quantity of acetic acid is added, equivalent to the quantity of hydrosulphite in the bath. The wool is manipulated in this bath so that the indigo is equally reduced, after which the wool is taken out and exposed to the air for a short time, when the indigo again acquires a blue color, which serves to destroy the yellow of the wool, and thus makes the latter appear white."

BRITISH TEXTILE TRADE WITH CANADA.

The following are the values in pounds sterling of the exports of wool and textile fabrics from Great Britain to Canada for Oct. and for the ten months ending with Oct., as compared with the same periods of last year:—

	Month of Oct.		Ten months ending Oct.	
	1893.	1894.	1893.	1894.
Raw wool.....	£ 5,879	£ 3,014	£ 20,379	£ 11,092
Cotton piece-goods	20,281	13,611	453,734	353,244
Jute piece-goods	7,516	7,990	118,931	81,117
Linen piece-goods	5,369	5,819	123,029	97,077
Silk, lace	482	26	32,447	27,887
" articles partly of	3,146	1,177	65,625	35,162
Woolen fabrics.....	10,947	9,810	326,872	235,597
Worsted fabrics	17,340	18,677	593,624	410,857
Carpets	5,225	4,555	208,277	147,916
Apparel and slops	23,943	23,235	313,197	263,475
Haberdashery	8,768	4,353	234,200	135,635

WE understand that the wholesale clothing house of Shorey & Co. are sending a representative out to Australia to see what opening there may be for certain special lines of their goods. Our readers will remember that this firm opened up an extensive trade with various islands of the West Indies, three or four years ago, and it is to be hoped their present stroke of enterprise will also be rewarded with success.

THE Cotton States and International Exposition which is to be opened at Atlanta, Ga., on September 15th next, promises to be all that Southern enterprise and harmony can make it. The American Government has appropriated \$200,000 for its share of the expenses, and it is expected that each one of the States more immediately interested will do their best in a similar practical manner, some of them having already granted substantial sums of money to aid the enterprise. The Dominion Government was invited to send an exhibit or be otherwise represented, but we understand that this was declined.

THE Commercial Hygienic Museum in Vienna has published a pamphlet giving the results of a series of experiments made with a view to the determination of the action on the human body of the various sorts of dust which are found in factories and workshops. The serious diseases occasioned by dust chiefly have their seat in the respiratory organs, the particles being deposited in the irritable mucous membrane of the larynx, the air tubes, and the bronchial tubes, and forming growths which act as foreign substances, occasioning inflammation. In the hospitals of Breslau and Wurzburg, it was found that of ordinary workmen 13.7 died of tuberculosis, whilst the number was 15.3 among those

who worked in the midst of dust. In the Prague Infirmary, it was observed that of 178 consumptive work-people, 105 had been working in a dusty atmosphere. One of the worst forms of dust is that to be found in cotton factories. It makes itself perceptible by cold, dryness, and tickling in the throat, and afterwards by coughing and hoarseness. Finally, inflammation of the lungs sets in. The quantity of dust produced in carding and spinning is very large, and it is dangerous in proportion to the shortness of the fibre, as the exceedingly short pieces fasten on the respiratory organs with wonderful tenacity and defy all attempts to cough them up. Those engaged in the manipulation of flax also are great sufferers in this respect. It was found that 74 out of 100 flax spinners, and 83 out of 100 hecklers suffered from diseases of the chest. The great injuriousness of flax dust is believed to be owing to the quantity of silicic acid contained in it. Jute dust fastens tenaciously on the mucous membrane and offers great opposition to any attempts to cough it up. Workers in jute are believed to be subject to digestive disorders, with paleness and weariness, and pains in the feet, etc. The most favorable report is that relating to silk factories. The fibre is smooth, does not easily become jagged, and presents therefore no sharp points liable to wound. In a silk floss spinning factory near Goerz, it was found that only 20 per cent. of the cases of sickness were owing to diseases of the respiratory organs.

HAD Judge Burbidge given any other decision than that he has handed down in the case of the Canada Jute Company and the Consumers' Cordage Company, no manufacturing concern who handled materials coming from abroad would have been safe for the future in prosecuting their legitimate business. The customs authorities made a seizure upon these concerns on a question of tariff interpretation as to the rate of duty paid on their raw materials, the amount involved being, it was stated, about \$300,000, and the time covering a period of three years. In the course of his decision the Judge said: "In a case like this, where the interpretation of the statute has been acted upon by the importers with the knowledge and consent of the customs authorities, and where the same interpretation has been adopted by the customs, where there is good faith and where there is no question of attempting to defraud the Government, where the evidence shows that the consumer gets the benefit of the free entry, and where if duty is imposed it must fall altogether upon the manufacturer and importer, who cannot in any way reimburse himself by increasing the price of the goods, I think in a case like this, to put a new construction upon the statute will work injustice to the manufacturer and importer. I think that the customs authorities have found out too late that they made a mistake, and that they had as good an opportunity to find out before as the importers, but nothing was done, although they had appraisers." The truth is that the system by which the customs authorities reward their secret agents with a share of the seizures is iniquitous. These agents, instead of bringing a question of error or of wrong-doing to a head

when discovered, wait till the accumulated imports of two or three years shall have brought them a "big haul," and then spring their trap, with the result that whether it is a matter of fraud or merely a question of interpretation, the unfortunate importer is in most cases ruined. The temptations, moreover, which such a method of snaring holds open to a shrewd and careful blackmailer are appalling. The system is so utterly repulsive and so opposed to first principles of morality, that one is tempted to ask whether the petition, "Lead us not into temptation" is completely expunged from the prayers of those in power in the customs department.

THE wonderful energy shown by the Germans in seeking new outlets for trade and in holding markets already captured, has often been remarked upon, and probably it is chiefly due to the societies which exist in all parts of the empire, organized for the purpose of encouraging colonization and export trade. According to a recent report of the American consul at Chemnitz, these unions are active agents in extending foreign markets, their methods, though simple, having been very successful. They project all kinds of schemes for bringing German manufactures to foreign notice. Emigrants and Germans resident in foreign countries are enlisted in favor of German products. A German correspondent in St. Petersburg some little time ago, in writing to his paper in Chemnitz, tried to explain how it was that in spite of the bitter tariff war that was at that time being waged between Germany and Russia, and in spite of the activity of compe-

titors, yet the former country's imports in certain lines increased largely in value and amount. After speaking of the advantages of the German credit system, to which the above satisfactory condition of things is no doubt partly due, he goes on to say that the German possesses the faculty and power to put himself in the other man's place; to understand his conditions and circumstances; to find out, if not feel, his needs. So great is his power in this respect that he has absolutely no rival or competitor worth considering. Not only does he study the language of the people among whom he is to work, but he makes a specialty of it, and of their agricultural and industrial needs. When selling needles and pins, he may be watching to see where to sell a knitting machine or a plough. Not only this, but his education fits him to tell the buyer what is best suited to certain kinds of work, especially where it is a question of introducing anything new. It is a notorious fact that the Russian farmer buys from a German in preference to an Englishman, an American, or even a Russian manufacturer. The German language, after Russian, is most used in business circles, partly because there are so many Germans settled in Russia, and partly because of proximity. Again, the German not only seeks to find out what the people want, but he sells machines and parts of machines, so that when injured or broken they may be easily and at once repaired—a very great consideration. German agents and travelling salesmen are willing to work hard to sell small quantities. This makes them popular among the people to whom they are sent, and satisfactory to their employers.

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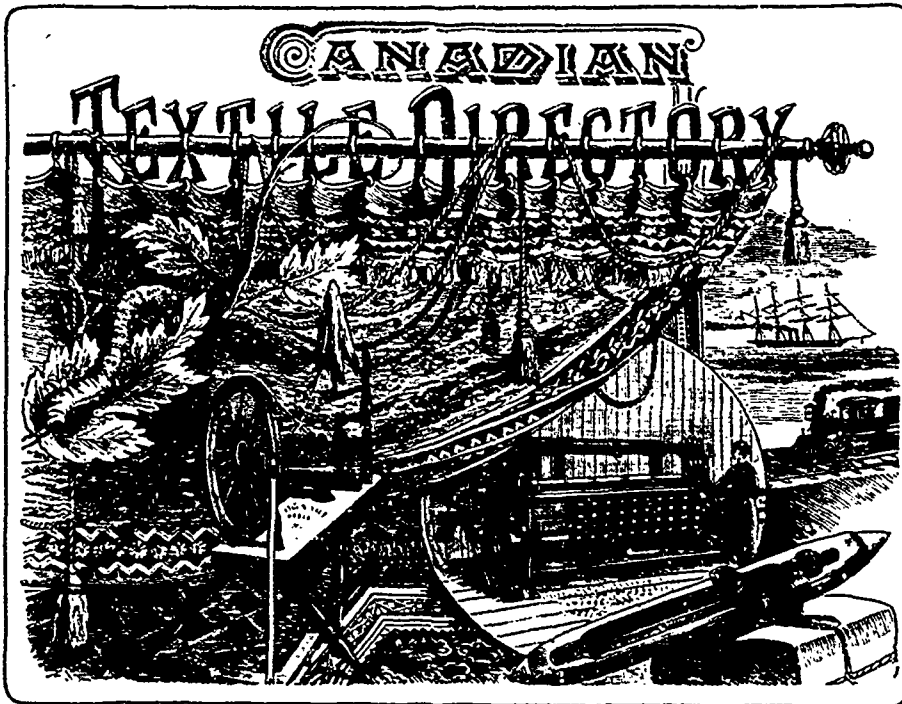
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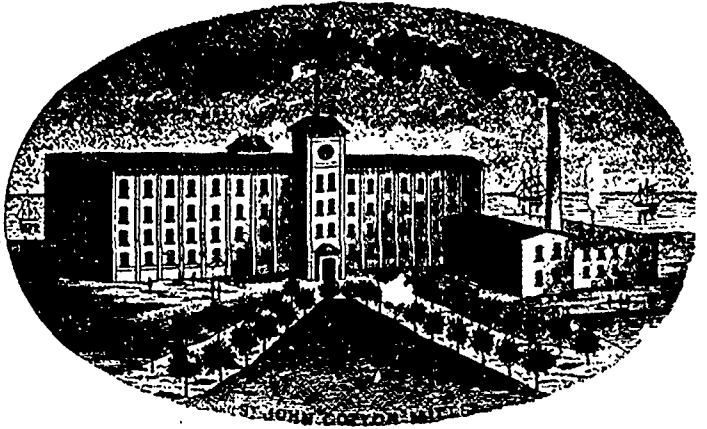
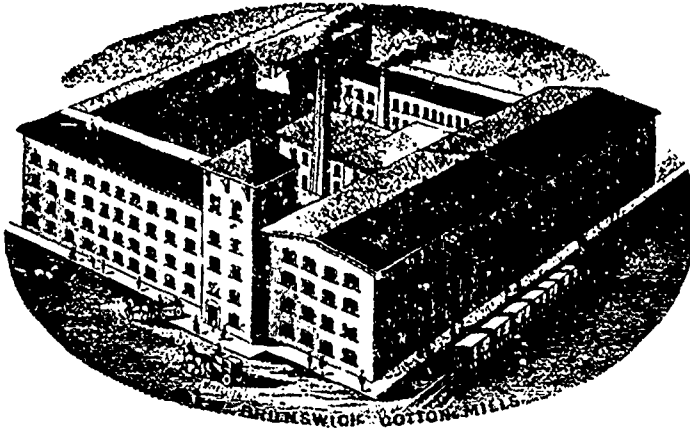
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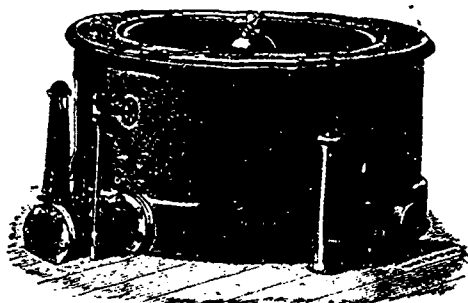
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Textile Design

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DESIGN.

1,920 ends in warp; 30 ends per inch; $7\frac{1}{2}$'s reed, 4 in a reed; 31 picks per inch; 64 inches in reed; 56 inches wide when finished. Weight, 17 ozs.

Warp—

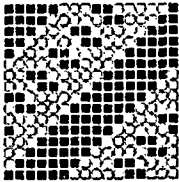
- 1 end Brown, 14 skeins.
- 6 ends White, “
- 3 “ Slate, “
- ② “ White, “

West—

- 19 picks Black, 16 skeins.
- 1 pick Red “
-
- 20 picks in pattern.

16 ends in pattern.

OVERCOATING.



DESIGN.

1,660 ends in warp; 26 ends per inch; $6\frac{1}{2}$'s reed, 4 ends in a reed; 24 picks per inch; 64 inches wide in loom; 56 inches wide when finished. Weight 28 ounces.

- Warp—2/16 skeins woolen, Black.
- West—2/14 skeins woolen, Twist.

CREASES IN FULLED WOOLENS.

Folds or creases in fulled woolen goods are the result of carelessness at the fulling mill. In the fulling mill, as usually constructed now-a-days, the goods are manipulated while on a string, so to speak, and then a certain amount of creasing across its width is sure to take place, while it seems almost impossible to construct a fulling mechanism on the rotary principle whereby the piece can be fulled in length and width at the same time without being bunched at all in either way. Since these attempts have thus far met with failure, it remains for the fuller to do his best to avoid results in the line to which we refer, even when he is compelled to use the ordinary fulling mill of the present day.

Where a piece of goods is allowed to run too long in one position in a rotary mill, it is impossible to avoid the production of these streaks or folds, and if the length of time and the condition of the stock and of the fabric all properly combine, it will be a hard matter indeed to overcome the evil which will inevitably result from such a state of affairs. We must hold that in many cases, however, the fuller is to blame himself when creases or folds are allowed to leave their presence in the finished cloth.

The causes are numerous: If the goods are not frequently relaid or removed and changed, if the fabric has been allowed to run till it has become too warm, or if the amount of soap has been so scanty as to run completely out and become too dry, or too much soap on certain classes of goods is liable to bring about this trouble while in a sloppy condition, then we may be sure that the fuller has no one to blame but himself if imperfections appear at last, but the same effects may be produced also where the goods are not thoroughly cleansed, where the felting property of the wool is inferior or not uniform, where the twist of the yarn is too hard or too soft, or where the actual condition of the fulling mill is at fault. If the imperfections are due to any of these causes, it is evident that even a repeated changing of the goods in the machine while running will not affect the result, and however we may stretch and change the piece from end to end, we shall find that it is impossible to overcome the difficulty altogether; still when such causes do exist, it is well for the fuller to do all in his power, to obviate as much as

possible the undesirable result which he cannot wholly prevent. If such goods must be fulled a considerable length of time, he should see to it that they are changed as often as can be, for in no other way can a passable finish be obtained when danger from creased goods is apprehended.

There is a procedure often practised by most fullers. That is, to take the goods out of the mill, cut the seam and run the piece back into the mill, end for end. If the fuller is called upon to treat heavy, coarse goods of plain weaves, such as chevots, kerseys and meltons, which require an unusually long fulling, this method is most naturally adopted. Where this is done its beneficial effect is due not more to the fact that the cloth is run into the mill a different end first, than it is to the fact that it has been opened out and re-sewed across the ends, where the goods to be fulled are light weight.

In the rotary mill the piece is run into the machine in one set of folds, and, where a change does not take place to break or displace these folds (which with many kinds of goods it does not), this set of folds is persisted in to the end of the operation. It may be objected that the falling of the goods to the bottom of the mill, and the natural jerking and pulling of the goods as they rapidly pass through the shrinking parts of the machine, will sufficiently counteract these tendencies. But to this objection it can only be said that experience in many cases has shown that it does not hold. As there is, therefore, nothing in the machine itself to counteract the tendency in question, there is nothing to do but to remove the goods from the mill from time to time, stretch and change them, and watch them closely to the end of the operation.

PREPARING WOOL FOR CARDING.

The question was recently asked, says *Das Deutsche Wollen-Gewerbe*, whether it was injurious to spin wool in a wet condition—that is, only whizzed in the hydro-extractor. All the authorities are unanimous in condemning such a procedure. There is no doubt that the working of wet wool introduces various complications into the carding, as well as the spinning process, and it should be avoided under all circumstances. It is true that a great diversity of opinion exists as to the preliminary processes of preparing the wool for carding, and this stage in the manufacture of woolen goods is frequently not treated with that care and consideration which its importance demands, to the great detriment of both machinery and material.

By far the most important requirement in carding is that the wool should be thoroughly dry. Without taking into consideration the fact that it would be impossible to follow the exact proportions of wool for mixtures of different kinds, the working of the material in a wet state causes it to be torn needlessly. There are two factors to be considered in this connection, the effects of which are diametrically opposed to each other. On the one hand, there is the greater elasticity and yielding capacity, and on the other, the far inferior power of resistance and strength of the wet fibre in comparison to the dry. Although the first circumstance appears to speak in favor of working wool while wet, this advantage does not counterbalance the loss due to the inferior strength of the wet staple. It is known that wool, both as yarn and as fabric, tears much more readily in a wet than in a dry condition. The experiment is easily made with strips of cloth, yarn, and wool. Thus it is greatly injured in the picking and carding processes.

This statement is apparently contradicted by the fact that, in the tearing of shoddy, in order to obtain a longer staple, recourse is had to wetting. But it must be considered that we are here dealing with a wool material more or less felted by spinning, weaving, and fulling, and which must be rendered elastic again by moistening, otherwise the single interlaced fibres would be torn into short pieces. This, of course, need not be feared in the working of loose wool. It is simply the readier tendency of the stuff to be separated into single fibres in a wet state that contributes to the obtaining of a longer staple in the manipulation of the wet shoddy rags. Analogous considerations also present themselves in the teasing of the cloth. In this process also the fibre loosens out of the teased felt, and forms in layers much more easily when the cloth is wet than when dry.

Another factor which is apparently in favor of wet working is the circumstance that the material to be spun is previously moistened with a lubricant, and that this generally contains quite a large percentage of water. It is very evident, however, that there is a great difference whether the wool was wet originally—that is, whether the fibre was saturated with moisture and softened—or whether it was damped only slightly, and with an oleaginous lubricating fluid. To test this it is only necessary to work off a portion of picked and lubricated wool, one part at once and the other after a few days, in order to afford time to the lubricant to penetrate into the fibre and to moisten and soften it. It will then be found that there is a great difference between the lot worked at once and that worked after the lapse of several days—a difference invariably resulting unfavorably to the latter.

Let us consider next the behavior of the wet material in carding. The wet fibre is more easily smoothed and laid parallel, but it will in the course of the carding process, especially towards the end, dry gradually, and become inclined to resume its original position. The preceding smoothing and carding, therefore, was to a corresponding degree useless. Even if this circumstance had but little weight, another and a far greater evil—namely, the unevenness of the yarn—is caused by the gradual and partial drying of the wool during the carding process that follows. No matter how uniformly the wool has been lubricated, the water used in the lubricant will persistently settle downward, and it will invariably be found that in a particular lot, no matter how stored, whether in baskets or in sacks, the lower layer will be more moist than the upper. Again, it is a subject of every-day occurrence that during the longer or shorter stoppages taking place in every mill, the material either upon the card rolls or lap drum, etc., will dry out very rapidly. Laps from the first breaker worked for future contingencies will dry out more or less. Under such circumstances it is impossible to produce an even slubbing and even yarn. One of the most natural and frequently occurring consequences of the working of wool in a wet state is the more or less strongly pronounced appearance of cockles in the cloth. The greater weight, together with the greater inclination of the wet material to yield, also causes many inconveniences during the carding process. Heavy laps hang and sag upon the drums, and to a still greater extent upon the so-called lapping apparatus.

If, therefore, the drying of the spinning material is required, the kind of drying employed is another equally important consideration. Drying quickly and at too great a temperature is to be avoided, because overdried wool becomes rough and brittle, and, by reason of the greater degree of electricity generated in it, it becomes obstinate and cannot be smoothed and easily worked. It is also apt to fly during the process of opening and carding. The effect of electricity on the condenser is particularly annoying. The single wool fibres will jump from one thread to another, and frequently cause the running together of a number of threads. Such electrical phenomena are more frequent and stronger in some kinds of wool than in others, so that as a rule an additional oiling becomes necessary, which should only be applied to very dry wool. At the same time care must be taken that the wool is permitted to lie piled in thin layers only for a short time before it is carded, because the surface will dry out and the oiling be rendered useless. The lower parts also become too wet and soften. A mild drying, either in open air, or, if this is not possible, the closest possible imitation of it, thorough ventilation being indispensable, is the only means of securing the good behaviour of the wool during the processes of carding and spinning.

It is of great importance, also, that the material should be well cleaned before oiling. Indeed, this is the most important factor in the preparation of the wool for the carding process, if any regard is had for the preservation of the card clothing, and production of a smooth, uniform thread. The residues clinging to the wool from the dyehouse must be thoroughly removed. This is best performed by an effective rinsing of the dyed wool. To do this in a perfect manner the wool should be well scoured before dyeing. Badly washed wool is freed from the dye residues with far greater difficulty than if it had been washed clean before. Besides this, it is

necessary to rinse the wool well after dyeing. This applies especially to vat blue and to all colors that have been dyed according to old methods—that is, with dyestuffs of the old school, such as madder, camwood, logwood, indigo, etc. The modern dyestuffs, alizarin, etc., are generally absorbed so completely that only a small amount of dye residue remains to be removed.

It is not possible, however, by rinsing the dyed wool, to remove all the impurities it contains, especially if old-school dyestuffs have been used. These can be removed only by thoroughly dusting the wool. This is to be performed before the actual picking after oiling. The machine used for this purpose has undergone many improvements recently, and various styles are found in the market.

Important though the operation of the dusting and picking of the wool before oiling and carding is, it is nevertheless performed in a superficial and bungling manner in many spinning mills, greatly to the injury of both machinery and material. In many mills the dry picker is regarded as a superfluous appendage. The idea is entertained that if there is an opener and picker, it cleans the wool sufficiently from dust and dirt. This, however, is not always the case, because the wool generally enters the picker and teaser in an oiled condition, and the dust and dirt have already united in a sticky mass which can no longer be dusted out.

The greatest disadvantage of an insufficient cleaning of the material before oiling, picking, and carding, can be stated in a few words: First, the dirt and dust left in the wool will absorb part of the lubricant, and diminish the beneficial effect of the latter upon the fibre. The mixture of dirt and oil is a sure means of clogging the card clothing, and thereby deteriorating the effect of carding. Not alone is the clothing gummed up and rendered unserviceable for an effective operation, but the material is also glued together, in which condition it is difficult to smooth and lay it straight in the card, and it remains sticking everywhere to the working surfaces of the engine. The doffing of the lap is also rendered difficult. Next, it requires more labor and detergents to cleanse the yarn and cloth, while at the same time the operation presents many serious difficulties.

A frequent cleaning of the machinery is required, which entails a loss of time and diminution in production. There is much waste, and uneven and lean yarn. This also, as well as the cloth, becomes boardlike when washed, and calls for the employment of stronger lyes. These are the natural consequences of an insufficient cleaning of the wool before spinning; they present a further argument against the working of the material in a wet condition, because it stands to reason that the dusting of the wet wool is out of the question.

Only after a thorough cleaning and dusting of the dry material should it be lubricated. The object of this is to make the fibre pliable and yielding to a certain degree, so that it can more readily be smoothed and layered in the carding and spinning processes. The quality of the lubricating material is a matter of great importance, and two circumstances especially must be considered in its choice: first, its adaptability for spinning purposes; and, second, its behavior in washing and milling—that is, the cleansing of the yarn or cloth. A lubricant for wool or spinning purposes must be of a superior quality in order to make the fibre pliable. Numerous "wool lubricants and compositions" are at present found in commerce which contain oil only in homœopathic doses, but in place of it aqueous solutions of alkalis and decoctions of various kinds. All are ill adapted for softening the fibre, in fact, they have the opposite effect. The small pecuniary benefit resulting from the purchase of such cheap substitutes (for they are all cheap, a fact which should make the purchaser suspicious) is counterbalanced by the trouble and inconvenience experienced in spinning and milling the manufactured goods, which in fact contribute to make them doubly dear.

Wool requires a certain percentage of good oil for spinning. Above all things, it should not become resinous, which is the case with most vegetable oils, and which makes the wool sticky, the carding more or less imperfect, and the yarn hard and stiff. The vegetable oils used formerly—for instance, olive oil and rape seed

oil—had this defect, especially the latter. Yarn spun with good olive oil can be stored for some time without becoming sticky or stiff. Although the animal fat called oleine, which is now being very extensively used, does not show this tendency, still it is generally acid, especially the cheaper kinds, in consequence of which it wears the card clothing. Good oleine, however, contains so little acid that its influence upon the card teeth is barely noticeable. It can safely be asserted that oleine, provided it is pure, and not adulterated with mineral oil, as it often is, is the best lubricant, as it saponifies very readily. It saponifies with weak, cold soda lye easier than any other oil. Its other qualities, especially its large percentage of fat, make it very suitable for the spinning mill, so that the few disadvantages it possesses are hardly worth considering. Mineral oil cannot be considered as a wool lubricant, although it is not changed in the least by oxygen, does not become resinous, nor is it inclined to spontaneous combustion, like many other oils, but it is unsaponifiable, an objection which more than counterbalances all its other merits. Next to oleine, olive oil may claim to be the most suitable lubricant.

The percentage of lubricant required varies according to the character and degree of purity of the wool material, and ranges between 10 and 15 per cent. In order to divide the oil more equally and to heighten its effectiveness, it is mixed with water, the quantity of which also varies according to the degree of dryness and fineness of the material. The combination of the two fluids is effected by an addition of a little soda, or, what is better, aqua ammonia. Besides this, the addition of an alkali may also be added for the purpose of effecting a better saponification in washing. The use of soap as a binder is not to be recommended, because the lubricant is apt to become stiff and smeary. When working the wool in a wet condition, it is difficult to ascertain the mixing proportions of the lubricant.

After the wool has been freed from dust and dirt, it is first passed once while dry through the picker, so as to be opened and mixed uniformly. It is then piled in layers, and the lubricating agent poured over it. Then it is beaten with sticks or wooden forks, so as to accelerate the distribution and penetration of the lubricant, and then, according to circumstances, passed once or several times through the picker. On account of its usefulness, the picker has become a favorite machine in spinning mills. It is suited for mixing oiled wool better than any other, and the excellent quality of the work is everywhere recognized. For the mixing as well as blending of different kinds of wool, several passages through the machine are advisable, in order to obtain a thorough blending of the material, as well as uniform division of the oil. In the manufacture of mixed goods, every lot of the compound should be picked separately, and especially when to be used for filling; several pickings are highly advisable, not only for mixed goods, but also for single colored ones.

The above described rather primitive style of oiling is still in use in many mills, and if conscientiously performed is sufficient to effect an equal distribution of the lubricant. More recently, however, so-called oiling pickers of various constructions have been introduced, by which the equal blending of the wool is made more easy. These machines generally apply the oil with a rotating brush, which, either moving within a receptacle, takes up the necessary quantity of oil and sprinkles it over the wool, or else works underneath a sieve-bottomed basin, where it receives the oil and surrenders it to the wool. The speed at which the material moves, and the quantity of lubricant taken up by the brush, can be regulated at pleasure.

It is not advisable to oil and pick too much material at one time, as it does not improve its quality to allow it to remain for any length of time before being worked up. There are many reasons for this. First, by the storing of the wool the lubricant will draw away from some portions and settle in others; some portions, which are more exposed to the influences of temperature, will dry out more or less; again, lubricated wool, when stored for some time, is apt to become tough and sticky, thereby rendering an effective carding difficult; finally, the fibre is softened unnecessarily, and the objections mentioned when treating of wet wool, arise. When, how-

ever, there are good reasons for lubricating a large quantity of wool at one time, the excess should be stored in a cool but dry place

SUCCESS IN BUSINESS

Editor CANADIAN JOURNAL OF FABRICS.

Can business be conducted on fair principles and be a success, is a question that at present commands considerable attention. The query implies a doubt, and at present, as heretofore, there is unfortunately plenty of reason for it. If we are to judge of success solely as it is represented by real estate or bank deposits, we are led to the belief that if the methods followed to accumulate these assets were in many cases taken into account, the answer might be given firmly, that it is not possible to conduct business on honest principles and succeed, but there are and have been many and great successes made in business by the Lawrences, Peabodys, and Budgets of our century, on thoroughly fair principles. To be successful from a money standpoint only is not the fullest measure of the word, where the methods are not considered, for I hold that anything that causes a man to feel himself mean or small for sake of a temporary gain, and to lose the respect of the best of his fellows, cannot justly be called success.

To gain wealth honestly requires a very much higher standard of business ability than when accumulated by such methods as misrepresentation, substitution, bribery of employes to cheat their employers, or entering into arrangements with thieving merchants to secure yourself at the price of cheating, say, a dozen others, etc.

Apropos to the last proposition (if you will pardon the digression), I may state that recently a letter was received by a Montreal firm stating that next May a certain dry goods firm in St. John, N.B., would fail, but that two large wholesale houses in this city would be protected—they would be paid in full. Doubtless, meantime, the St. John firm will order from firms, not "protected," and give fairly good orders, too.

The "envoy extraordinary" of one of the firms ("protected"), made a trip to Maritime Provinces during the later summer months, but this might have no connection with the payment in full.

Doubtless such elements of success as set forth by wealthy firms may offer golden inducements to their employes to follow their example, but as all that glitters is not gold, it might be well to consider if the price paid for what is obtained is not too high, and that ill-gotten gains are dear at any cost.

Respectfully yours,

"EBLANA."

A NEW WOOLEN FACTORY IN MONTREAL.

Our readers will be interested to know that Robert S. Fraser, the well-known and popular machinery and mill-supplies agent, etc., Montreal, is fitting up a factory in that city for garnetting fine wool stock, which will be made a specialty. The factory will be a two-storey one, 50 feet by 34 feet in dimensions. It will be lighted by electric light, and will be run by steam power. There will be three garnett machines and two pickers. The new mill is to run under the name of the Canada Garnetting Company, and will start operations on January 1st next. The name of Mr. Robert S. Fraser is sufficient to guarantee that the mill will be run on thoroughly good business principles, and we hope and believe that the new enterprise will be a success from every point of view.

THERE is still another peculiar transaction connected with the Montreal city council to record, and, as usual, the city will probably have to bear the brunt of it. The Police Committee, in awarding contracts for summer clothing for the police force, managed to give them in two cases to the highest tenderers. For instance, the contract for uniforms was given to A. Charlebois, whereas J. P. Nugent had tendered an equally good or better quality of goods at a lower price, and H. Thivierge was awarded the contract for boots at \$3, whereas M. Tessier had tendered an equally good sample at \$2.50. Meanwhile both these unsuccessful tenderers are angry, and would like to know how long favoritism is to be stronger than merit and common fairness.

Foreign Textile Centres

MANCHESTER.—The condition of the market here has undergone very little change. The tone appears rather less depressed, but manufacturers find that prices offering are very unsatisfactory. Buyers' ideas of value indicate no belief in any early improvement. Some offers for China are in negotiation. A small inquiry for Bombay goods, both gray and white, is met with; but, broadly speaking, the trade continues much below the current production. Printing cloth moves in small lines, but at slightly easier prices. Sales for the Levant are moderate in some heavy classes of cloth. Yarns are dull, and it is fortunate for spinners that manufacturers thought fit about a month ago to enter into contracts at prices then believed to be the lowest practicable. The provision for future requirements then made causes little to be now required, and spinners have only a retail enquiry, while quotations are barely maintained. In cloth, business is even quieter than in yarn. The number of eager sellers has increased, and some very low offers have been accepted. Some shirting business has been done for Calcutta for quick delivery, and Madras has continued to purchase 41 in. shirtings rather freely. The manufacturers of India goods are, as a rule, engaged for the next two months, and shippers refuse to buy further ahead. The less important foreign markets remain very quiet. There is nothing worthy of note in the home trade department.

BRADFORD—With the London Colonial Wool Sales once more upon us, wool business here has, as might be expected, been to a large extent suspended until a basis of prices should be definitely established. With some signs of a recovery of tone in the terminal market at Antwerp, and a growing confidence that now prices have really reached the lowest possible level, it is the opinion of some observant wool-traders that as the London sales proceed a distinct hardening in prices will ensue. Already in this market there has been during the last few days a better inquiry for both wool and tops in cross-bred wools. Both mohair and alpaca are very quiet, and any transactions of importance which have taken place in either raw hair or yarns have been effected at lower prices. In the warehouses business generally shows very little improvement, and the wet open weather has, of course, tended to increase the depression. Two leading home trade firms have this week made considerable reductions in their staff, and in one case this reduction is understood to mean the absolute closing of some departments. I do not hear of any new development of note in the dress trade, but crêpons continue to move off well. For the high-class trade, cloth costumes of the tailor-made order seem to be supplanting tweeds for outdoor wear in walking dresses and some very beautiful fabrics of this character are now being produced here in various shades of tan and the new red-browns. It is now a *sine qua non* that these goods should be not less than 52 inches wide. Some of the newest fancies seen are in stripes of a quiet order, with small spots of silk introduced.

NOTTINGHAM.—The disastrous fire which took place in the Lace Market recently was one of the most serious which has ever occurred in this town. Not only has it been serious to both manufacturers and workpeople through the stoppage of business it will entail, but in many of the warehouses thousands of pounds worth of goods were ready packed for shipment to America, and it is feared that it will be impossible in many cases to get fresh goods made and packed in time for the American season. Strenuous efforts will be made to avoid delay, and as there is no lack of empty warehouses and offices in the town, the firms affected will not have much difficulty in securing temporary premises in which to carry on their businesses. The export trade still remains in a rather unsatisfactory condition, and the home demand is somewhat languid, especially for silk laces. In cotton laces the machinery in the town is more than able to cope with the orders received, and the production of novelties is not being pushed forward, there having been preparations of good assortments made in anticipation of an active demand. Falls, veilings, and a few fancy articles have been brisker,

and there have been large deliveries of bobbin nets and plain goods for embroidery purposes. The latter, however, is not altogether a healthy sign, as it may unduly affect the fancy branches of the trade, in which the profits should be larger. Furniture laces show no change, and curtains and window blinds are only in moderate request for the home, colonial and American markets; the remark applies to lambrequins, toilet sets and table covers. The merino, cashmere and natural wool branches of the hosiery trade are rather busier, but there is still room for improvement. Manufacturers complain of the paucity of orders, and a good deal of machinery is still unremunerative. Cotton goods, in sympathy with the yarn market, are much depressed, while the foreign competition is as active as ever, so that profitable prices for the goods in request are quite out of the question.

BARNESLEY.—There has been a rather quieter feeling in the linen trade, and although mills are running mostly full time, it is at the risk of making partly to stock, still, the opinion seems to exist that there will be a healthy trade for the spring season, and manufacturers are preparing themselves for it. The demand for South America has shown further improvement, and the prospects in this direction are cheerful, whilst for the United States some fairly good orders have been booked, and the outlook here is also bright. The demand for continental countries keeps up moderately well. The home trade is at present the least satisfactory. In fine damasks for table use, the old condition of things exists, inquiries and orders having been few. Fine drills have met with good sales, manufacturers having been kept very well employed. In carpet, stair and floor coverings the sales are moderate, and the same may be said of blind materials. In towellings in the piece, things are quieter. In fancy towels, toilet, glass, pantry and such-like cloths, the demand has been rather less. Hand-made linens sell very slowly. As regards prices, there is much complaint, although in some respects they are improved.

HUDDESFIELD.—Very little business has been transacted in this market lately, and prices continue unsatisfactory. So far as the sale of winter goods is concerned it is now very difficult to obtain orders, as the season is far advanced, and the mild weather has checked the retail demand. There is steady but slow improvement in the giving out of orders for next spring by wholesale houses, and several manufacturers of fine vicunas, serges, and fancy worsted trouserings are very busy, while a great number of makers of medium goods of the same kind and of low tweeds and serges are well employed on orders for forward delivery. The Continental and Canadian markets are very good for the time of year, and the demand for the United States, both for fine and medium cloths of various descriptions, is growing in a satisfactory manner, and there is also an improvement in the inquiry for some makes of low goods. Yarn spinners are moderately well employed. Wools are selling steadily, and prices, especially for good qualities, are very firm.

LEICESTER.—The state of the wool market is unsatisfactory, and prices show a downward tendency. The consumption of bright wools of the lustre and demi-lustre classes of strong texture is well maintained, but spinners only buy to sort up stocks, and heavy lots only change hands where concessions are made. All faulty and inferior wools are not only difficult to sell, but prices more irregular than ever. Supplies of skin wools move off slowly at low prices. In colonial wools cross-breds are fairly steady, but other qualities are flat. The yarn market is rather sluggish, and new contracts are scarce, but spinners decline to book large orders in advance. The hosiery trade is very variable, the goods delivered being under the average. Narrow elastic web goods, cords and sandlings are in good request.

LEEDS.—The woollen cloth market is quiet, and manufacturers experience difficulty in maintaining prices. Presidents, beavers, and pilots only sell quietly. A few patterns for the winter of 1895 have already been brought out, but as yet do not receive much attention. Business to-day for the spring trade has not been of much extent. A few orders have been placed for medium worsteds, vicunas, chevots, and tweeds, prices to depend upon the state of the market at the time of delivery, as usually towards the end of

the year the production of high-class worsteds is falling off. Some producers are pressing sales, which leads to unsteadiness in prices. Considerable shipments to the United States are in preparation for next month of miscellaneous fabrics, and there are inquiries about specialties for next season, which not unlikely will result in good orders. The blanket trade keeps up well.

DUNDEE.—In no department of the Dundee market is there any particular change to note. The linen trade is dull, and although the outlook is more hopeful for an increased demand for future requirements, the inquiries for present delivery are rather slow. In any case, an increase in values can scarcely be looked for, and a continuance of low rates is more likely to prevail for some time to come.

BELFAST.—The amount of business passing in the linen trade is reported to be fairly satisfactory. In the present condition of general trade it is not to be expected that the recovery in demand for our local productions can be rapid, but the progress shown during the last month or two still continues. Home buyers are acting with caution, evidently in sympathy with the dulness in shipping quarters. During the past week several transatlantic visitors have been about, and have shown more freedom in placing contracts for New York and spring delivery. Finer qualities in table damasks, napkins, damask towellings and fancy articles suitable for Christmas requirements have been moving more freely. New York reports just to hand indicate an expanding turnover for staple goods, as well as an improved inquiry for the manifold varieties of household necessities now got up in decorative style for complimentary purposes. The pretty embroidered and hemstitched hand work in table and toilet sets, sheets and pillow cases, by combining the qualities of ornament and utility, now enables purveyors of linens to successfully compete with departments which formerly commanded a monopoly of the demand which comes around with the approach of the festive season. Makers of these goods have had a dull time during the period of the tariff discussion and the monetary crisis in the States. The cotton market has been fairly supported since last report, and general demand for cloth well sustained, though manufacturers would like to see a much greater improvement by this time. The shipping branch is the most healthy, and with the United States a steadily increasing business is doing in the various makes of cotton and union goods. The raw material is fractionally cheaper, which has affected yarns and also reacts on cloth, so the buyers are cautious about speculating until cotton settles down on a more staple basis. The trade of the month in Irish woolens has been, on the whole, exceedingly good, and the turnover, in the aggregate, is estimated to be considerably ahead of that of any corresponding period in any recent season. Notwithstanding that the weather has been decidedly unfavorable to the sale of many classes of woolens, repeat orders for winter tweeds and serges continue to be placed with the manufacturers to a very gratifying extent. It is indeed doubtful if the winter trade has been so well sustained for so lengthened a period in any former year. Judging from the reports of the wholesale woolen warehouses, Irish woolens continue to grow steadily in public favor, and it is said that of the entire home trade in tweeds and kindred goods an increasingly large proportion is of Irish make.

GLASGOW.—Trade in the south of Scotland is still depressed. At present manufacturers have not many orders on hand. A large number of looms are idle, and the outlook for the winter is anything but cheering. Makers are now pinning their faith on the spring trade, but their expectation of increased business may not be realized. No sales are being transacted in wool. Spinners are not particularly active. The Ayrshire lace makers are reported to be well employed. The home demand is not very brisk, and travellers experience considerable difficulty in securing orders at remunerative rates. The American demand has greatly improved, and there is every indication of this satisfactory state of matters continuing for some time. Canadian and South American merchants have placed good orders, while the Australian trade is reported to be quiet. A steady tone prevails in the Glasgow cotton yarn market. Spinners are endeavoring to advance values in keeping with dearer cotton. Buyers are only purchasing at the low rates which

were current recently. There is every indication that the coming zephyr season is to be a busy one. Local manufacturers have large orders on hand. Crepons are still selling well.

CHEMNITZ.—The hosiery trade in this district is busily employed, and manufacturers have adopted a firm stand with buyers as to prices. The lace trade is also very brisk, and Plauen houses are endeavoring to induce local female operatives to transfer their services to that centre by higher wages than those given in the hosiery factories here. Plauen offers 6s. to 8s. a week to learners, and from 10s. to 12s. a week after a few months' employment has rendered the workers expert. Hosiery wages here are about 2s. a week less than the latter figures. Low embroideries are scarce—only because of the preference of the operatives for the more highly-paid fine work. The passementerie manufacturers in the Annaberg district are very busy. The run upon Maco feet in hosiery causes the usual amount of dissatisfaction to the trade, labor being scarce, while the demand for plain goods enables operatives to secure work in that department. Ladies' hand-frame hose is in steady request, although the output is smaller than formerly. Here, as in England, power-frame competition has reduced the production by hand. A few fast reds are being pushed, but their success at this stage appears problematical.

PLAUEH.—The second half of October was marked by unusual activity here, the large English and American buyers having been in the market, the former coming closely upon the heels of the latter. All buyers, however, operate with great prudence, and refrain from committing themselves extensively to any one article, arranging their purchases so as to be able to take immediate advantage of a run upon any special class of goods. As a result of this policy, orders, although numerous, are not of great importance, although the manner in which they have been placed justifies the expectation of repeats before long. The early amples sent out contained a large proportion of embroidered muslins, which do not, however, appear to have taken the fancy of buyers. The result has far from realized the hopes entertained earlier in the season. Venice and Irish guipure are also disappointing. Fashion appears to favor embroidery on tulle with *de jour* (open-work) effects. Purchase of plain tulle, notably Brussels foundation, has been so large in Nottingham that prices have advanced considerably, and a rise of from 20 to 25 per cent. has taken place.

CALCUTTA.—The inquiry for baled jute has been slow, says a correspondent of the *Textile Mercury*, and prices may be quoted easier except for the better qualities, the demand for which is maintained. Shipments of jute and rejections only to Europe for the current month are estimated to reach the grand total of 525,000 bales. During the past week both the local and mofussil markets have shown an easier tendency, but on the week little change in price is visible. The quality of the stock in the bazaar is very poor, and any reduction in price is counterbalanced by the fall in quality. Business has been interrupted again by the native holidays. Prices of jute butts have declined to Rs. 9-12, at which rate a small amount of business has been done, both for quick and forward shipping. There does not appear to be much life in the market, for, although there is considerable inquiry, the position of freights for the next month keeps shippers from doing business. Covering business in sacks continues, and high rates have had to be paid for quick shipment. Hessians are quiet, and there is little or no business passing. Offers from America are much under present values here.

KIDDERMINSTER.—There is but little change to report. The slight improvement continues, says the *Shuttle*, but the prospect that used to gladden the heart of this time of year—of orders sufficient to keep the looms fully employed till the following May—no longer presents itself. Still, every day brings business, and, taking into account that the habit of placing orders so long in advance has not prevailed of late years, there is no lack of confidence. It is to be hoped that manufacturers will be able to find employment for their workpeople during the winter. The principal of one of the largest firms states to us his intention of "keeping on making—orders or no orders"—the spring opens. It is evident that he, at least, does not anticipate a falling off in the demand.

MANUFACTURE OF FRENCH MACHINE-MADE LACE.

The date of the manufacture of tulle in France is relatively recent, remarks the American consul at Rouen in one of his reports. It was unknown at the beginning of this century. Tulle, in fact, is only lace manufactured by machinery. Lace manufacture has been always a French industry. Chantilly, ALENCON, Velay, and Flanders have retained a celebrity for this branch of art which has survived the destruction of their workshops. The high price of lace and the increased consumption led to the fabrication by machinery to diminish its cost of production. To Nottingham is accredited the establishment of the first machinery for the manufacture of lace. The inventor was a man named Lee, who turned mechanic on account of a love affair. He came to France and presented his invention to Henry IV; he protected him, but the death of the king caused Lee to be forgotten, and he died of grief. The English workmen whom he brought with him returned to their country and established the industry which the French had disdained. The machines of Lee were improved, even in France, where, meanwhile, notwithstanding the encouragement of the Academy of Science, the inventors could not introduce their designs. In 1799, John Lindley, of Nottingham, discovered the bobbin, by means of which he could imitate the network of lace. In 1807, a workman named Heatcot discovered the hexagon mesh, which is the foundation of tulle. He joined Lindley and manufactured tulle on a large scale, and both realized fortunes. Other inventions rapidly followed. France, meanwhile, stood aloof, and tulle remained an English monopoly. Parliament forbade, under terrible penalties, anyone to divulge the secret of this manufacture to a foreigner. The transmission of a machine to the continent was punished with death. Such severe restrictions naturally produced the contrary effect from that which was anticipated; they aroused the cupidity of smugglers, who saw large profits in a contraband trade.

In 1815 or 1817 a machine was brought into France. Some say that in 1816, at Douai, Thomason & Co. brought a machine, carried from Nottingham by three Englishmen—Corbett, Blackter and Cutt; others say at Calais, in 1817, a machine was brought by Clark, associated with Benjamin and Webster, the latter of whom had inhabited Calais since 1815.

However this may be, Webster was known as the pioneer in tulle manufacturing at Calais, where he established his works at St Pierre, on the bank of the canal. After a brief interruption, he resumed business, in 1819, with Bonington, the father of the painter. In the same year five English workmen from Nottingham brought their machinery, piece by piece, and established themselves at Calais. The names of these men were James Clark, Richard Polhill, Thomas and Edmund Pain, and Thomas Danton. These five Englishmen were condemned to death for contumacy in having fraudulently taken out of their country a machine for manufacturing lace. They were pardoned only after the accession of George IV.

The industry was hampered on account of the difficulty and expense of procuring machines. These could only be brought in by pieces. The smugglers ran the blockade and landed at Boulogne-sur-Mer or at Calais. The smuggler assisted the trade also by bringing in the thread manufactured in England for the use of the lace manufacturer, the French spinners having succeeded in prohibiting the entry of thread. In spite of this continual struggle the number of factories increased; St. Pierre had four, Guines had a bleaching establishment and Calais had eight factories. This city seemed destined to become a lace centre, but the presence of the workmen and din of the machinery were so repugnant to these quiet citizens that, at their instigation, the mayor took such steps to restrain their movements and control their hours of work that they gradually moved toward St. Pierre, which was not within his jurisdiction. These works were dependent upon foreign workshops for their machinery till 1823, when two mechanics established a factory for the construction of lace machines.

From 1824 to 1826 tulle was all the rage. France and England realized enormous profits from this trade. The increase in the establishment of factories was very great; St. Pierre alone had twenty-three factories and eight workshops for the construction of

machines. In 1832 a violent crisis took place, owing, chiefly, to the excessive duty laid upon English thread. The number of factories by this time had increased to 323, of which 136 were at Calais, 109 at St. Pierre and 78 in the suburbs. Each factory had but two looms; the work was plain.

It was not long before an entire change was effected, and Calais became what it is to-day by the application of the Jacquard loom to the manufacture of tulle. This innovation took place in 1841. The crisis of 1834 had so reduced the number of factories that the number of manufacturers from 1834 to 1837 fell from 302 to 249, and the workmen from 2,680 to 1,594. Many emigrated with their looms to Russia, Belgium, Lyons, and St. Quentin. The application of the Jacquard system to the loom for tulle made by Ferguson and Martin arrested the decline of this trade. Steam had already come to the rescue, the first engine being applied to this use in 1839 at St. Pierre. Furnished with steam power and a loom admitting the execution of the most delicate designs, St. Pierre continued to prosper. The report at the time of the London Exposition in 1851 stated that St. Pierre had 130 factories and 500 looms, worth 10,000,000 francs, and nearly that amount of exports. At the Paris Exposition of 1855 the number of looms had increased to 610, against 3,500 of Nottingham; that of the workmen to 5,000, and the value of the product to 15,000,000 francs.

Treaties of commerce gave another impetus to this trade by permitting the entry of thread at a lower rate, and new markets opened up. In 1862 the superiority of the French manufacture over that of England was recognized by the fact that Great Britain bought in that year 26,000 kilograms, having increased the amount from 3,600 kilograms in 1860. In 1870 the number of looms was 939, valued at 15,000,000 francs. After the war the impetus was still greater, and at the time of the exposition of 1878 St. Pierre had 1,506 looms, moved by 80 engines, belonging to 80 manufactories. The value of the plant was 40,000,000 francs, the annual output 60,000,000 francs, and the number of workmen employed 10,000. The prosperity of St. Pierre seemed assured, when a new crisis arose in 1885. It was expected that the lace called Chantilly would rule the market, and large quantities had been manufactured and stored in 1884, with a view of anticipating the presupposed demand. A sudden and unaccountable change of fashion gave preference to a woolen lace manufactured at Velay, Auvergne and Forez. There were large surplus stocks, consequently, held in nearly all the houses. The loss was very great.

AUSTRALIAN WOOL TRADE.

Fuhrmann & Co., Ltd., of Melbourne and Sydney, report to THE CANADIAN JOURNAL OF FABRICS as follows, under date October 26th. "A wool sale was held in this city on the 17th October, in the presence of a full muster of buyers from both Europe and North America. Competition was very keen, especially from the English and French quarters. The American buyers, too, showed a marked desire to secure suitable lots, and a few thousand bales have been purchased for that destination. Prices for good greasy merino and crossbred wools showed a fall of $\frac{1}{2}$ d., and for medium and faulty wools a fall of $\frac{3}{4}$ d., on last year's opening rates. At this level the demand has continued very brisk, although prices for raw wool here seem to be above present European parity for tops. The catalogues submitted so far have been rather small, as the season is a fortnight behind last year's, owing both to shearers' strikes and the heavy rains that have fallen recently throughout Victoria. Our clip may be called a good average one, and it compares favorably with last season's, as far as the sound growth of the Victorian wools is concerned. However, most of the Victorian parcels offered for sale up to the present appear to us somewhat heavier in the grease than last year, and the same may be said from some of the Central and Western Riverina districts. The Central New South Wales wools are expected to open up in light and good condition, whilst the Northern wools are of a poorer growth than last year, and often more infested with burr. So far, 23,000 bales have been catalogued in Melbourne and Geelong, of which 20,000 bales sold. It is rather early to predict the probable production for the statistical year, 1894-1895, but there is a general impression that an increase of 5 to 7 $\frac{1}{2}$ per cent. on last season's export figures may be looked for."

LITERARY NOTES.

"*India as a Field for Industrial Enterprise*;" published by the *Indian Engineer Co.* of Calcutta and 28 Victoria street, London, S.W., England. Price, 1s. India, during the last decade or two, made wonderful progress, and the possibilities for still greater progress in the future are gradually becoming better known among European, and especially British capitalists. With each new development, however, the field of possibilities seems to become still more enlarged and more varied in its nature, and it is in order to show forth this multitudinous variety of openings that this interesting little pamphlet has been published. In a country of immense proportions like India, a land containing one-fifth of the whole population of the globe, the first *desideratum* is, as might be expected, good and cheap transportation. The chief natural arteries of the country are the rivers Indus and Ganges, and it is within comparatively recent years that the railways, which mean so much and in the future will mean so much more for the proper opening up of India, have been built. The total length of railroads open in May last was 18,554 miles, but it is stated on good authority that India wants 10,000 miles of new railway per year for some years to come. For some time back the yearly average has been only 464 miles, so it will be seen what an immense opportunity presents itself in this field alone. Immediately in connection with transportation facilities comes up for consideration the subject of manufacturing enterprises, and on this matter it is extremely difficult to know where to begin, the requirements being great in so many different directions. Perhaps the most pressing wants, however, are factories for making up jute and cotton goods, and for the manufacture of machines, tools of all kinds, agricultural implements, etc. But for a more detailed and extended review of the possibilities in these various lines, we must refer our readers to the pamphlet itself, which they are sure to find of the greatest interest.

The *Canadian Almanac* for 1895 is to hand, and we must congratulate the publishers, the Copp Clark Co. (Ltd.), Toronto, on the improved appearance of their 48th annual issue. The statistical and directory portions of the almanac will be found as usual accurate and up-to-date, but besides these the publishers have been fortunate in securing an article from Dr. J. G. Bourinot, on "Canadian Parliamentary Procedure." The Doctor, who is a world-wide authority on such matters, describes in plain language the work of a session, and tells us how our laws are made. The series of articles on "Defences of Canada" will be found interesting. They comprise "H. M. regular forces in Canada," "H.M. ships on our coasts," "The Royal Military College," "The defences of Esquimalt," and "The fisheries protection service." A timely article on the "Canadian Sault Ste. Marie Canal," with a map of the district, will be found of interest. Statistics of all the British colonies and possessions throughout the world are given, with a map of the world, showing British territory shaded. A study of this list shows to what a great and powerful nation we belong.

The *Christmas Century* is a more than usually striking number. A special cover containing a new and artistic design, printed in colors, first meets the eye. Of the illustrations twenty-five are full-page, and of these nine relate either to the religious or domestic festival. There are Christmas stories by Sarah Orne Jewett, Grace Wilbur Conant and Ruth McEnery Stuart, and other stories, essays, poems, and miscellany relating to subjects more or less closely allied to the season. The most interesting feature of course is the second part of Prof. Sloane's *Life of Napoleon Bonaparte*, in which he deals with Napoleon at the beginning of the Revolution, and continues the detailed study of the Corsican period, the fulness of which is one of the features of this work. This part is illustrated by portraits and by pictures drawn by Castaigne, Pape and others, and begins at once to reflect the romantic and picturesque phases of Napoleon's life. Mr. Cole, the American engraver, continues his illustrations of European art with three beautiful woodcuts after paintings by Van Dyck. The second part of Marion Crawford's new novel, "Casa Braccio," sustains the interest with much action and with a further glimpse of the content of which his heroine is an inmate. This number also contains

Rudyard Kipling's first American story. It is in a wholly new vein and is entitled "A Walking Dolezate," the characters being horses, each of whom speaks in the dialect of his own particular breeding ground. There is also a timely article on the Italian Premier Crispi by J. W. Stillman, the American art critic and correspondent in Rome of the *London Times*.

A WONDERFUL CARPET

There is in existence, belonging to the Emperor of Austria, a carpet which has no equal in the world. It is only eight yards long by three and a half yards wide, but the South Kensington (London) Museum has offered \$125,000 for it in vain. It is of pure silk interwoven with gold and silver threads, as a tapestry weave, and old weavers who have seen it are quite non-plussed to describe its construction. It is all very well for the usual textile writers to give glowing accounts of holy and prayer carpets, but this one would require all the experts of Yorkshire and Philadelphia combined to scratch their heads before finding one single idea how its construction has been performed. If a venture can be made of the how and the why, it would appear that four weavers must have been working at each corner at the same time. Each corner has a pair of dragons and a pair of phoenix birds in the most lovely plumage. The centre is composed of four pairs of dragons and four pairs of birds. But this is as nothing compared to the intervening space between the four corners and the centre. Imagine, without unduly crowding, groups of huntsmen on horseback, pursuing animals of all descriptions, lions, boars, gazelles and hares; in a word, the big and the little game; the riders armed with bows and arrows. The peculiarity of the drawing, or design, is that all the objects do not appear as woven, but as if cut out specially and gummed on to the ground without any connection whatever with each other. To add further to the mystification, the groundwork is made up of flowers in the most extraordinary shapes in singular dyes, and further branches and blossoms intertwine among animals and hunters. This is the weak point, according to our knowledge of prospective, because it conveys the idea that the event must have taken place in an extensive field of flowers. This carpet has three borders, the broadest, in the middle, consisting of winged genii, some kneeling, and others sitting cross-legged, always arranged in pairs, one facing the other, and one of the two presenting a cup to his companion. Each group is surpassed in beauty by the next and divided by birds in gorgeous colors. The smaller borders are rich with heads of animals, each with an individual expression; but enough has been said about this extraordinary specimen of the textile art. It may be possible, with all our facilities in improved machinery and with talented designers, to approach if not rival such a production, but who would pay the cost or encourage such a work of art?

A REEL or drying machine for ageing yarn dyed aniline black must be of a peculiar or special construction, for the motion of the reel must always be moderate and around some heated body, so that the temperature remains uniform at all times. A good fan is necessary to obtain good results, and it must be located in such a manner that only the bad air is expelled, without influencing the temperature of the machine.

A RELIABLE cement that will resist the action of water and acid, especially acetic acid, is composed of three quarts each by measure of finely powdered litharge, fine dry white sand and plaster of Paris, and one quart finely powdered resin. Mix them and make them into a paste with boiled linseed oil, to which a little drier has been added; after which let it stand for four or five hours before using. After fifteen hours it loses strength.

A DYE vat is reported to have been constructed, in which a constantly circulating motion is obtained while the bath is being heated. The steam is conducted from below up through the axis of a central cylindrical pipe, and the material to be dyed is packed on a double bottom around the pipe. The steam in the pipe has the same action as in an injector, heating the dye-bath round about and imparting a rapidly rising motion to the dye liquor, which falls over on the material when it reaches the top of the pipe.

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Among the Mills

The Alliston, Ont., woolen mills are to be lighted by electricity.

Clarksburg, Ont., woolen mills have closed down indefinitely.

Wm. Hauck has set up a carpet-weaving establishment at St. Jacobs, Ont.

Manager Hewton, of the Kingston Hosiery Co., has returned from a business trip to Boston.

Abraham Goldstein contemplates establishing a new water-proof factory in Vancouver, B.C.

The shoddy mills at Breslau, Ont., are crowded with orders, and the hands are working overtime.

The Farmers' Binder Twine Company, of Brantford, Ont., has just declared a dividend of 10 per cent.

Wildbur & Moss, Belleville, Ont., are thinking of establishing next spring a new weaving mill in that city.

It is reported that Harding & Son are about to erect a shoddy mill with six carding machines in Simcoe, Ont.

Smith Bros., Sarnia, have reopened their woolen mill in order to make up the stock left in the mill at the time of the failure.

The Consumers' Cordage Company's works at Brantford, Ont., have resumed operations after having been closed down for some time.

J. C. Dixon Bros., worsted manufacturers, Dundas, Ont., have suspended business for a few days, owing to the foreclosure of a mortgage.

Mr Davis, manager of the Merriton, Ont., cotton mills, is applying to the local water commissioners for a special service for the dye-house.

Charles Turnbull, of the Chas. Turnbull Co. (Ltd.), knit goods manufacturers, Galt, Ont., has been elected a member of the Toronto Board of Trade.

The Niagara Neckwear Co. of Niagara Falls, Ont., are applying for incorporation for the purpose of manufacturing neckwear. Capital stock, \$20,000.

Charles Ferrill has severed his connection with the Homestake Woolen Mill and left for Ottawa. His position will be filled by Wm. Bennett, of Carleton Place.

Some comment was caused in St. Stephen, N.B., by the action of the St. Croix cotton mill in closing on the American Thanksgiving Day but keeping open on the Canadian holiday.

Stagg Bros. are putting the finishing touches to their new hair-cloth factory at St. Catharines, Ont., and it is hoped that the mill will be in operation about the beginning of the new year.

A fire broke out in the floor of the machine shop at the Kingston cotton mill last month. After some difficulty in reaching it, it was put out by the firemen before much damage had been caused.

The rubber factory at Port Dalhousie, Ont., have orders in hand sufficient to keep them working till the spring. About 200 hands are employed. There is talk of a removal of the factory to Thorold.

The smoke-stack of No. 2 woolen mill, at Almonte, Ont., caught fire last month in two or three places and was burned through. The consequence would probably have been serious had not the trouble been noticed in time.

D. Williams, J. Chamberlain, F. F. Telfer, H. Y. Telfer and Minnie Hulbert, all of Collingwood, Ont., and H. J. Hurlburt, of Mitchell, and A. G. Campbell, of Winnipeg, are applying for incorporation as a company for the purpose of manufacturing all kinds of hosiery and knit goods in Collingwood. Capital stock \$11,000.

Harry A. Yuille, formerly with Duncan Bell, manufacturers' agent, Montreal, will, on the 31st inst., sever his connection with him and will start in business for himself in Toronto as manufacturers' agent and dry goods merchant.

At Granby, Que., some days ago, the mayor, Mr Miner, on behalf of the Rubber Co., handed the secretary-treasurer a cheque for \$15,330, being the par value of stock held by the corporation in that company and a balance of interest.

The Wellington Carpet Co., Guelph, Ont., report that business is reviving in their line. They look forward to being very busy from now until the spring, and altogether they think the outlook is much brighter than it has been for some time.

John Bain, of the Elora woolen mills, was called away very suddenly a short time ago to attend the funeral of his brother-in-law, Thos. Strachan, of Toronto, who was accidentally drowned by falling from the Don bridge.—*Waterloo Chronicle*.

Jan. P. Murray, of the Toronto Carpet Co., who, as reported in THE CANADIAN JOURNAL OF FABRICS recently, has established a branch factory in the United States, thinks he will be able to carry on a good trade with Australia, and he is now exploiting the market.

Thomas Wayman, principal of the well-known firm of Wayman Co., Halifax, England, and Philadelphia, Pa., who make English and Welsh Pick lambs' wools and Downs' wools their specialties, has been on a short visit to Canada. Their Montreal agent is Robt. S. Fraser, of 3 St. Helen street.

The action of Wm. H. Priest vs. Feodor Boas, President of the Pike River Mills Co. (Ltd.), mention of which was made in our last issue, has been dismissed by the judge, the court holding that even admitting the alleged claims of the plaintiff, the defendant could only be compelled to pay the company and not him.

The machinery and assets of the Royal Corset Co., Sherbrooke, Que., which recently went into liquidation, have been sold to W. B. Griffith at 45½ cents on the dollar. Mr Griffith is forming a new company to carry on the business, which once was a very prosperous one and employed about fifty hands. The purchase price was \$23,000.

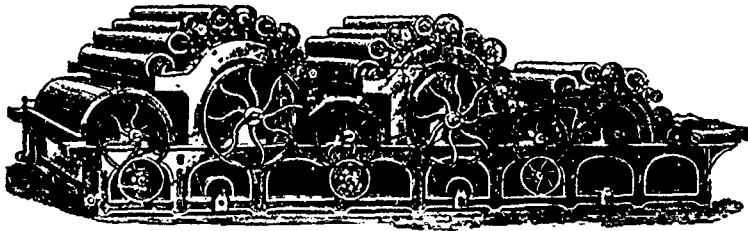
Darius Allport, woolen manufacturer, Smith's Falls, Ont., contemplates moving his woolen mill from that town in the spring. Mr Allport has no quarrel with Smith's Falls, but since the second electric light company has started operations he is unable to run his mill steadily, owing to low water, and wants a site where he will have constant water and a good custom trade.

Jan. Kerwin, water-wheel tender in the Canadian Colored Cotton mills, Montreal, was found dead one night last month in the weave-shed with the back of his head broken and his left leg crushed to a pulp. It is supposed that while in the act of stepping over the big belt he was caught by another belt which runs the electric light dynamo, and was carried over the shaft. He leaves a wife and family.

Wm. Tyo, a young man employed in the dyeing room of the Stormont Mill, Cornwall, met with a serious accident last month. He was helping to tighten a belt when he was caught by the pulley and whirled several times around the shaft. His arm was broken in several places and he was badly bruised from head to foot. He is now gradually recovering, but his escape from death was a very narrow one.

The Supreme Court has confirmed the judgment of the Court of Appeals in the action brought by Oelrichs & Co. against the Trent Valley Woolen Co., Campbellford, Ont. The suit grew out of a difference in opinion as to whether wool imported on order should be approved in New York or Campbellford. The sale was made in New York, and the wool was shipped to Canada, and the buyers were notified of its arrival and requested to examine it; they demanded that the wool be shipped to the mill for approval, and the importers refused to do this. The wool was finally sold at a loss, the market having fallen, and suit was brought to recover the loss. The Lower Court gave judgment in favor of defendant, but on appeal this decision was reversed. The Supreme Court has confirmed this, as noted.

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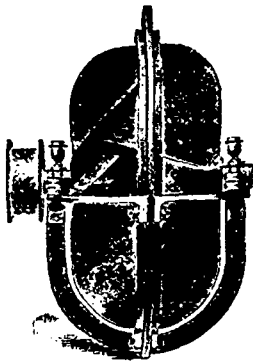
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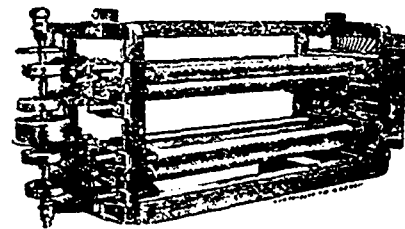
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*Are in successful operation on all grades of stock, being generally
adopted because they change carding and spinning
rooms for the better.*

James Barker, Cotton and Woolen Machinery

Second and Somerset Streets, PHILADELPHIA, Pa.

John Baird proprietor of the woolen mill at Ramsay Ont died last month at the age of 74 years. He had been ill for nearly two years and had not been able to attend to business for some months past. He was born in Glasgow Scotland and came to Canada with his parents over sixty years ago. He had owned the woolen mill about twenty-two years having purchased it from Gilbert Cannon.

The Dominion Cotton and the Colored Cotton Companies have decided to send a special traveller to Australia in order to push Canadian trade with that colony. The gentleman appointed is H McLaren, who has already visited and has a general knowledge of that country, and there is every prospect of his meeting with success in the new enterprise. Mr McLaren will perhaps also visit South Africa.

We regret to announce the death of Thos. Birss Ross, which took place at his home in Montreal a week or two ago. Mr. Ross was 63 years of age, and had held the position of secretary-treasurer to the Dominion Cotton Mills since 1883. The cause of death was heart failure. He leaves a widow but no children. The vacancy in the office of the cotton mills will be filled by P. C. Shannon, who has been with the company for about thirteen years.

In the boodle investigation, in which a number of Toronto aldermen have been mixed up, an attempt was made by certain parties to implicate the name of Alderman John Hallam in connection with stock he contemplated taking in the Toronto Street Railway. Fortunately for Mr. Hallam, these attempts have completely failed, as he has shown that his transactions have been all entirely above-board. It is satisfactory to know that the textile trades are not represented in the boodle element of the Toronto city council.

H A Stillman, representing the Virgil Wallace Co. Nashua, N. H., has been on a visit to Montreal in the interest of the Wallace Moistener, the object of which is to distribute cool, moist air throughout textile mills. Mr Stillman would be pleased to hear from mill-owners interested in this useful little apparatus. We understand he has appointed Robt S Fraser, 3 St. Helen street, Montreal, as agent for the introduction of the Moistener into Canadian mills.

In the November issue there was a note to the effect that some weavers at the Empire Carpet Works St Catharines Ont had gone out on strike. Jas H Etherington proprietor of this well-known carpet factory, draws our attention to the fact that this was an error. The strike was in the Garden City Carpet Works, S Syer, proprietor, and the weavers at the Empire works were not out at all, being satisfied with the present wages, which had not been reduced since June 1st. Mr. Etherington also informs us that Henry King, of Hamilton, a widely known knight of the road, is now carrying the "Empire" goods through the North-West.

On the Queen's Birthday some articles to the value of \$300 were stolen from Muir's woolen mill at Exeter, Ont., and for a long while the perpetrators of the robbery remained undiscovered. Within the last month, however, the efforts of the detectives have been rewarded with probable success, Edward Shouldice, Wells Shouldice, and John Hodgins, three men living in the neighborhood, having been committed for trial on a charge of breaking into the mill. The suspects were found in possession of clothing evidently made from cloth which had been stolen from the mill. A sensation was caused when the case came up in the county court at London. The prisoners, on being arraigned, pleaded not guilty.

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and the empanelling of a jury was begun. Several men were ordered by the Crown to stand aside, and two were challenged on behalf of each of the accused. When John Mawson, of M-Gillivray township, was called on as the eleventh juror, Mr. Magee, for the Crown, said: "I challenge this juror for the cause that he had been offered a bribe if he would stand firm in Hodgins' favor if selected on the jury." Mawson was placed in the box, and, under examination, admitted that he had been approached recently by Nicholas Faulder and asked to stand out in favor of Hodgins' acquittal. He had been offered money if he would do so, but gave Faulder no encouragement, and told no one of the occurrence. Faulder was a brother-in-law of Hodgins. The court decided that Mr. Mawson was competent. When the case came up for hearing, it was found that jurymen Mawson was too deaf to properly hear the evidence. He was therefore relieved from duty, and the case postponed till the June sessions.

RAW FUR MARKET REPORT.

Montreal, Dec. 11th, 1894.

The market is rather quiet, and the prospects for shipping furs are not very bright. Small quantities of furs are being brought in, which are selling at about the following quotations:—

Beaver	\$3 50	to \$4 00	per lb.
Otter	9 00	" 12 00	each.
Mink	1 00	" 1 50	"
Marten	1 00	" 1 25	"
Fisher	3 00	" 5 00	"
Muskrat, winter.....	0 08	" 0 12	"
Red fox	1 00	" 1 25	"
Raccoon	0 20	" 0 60	"
Skunk	0 20	" 0 60	"
Lynx	1 75	" 2 50	"
Black bear, large	12 00	" 18 00	"
" small	5 00	" 10 00	"

WOOLEN MILL WANTED.—Wanted, a one-set Woolen Mill for local trade. Must be permanent water power and have good local trade. Address, with particulars, Box 142, Smith's Falls, Ont.

ENGLISHMAN, now residing in United States, thoroughly practical in the manufacture of Marseilles crochet, Mitcheline quilts and Turkey red table covers, is desirous of meeting capitalists who are willing to put capital against experience, or would superintend new place in a stock company, if compensation is satisfactory. No objection to any location, and is willing to learn inexperienced help and guarantee better results than any other manufactured fabrics. Address P.O. Box 267, Beverly, New Jersey, U.S.A.

WANTED—By a Maritime Province mill—a piece sewer and mender. None but a first-class hand need apply. Good wages will be paid. Address Box 7, JOURNAL OF FABRICS, Fraser Building, Montreal.

CHEMICALS AND DYESTUFFS.

The market has been quiet since the close of navigation. Prices quoted as follows:

Bleaching powder.....	\$ 2 20	to \$ 2 50
Bicarb soda.....	2 25	" 2 35
Sal soda	0 70	" 0 75
Carbolic acid, 1 lb. bottles	0 25	" 0 30
Caustic soda, 60°	2 30	" 2 50
Caustic soda, 70°	2 60	" 2 75
Chlorate of potash.....	0 18	" 0 20
Alum.....	1 40	" 1 50
Copperas	0 70	" 0 75
Sulphur flour.....	1 75	" 2 00
Sulphur roll	2 00	" 2 10
Sulphate of copper.....	4 00	" 5 00
White sugar of lead	0 07½	" 0 08½
Bich. potash	0 10	" 0 12
Sumac, Sicily, per ton	70 00	" 75 00
Soda ash, 48° to 58°	1 25	" 1 50
Chip logwood	2 00	" 2 10
Castor oil.....	0 06½	" 0 07
Cocconut oil	0 06½	" 0 07

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Benzopurpurine	Direct Green	Direct Blues for Cotton and Wool
Chrysamine	Melantherine (Black)	Benzoazurine
Erika	Rose d'Algere	Direct Black
Direct Browns	Kanthrosine	M. & M. Patent One-Dip Black
Chrysophenine	Diamine Blue	Direct Sky-Blue

The latest new fabric is one in which the novel feature is that threads of aluminum or of its alloys are interlaced with the materials used, indeed in some cases the fabric is composed of aluminum altogether. Gold and silver threads have been employed in the manufacture of fancy cloths, as is well known, but only or principally for the purpose of ornament and not as a means of insuring greater strength and durability. The present invention provides a practically non-oxidizable, inexpensive metal that can be utilized in quantities in cheap cloth, and which can be washed without fear of injury. It is claimed that cloth made wholly or partly of this material will be free from chemical action, as few substances affect it. An attractive lustre is obtained, which renders the fabric very ornamental, and there is the additional advantage of the metal being equally applicable to the finest fabrics and to the heaviest. The wire or threads can be drawn to any degree of fineness, so that it may be employed in combination with silk, linen and the like. It may also be drawn round, flat or in any other form convenient for weaving.

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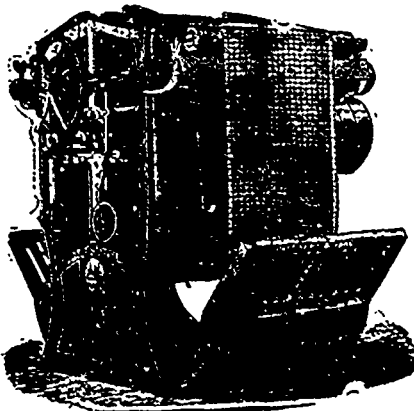
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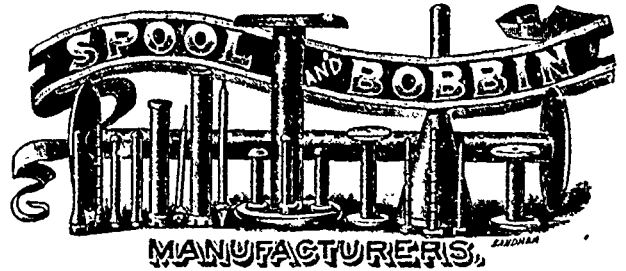


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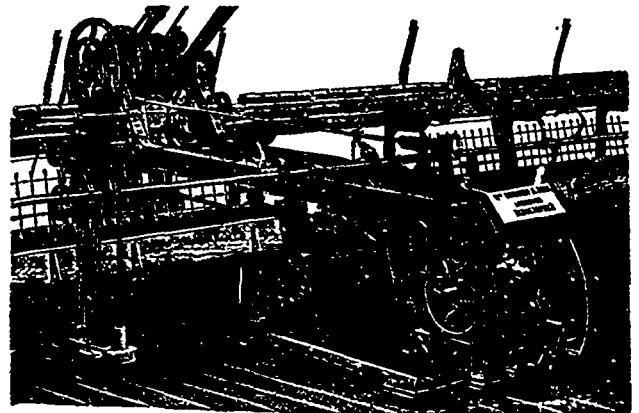
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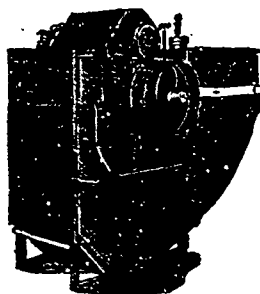
Card Clothing, Loom Reeds, Leather Belting



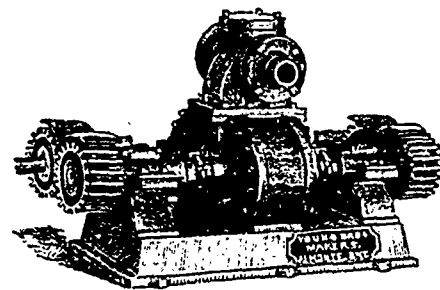
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PAPER CONES & TUBES FOR CONE WINDERS.
LOWELL... MASS.

THE WOOL MARKETS.

The last series of Colonial wool sales in London for the year opened on November 22nd, when the offerings were of medium quality while the new clip of Queensland was poor. There was nothing suitable for American buyers, and they did nothing. France bought very little. The home and German trades were the chief operators. Prices were 5 to 10 per cent. lower for merinos, 5 per cent. lower for crossbreds, and $7\frac{1}{2}$ to 10 per cent. lower for Cape, which were largely withdrawn. The prices obtained were as follows: New South Wales greasies at $4\frac{1}{2}$ d. to 6d.; Queensland greasies at $4\frac{3}{4}$ d. to $8\frac{1}{2}$ d.; Victoria greasies at $4\frac{1}{2}$ d. to $7\frac{1}{2}$ d.; New Zealand greasies at $4\frac{1}{2}$ d. to $9\frac{1}{2}$ d.; Cape greasies $4\frac{1}{2}$ d. to $6\frac{1}{2}$ d. There was an average decline of $7\frac{1}{2}$ per cent., felt mostly in the lower grades, which were distinctly weak. The decline was principally due to unfavorable cablegrams from Australia.

As the sales progressed Cape wools were bought more freely, and some good parcels of these and American wools were taken for America. At the time of going to press prices were reported firmer.

As might be expected at this season of the year, the local wool markets in Canada are very dull. The disturbing feature of the market is the fresh importation of American wool. When the shipments of American wool to the Canadian market ceased some months ago, it was thought that a heavy reflux would take place the other way on the new United States tariff coming into force. Especially was this to be expected as the movement of wool was so unusual. As we have reported, a good deal of wool was shipped to the States, but the movement on a large scale suddenly ceased, and now we have a new aspect of affairs—that of a dribbling business in Canadian coarse wools going to the States, and of the finer American wools coming to Canada. Whether this will have any permanency remains to be seen. What has been brought in here has been of the Idaho, Oregon and Montana type, and is being used in flannel and hosiery mills. One manufacturer has bought about 200,000 lbs., and other purchases have been reported, some of this wool being bought as low as 9 cents a pound. This was of a grade that would sell in Canada at $10\frac{1}{2}$ cents. It is what would be called "off" wool here, and in which there is a heavy shrinkage in the manufacture. Very few lots of Ontario wool are coming into the Toronto and Hamilton markets, and prices are quoted nominally as follows: North-West, 10 to 13c., according to grade; fleece, combing, 18 to 19c., clothing, 19 to 20c.; rejects, 15c.; pulled super, 18 to 19c.; extra super, 20 to 22c. Prices in the Montreal market are quoted: Greasy Cape, $13\frac{1}{2}$ to 16c.; Canadian fleece, 17c. to 20c.; B.A. scoured, 26 to 32c. In Canada pulled wool, 20 to $21\frac{1}{2}$ c. is quoted for supers, extra 23 to 26c.; Northwest wool, 11 to 12c.; B.C., 10 to 11c.

RECENT CANADIAN PATENTS.

T. Surprenant, and A. V. and L. A. Dufresne, all of Montreal have patented a weaving loom.

J. Jordon, St. Henry, Que., has patented a stop motion for looms, the arms of which are fixed to contiguous portions of the loom.

F. S. Pinkham, Everett, Mass., has patented an improved form of pleated goods in which the edges are united at intervals by metallic clasps, which keep the edges separate from one another. The clasp, which is also patented, consists of a pliable metallic strip having a V-shaped central portion adapted to enter between the two folded edges of the cloth, and having turned-over ends, which co-operate with the upper ends of the V-shaped portion to nip the folded edges, thus permanently holding the material in a folded position.

Edmund Rice, Chicago, has patented a combined military garment and belt. It is composed of a belt with a body portion and provided with flexible flaps, which, when extended, form a garment and lie contiguous to the body portion. Short straps are attached to the belt for the purpose of securing the flaps or extensions into position when folded, and there are also devices for fastening them when required as a garment.

J. E. Garrett, New Glasgow, N.S., has patented a stamp for printing embroidery patterns on osnaberg or coarse textile material.

Alfred B. Hunt, Brooklyn, N.Y., has patented an umbrella in which the cover is provided with a split spring sleeve closed at one end and adapted to be placed over the head section of an umbrella rib, by which means the sleeve will accommodate itself to different sizes of ribs and will automatically clamp the rib.

A. S. Simons, Port Chester, N.Y., has patented a wide hemmer. The presser foot has the usual needle-hole, curling finger and curling recess, together with an indented entrance, an oblique passage way extending inward from this entrance, and a solid separator, the left edge of which is in exact line with the needle hole. There is also an adjustable fold-cage supported by the toe of the foot and having an effective portion which extends to the rear beyond the needle-hole, in a line parallel with the straight edge and with the line of feed.

H. S. Wedmore, Guilford, Conn., has patented a hook and eye in which the bill of the hook is extended down into the plane of its shank, and between two opposite parts of the shank, leaving a sufficient space between the bill of the hook and the opposite parts of the shank for the passage of the sides of the eye, the bight of the hook forming an enclosure round the eye when the latter is engaged in it, against the removal of the eye from the hook, so long as the eye and the hook occupy the same place.

Alex. Strauss, New York, has patented a method for making elastic fabric, which consists in stretching a woven fabric diagonally in one direction, and fixing it in such a condition by a vulcanized sheet or layer of India rubber being attached.

F. A. Mills and James Mundell, both of Philadelphia, Pa., have patented a sewing machine in which the needle-carrier is torked at each end and loosely mounted on a pivot pin. A needle guide is fixed in the fork of the carrier, in connection with a pitman rod mounted on the other fork.

P. B. Southworth, San Francisco, Cal., has patented a buckle, comprising oppositely disposed Y-shaped side-pieces with upper upwardly inclined arms having their ends connected by cross-bars, a lower bar connecting the lower reduced ends of the Y-shaped side pieces, and a central upper bar, extending from the crotch of one side-piece to that of the other and having an upwardly projecting stud, the bar carrying the stud being below the level of the cross-bars connecting the ends of the arms of the side pieces.

A. J. Mitchell and J. Hidy, both of Washington Court House, O., have patented a movable quilting frame to connect with a sewing mechanism.

D. McDougall, Alexandria, Ont., has patented a washing machine. The sud trough contains an internal false bottom, and the washboard is hinged to the end of the former and opens outwardly so as to release the latter.

TRADEMARKS.

The Brainerd & Armstrong Co., New London, Conn., have taken out a trademark for thread, cord and twist of silk, cotton, wool, worsted and other fibre for embroidery, knitting, sewing, etc.

The Montreal Silk Mills Co. (Ltd.), have taken out a trademark for knitted or woven underwear and hosiery of all kinds made in pure wool, silk, silk and wool, or other combinations

AN ad. is like a man—you want to see it several times and grow a little acquainted with it before you take much stock in it.—*The Trade Press.*

JAMES LESLIE & Co., Montreal, are now manufacturing what is claimed to be the only water-proof leather belting in this market that successfully stands all practical tests, and which is guaranteed under all conditions of service. The leather is made impervious to moisture and all atmospheric changes. The preparation will not evaporate, while the belt remains soft and pliable, thus adding greatly to its adhesion and transmission of power. This belting is also oil-proof, making it superior to others for electric dynamo driving.

AMERICAN COTTON CROP.

The amount of the crop marketed in September was 142,918 bales larger than in that month last year, and 131,639 bales larger than in September, 1892. Including the movement to October 5, there has come into sight a total of 925,851 bales as against 743,759 bales for the corresponding period last year. Northern mills last month took 173,667 bales, or 65,229 more than in September, 1893, and 19,403 bales more than in that month in 1892. Exports for the month were 202,673 bales, and for the season to October 5, inclusive, aggregated 323,558 bales against 235,845 bales for the corresponding five weeks of 1893. The world's visible supply of cotton is now 2,211,538 bales, of which 1,844,438 bales are American, as against a total of 2,346,308 bales, of which 1,980,108 bales were American, a year ago. Weather conditions have been generally favorable.

LACTIC acid in wool dyeing and calico printing, instead of tartaric acid, is now coming more largely into use on account of its being much cheaper than formerly. It gives good results with a chrome mordant, and less of it is required than of tartaric acid.

THE total catch of fur seals for the season of 1894 is given as 85,048 skins, the approximate value of which is over a million dollars, the largest in the history of the industry. Last year, when there were more vessels engaged, the catch was only about 70,000.

THE Wholesale Dry Goods Association held their annual meeting in Montreal on the 12th inst., and elected the following officers. President, A. A. Thibaudeau; Vice-President, E. B. Greenshields, Treasurer, Wm. Reid; Board of Directors, R. L. Gault, Wm. Kissonck, S. O. Shorey and James Slessor.

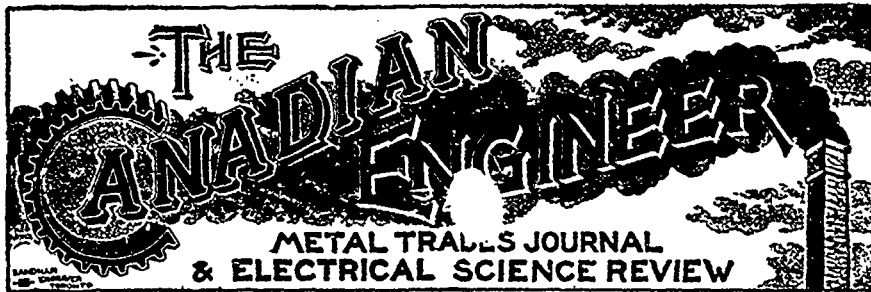
JACOB Y. SHANTZ & Co., button manufacturers, Berlin, Ont., are working overtime, owing to press of orders. A company is applying for incorporation under the name of Jacob Y. Shantz & Son, Ltd., with a capital stock of \$140,000. They will carry on the business of the above as manufacturers of buttons and ornaments.

J. PERRAULT & Cie, dry goods merchants, Montreal, have asked for a meeting of their creditors on the 22nd inst., with a view to submitting a statement of their affairs. The liabilities are \$64,000.

To give greater strength to ropes, particularly in localities where the atmosphere is detrimental to the fibre, the following plan is suggested: Dip the rope when dry into a bath containing 20 grains of sulphate of copper per litre of water. Soak in this solution for about four days and then dry. The ropes will thus have absorbed a certain quantity of sulphate of copper, which will preserve them a long time both from the attacks of animal parasites and from rot. The copper salt may be fixed in the fibres by a coating of tar or by soapy water, and in order to do this it may be passed through a bath of boiled tar, hot, drawing it through a thimble to press back the excess of tar, and suspending it afterward on a staging to dry and harden. In a second method, the rope is soaked in a solution of 100 grams of soap per litre of water. The copper soap thus formed in the fibre of the rope is stated to preserve it even better than tar.

UNDERWEAR is now made in Paris of peat. This sounds like a joke, but there is nothing of the Munchausen order about it, says a French paper. It has been known for some time that peat has certain antiseptic qualities. A dead body which was buried in peat for over a century was found in a state of perfect preservation. Peat is used in the northern countries of Europe for surgical bandages, and the favorable results obtained by the Russian surgeons with peat bandages have induced the French army department to use it in the French hospitals. It has also been found that peat fibres, in combination with other material, possess wonderful absorbing properties. This has led Dr. Rasurel to use peat fibres for the making of underwear in the place of flannel. The new material has proven very effective, absorbing perspiration and rapidly drying. Dr. Rasurel calls his fabric a "real hydraulic pump," and pronounces it an excellent preventative of chills. The new textile is said to be already largely used in France.

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The success of the *Canadian Engineer* has been unprecedented in the history of trade journalism in Canada, for not only was it encouraged and assisted from the start by able Canadian writers in the various branches of engineering, but it achieved what was still harder to accomplish—a sound financial position within the first year of its existence. The number of subscriptions received, and the number of firms who have sought the use of its advertising pages, have justified the publishers in twice enlarging the paper in its first year, and preparations are now being made for a further enlargement. It is hoped, by this increase, to make it twice its original size. While this will mean a large growth in advertising

patronage, it will also mean a greater variety of reading matter and illustrations for our subscribers.

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WALTER BLUE, clothing manufacturer, Sherbrooke, Que., has bought a plot of land, upon which he will build his new clothing factory.

THOS. KELLY, dry goods merchant, Peterborough, has assigned to John Ferguson, of Toronto. Liabilities, \$20,000, assets, \$13,000.

RUSSELL, GARDNER & RUSSELL, wholesale dry goods dealers, Ottawa, have decided to go out of business, and are now selling off their stock.

F. X. MARTIN, Hull, Que., dry goods merchant, is seeking a compromise with his creditors. The assets and liabilities are each about \$30,000.

MENZIE, TURNER & Co., window shade manufacturers, of Toronto, have taken over the good will, plant and stock of the Macfarlane Shade Co. (Ltd.), and will carry on the business.

A SERIOUS fire took place in Winnipeg last month, in which, besides a large number of other buildings, Wright Bros.' dry-goods store was burned and stock damaged to the extent of \$50,000.

THE Simpson Co., furniture and upholstery manufacturers, Berlin, Ont., are about to erect a five-storey warehouse adjoining their factory.

SAULNIER'S new factory in Truro, N.S., for the manufacture of soft and hard felt hats, is now in operation. Already large orders have come to hand, and it is expected that a large business will be done.

JOHN MACDONALD & Co., wholesale dry goods dealers, Toronto, have cut the wages of their employes twenty-five per cent. There is some anxiety in the city trade as to whether this example will not be followed by other wholesale houses.

R. R. STEVENSON, of the firm of Stevenson, Blackader & Co., dry goods commission merchants, Montreal, has returned from a trip to Europe. Mr. Stevenson looks the picture of health, and his friends will be glad to greet him again.

AMONG the new firms which are opening in business in Montreal is that of K Ishikawa & Co., 23 St. John street. They will carry on a business in Japanese silks, rugs and matings, and will import direct from the "Land of Flowers."

AT the annual sale of furs at Bobcaygeon, Ont., which took place on the 2nd inst., about \$1,500 worth of fur was sold, the three chief buyers being Mr. Bowerman of Toronto, Mr. Stern of Kingston, and an American. Only two wolf-skins were put up.

C A. Dumaresq & Co. (Dame Caroline Crowhurst) wholesale dry goods, Montreal, have assigned. The principal creditors include Montreal Silk Mills Co., \$2,400; Penman Manf. Co., Port Dover, \$1,536; Schofield Woolen Co., Oshawa, \$758; Northern Rubber Co., Manchester, Eng., \$941; R. Henderson & Co., \$648; Munderloh & Co., \$561; A. Lavigne \$480; Universal Knitting Co., Toronto, \$517; C. Curwan & Co., Vancouver, \$680.

THE Customs seizure case concerning a quantity of jute cloth imported by the Canada Jute Co and the Dominion Bag Co, Montreal, was concluded in the Exchequer Court a few days ago. Several affidavits by Dundee manufacturers were produced, and these tended to show that "cropping" was quite distinct from the finishing process, this being the principal point at issue between the companies and the Customs' authorities. The court quashed the seizure, basing its judgment principally on the fact that the case was a doubtful one for the Crown. The ordering of costs is reserved until the settlement of the question as to what date it was that the new tariff relating to jute came into force.

It sometimes happens that an exception—comparatively a rare exception, we regret to say—presents itself when a discharged debtor recognizes the fact that a moral obligation survives the extinction of the legal one. An instance has come under our notice, and we believe that in making it public we not only do an act of justice to the principal, but may, by setting up the example, induce others to reflect, and, when possible, do likewise. In 1886 George E. Amyot, of Quebec, who carries on business as the Dominion Corset Manufacturing Company, and has built up a profitable business, compounded with his creditors and obtained his discharge. The matter was forgotten by the latter, but recently they were

reminded of the fact by a request in the following terms. "Will you please send me a statement of your claim showing dividend received and balance in your favor. I am now paying my creditors in full. This matter has reference to September, 1886." Such a man deserves to succeed, and his honorable course of action entitles him to respect and admiration.—*Shareholder.*

To produce a silky finish on fabrics boil 1 bushel of flaxseed in 24 gallons of water, until it has evaporated to 23 gallons, by which time a thick liquid will be formed. Strain through a sieve and then through a cloth, to remove all foreign matters. Boil 16 ounces of Iceland moss in 5 quarts of water and strain; mix the two liquids thoroughly together in the proportion of 1 quart of the former to 1 pint of the latter; dissolve 1 ounce of white vegetable wax and ½ ounce of spermaceti in two wine-glasses of boiling water, and stir it into the liquid when hot, and after well mixing and allowing to cool, add half a wine-glass of strong liquid ammonia to 3 pints of the liquid and stir thoroughly. The composition is put into size of flour or other farina used for dressing yarns or threads for weaving, in the proportion of about 20 or 30 wine-glasses of the former to 10 gallons of the latter, according to the class of fabric to which it is to be applied. This composition, for which a patent has been obtained, lays the downy fibres, imparts strength to the yarn, facilitates weaving, and gives a glossy finish to the woven cloth.

WM. J. MATHESON & Co. (Ltd.), of New York and Montreal, call our attention to a new red dyestuff for wool—Brilliant orseille C., pat'd—manufactured by their principals, Leopold Cassella & Company. It is very readily soluble, of a clear, bright shade and of great tinctorial power. It gives very level dyeings, and its principal use will be in dyeing with other acid colors. Wool is dyed in an acid bath as usual. Dyeings on wool do not suffer from alkaline street dirt, and are very fast to stoving and steaming. When woolen pieces interwoven with cotton threads are dyed with brilliant orseille C., the cotton will not be tinted. This new dyestuff replaces *acid magenta*, which it surpasses in fastness to light, and especially in fastness to alkalis, and is at the same time cheaper. Its value for compound shades, produced with their well-known cyanole extra and orange G.G., are illustrated in the dyeings on a sample card, which they will be pleased to send to those interested. This orange G.G. differs from all other yellows by its clear yellow shade and extreme fastness to light, while cyanole extra deserves the first place among the various substitutes for carmine of indigo on account of its dyeing so very evenly, its great fastness and its really beautiful, clear shade, which does not change in artificial light. Brilliant orseille C. will be found very suitable for wool-printing. It is printed in the usual manner, with acid, and gives very clean cut patterns.

THE demand for cotton yarns for the manufacture of knit underwear is on the increase, and the market seems to call more for the class of goods known as Balbriggans. A number of mills which are fitted out for this particular line of goods have more orders than they can readily fill in running their regular hours, and are compelled to run overtime; some even talk of running night and day with two sets of hands. It is astonishing to see the variety of goods that go under the name of Balbriggans, some that have not the least semblance to anything like the Balbriggans generally known, either in appearance or texture, but for all that, must be called Balbriggan. Then, again, there are a great many fancy Balbriggans, dyed in a variety of shades, some of them being very attractive and desirable, as also the numerous lines in the different make of striped Balbriggans, some of which are indeed very handsome, the design and colorings being well blended and connected, but all being really a misnomer as to Balbriggan. If the natives of the little town of Balbriggan, in Ireland, just eighteen miles north of Dublin, who originated and carried on the manufacture of cotton knit goods, including hosiery, and to which they gave the brand Balbriggan, could know of the quantity of goods now stamped Balbriggan, they certainly would feel proud of their little Irish town. They made more of a specialty of the natural brown and unbleached color of the cotton, and their goods were noted for durability and general good qualities.

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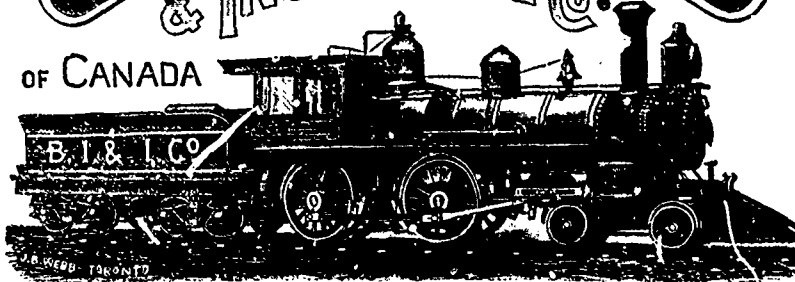
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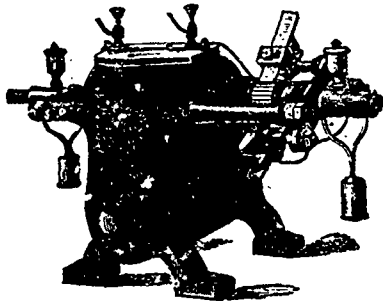
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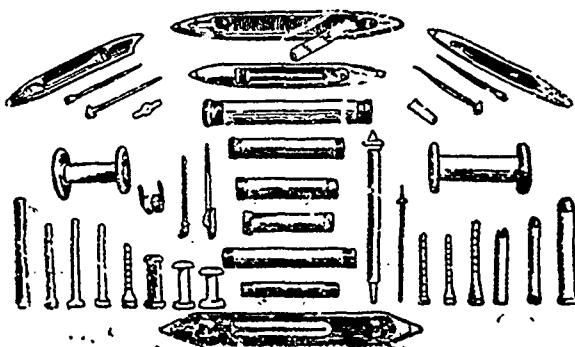


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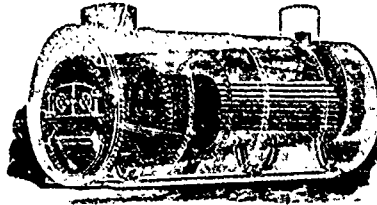
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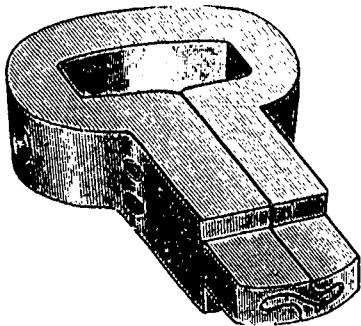
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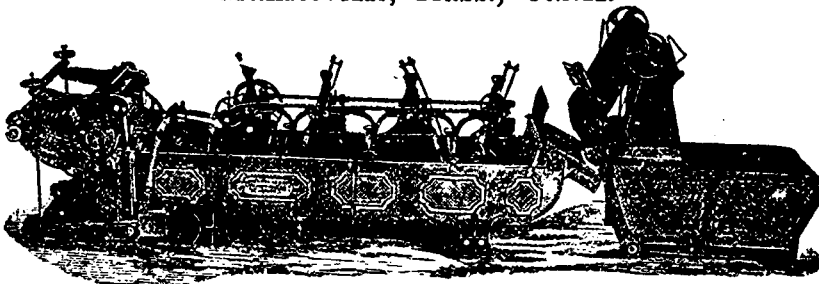
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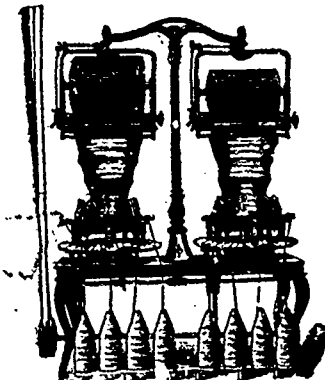
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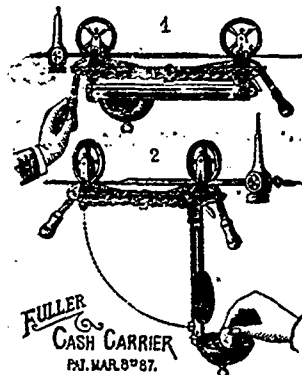
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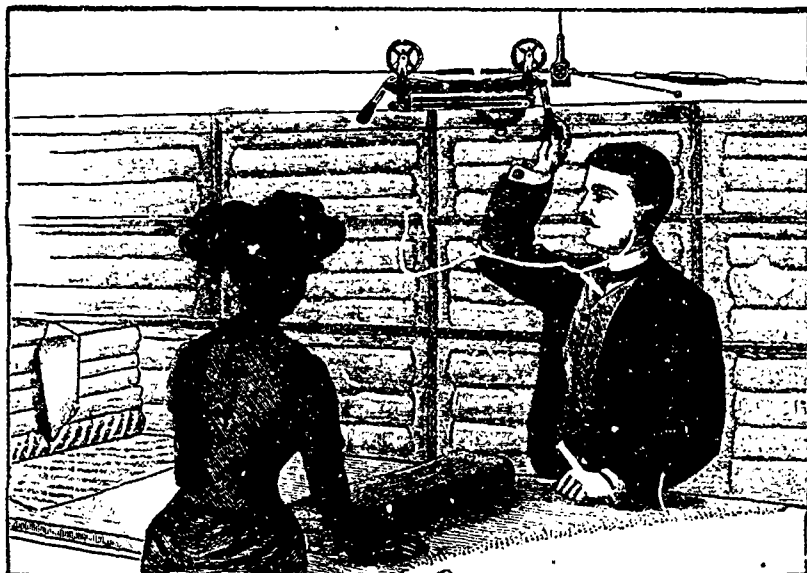
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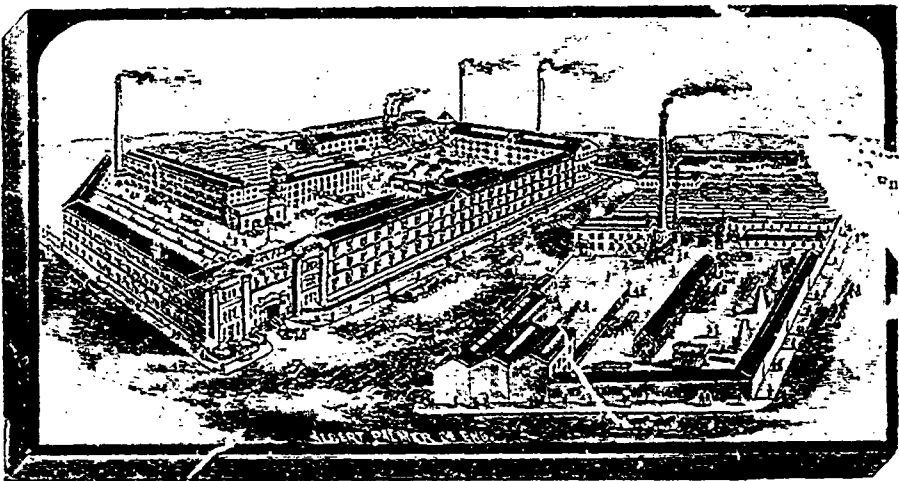
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