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# CANADIAN Journal of Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, MARCH, 1899.

No. 3.

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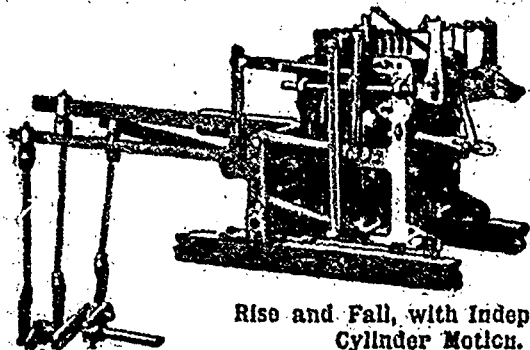
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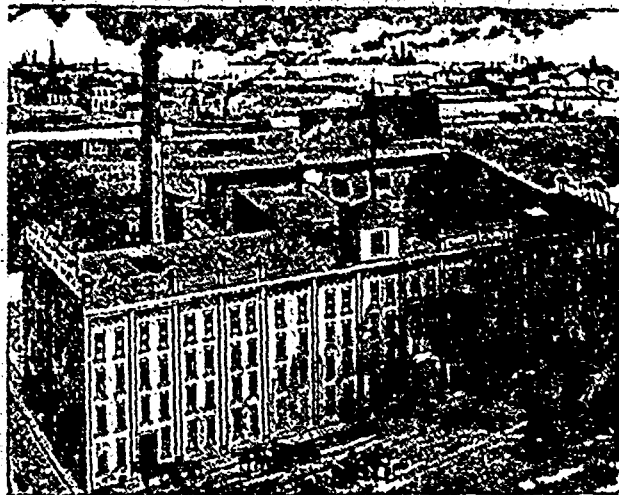
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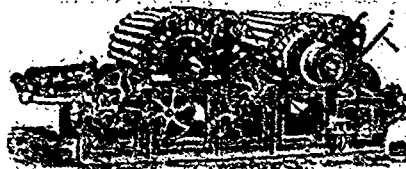
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# Canadian Journal of Fabrics

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Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, MARCH, 1899

No. 3.

## Canadian Journal of Fabrics

A Journal devoted to Textile manufactures and the Dry Goods and kindred trades.

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### THE CANADIAN TEXTILE DIRECTORY

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### COTTON AND CORDAGE MILLS IN CANADA.

From the advance sheets of the Canadian Textile Directory, whose fourth edition is now running through the press, we can gather much of interest as to the present conditions of the trade in Canada as well as the history of its past. In 1890 the total looms and spindles in manufacturing cotton in Canada were Looms, 11,482, spindles 520,100. In 1899, according to the Canadian Textile Directory, there are Looms, 15,557, spindles, 43,312. There are in the cordage mills of Canada 1096 spindles, which produce 14,850 tons of cordage per year.

### THE UNITED STATES DYESTUFF COMBINATION.

The dyestuff combination has taken shape in the United States, under the title of the United States Dye-wood and Extract Co. The incorporators are: J. B. Hill, New York; H. T. Wills, Boston, and F. W. Garvin, New York. The capital stock is \$10,000,000, of which \$6,000,000 is 6 per cent. cumulative preferred stock and \$4,000,000 common stock. There is to be an issue of stock debentures, not payable until after the preferred and common stock have been paid in full. The object of this issue is that the promoters may take their profit out of the deferred debenture stock, which will be issued for the good will or other assets not bankable. Mortgage and liens upon the property are forbidden without the written consent of the stockholders. The directors are forbidden to create a surplus fund not chargeable with the dividends on both the preferred and common stock. The company begins business, it is said, with a working cash capital of \$2,500,000.

### WHERE CLOTHES ARE MADE.

The general public has very little idea that the expensive ordered clothing of the fashionable tailor shop and the cheap ready made garment are often made up by the same people, at the same time, amidst scenes of the utmost destitution and under conditions which make the wholesomeness of such wearing apparel more than problematical. In Toronto, inside the last few weeks, a company has been formed by the ordered clothing trade, which will do all the making up in one place, where the conditions cannot be quite so bad as when the work was distributed over the poorest parts of the city. Some of the dealers in ready-made clothing have also taken a step towards better conditions by adopting the union scale of wages and selling only garments which bear the union label. One retail dealer in Toronto and a large manufacturer in Hamilton have taken this course.

People are becoming more aware of the evils and dangers encountered under the sweatshop system and a general improvement is likely in the lives of these unfortunate workers. The subject has a moral, as well as hygienic, side. While there are thousands of retailers who, if they were once to enter a sweatshop and observe the conditions under which garments are there produced, would shun a sweat shop made garment as they would the clothes of a yellow fever victim, says the Dry Goods Economist, New York.

"there are other thousands who, if they were acquainted with the conditions under which sweat shop goods were turned out, would refuse to handle them, merely because by so doing they are aiding and abetting a system which grinds the very life and soul out of many a poor fellow-creature."

#### WOOLEN MANUFACTURING COMBINATIONS.

A short time ago the subject of the possibility of a combination in the Canadian woolen manufacturing industry being effected was discussed in these columns. We now notice that such a combination is just coming into existence in the United States, while others are proposed. Canadian manufacturers will watch the outcome of these new departures with interest. The American Woolen Company is a corporation which has just been organized by woolen manufacturers who have decided to combine their businesses. Among the companies interested are the Washington Company, of Lawrence, Mass.; the Riverside Worsted Mills, the National and Providence Mills and the Saranac Mills, Providence; the Fulton Mills, Oswego, N.Y.; Beoh Mills, Fitchburg, N.Y.; Fitchburg Worsted Company, Valley Worsted Mills, Providence, R.I.; Vassalboro Mills, Vassalboro, Me., and John Chase & Sons, Webster Mills. The capital is to be \$20,000,000 preferred stock, with authority to increase it to \$25,000,000, and \$30,000,000 common stock, with authority to increase it to \$40,000,000. Fred'k Ayer, Lowell, is president; Wm. M. Wood, Boston, treasurer; E. P. Chapin, Lawrence, manufacturing agent; J. C. Woodhull, New York, selling agent. The Executive Committee is composed of James Phillips, jr., Boston; Charles Fletcher, Providence, and William M. Wood, Boston.

A meeting has been called for March 15th, in New York, to discuss the proposed combination of the print goods interests of the United States. This is a revival of an unsuccessful project of some three years ago. It would seem that the great variety in the output of the various mills will make it very hard to keep the combination together because the products of the different mills are recognizable by experts at present, even where no special hands are employed. To be most easily combined the products of an industry should be nearly uniform, or of such a variety that specific lines may be assigned to different members of the combine, as we have formerly hinted.

#### THE LONDON WOOL SALES.

The second series of the 1899 wool auction sales opened March 7th. The offerings numbered 11,134 bales, largely crossbreds, none of which were suitable for America, and very little fit for continental uses. Consequently the home trade secured the bulk. Competition was good, except for low crossbreds. Medium low grades were a farthing to a halfpenny below the January average, scoured merinos were scarce and there was eager competition for all offered at rates equal to the last series. Queensland and South Australia greasy merinos brought

full prices, and Swan River and South Africans went quickly at full prices. There was a good attendance. Following are the sales in detail: New South Wales—1,800 bales; scoured, 9d. to 1s. 4d.; greasy, 5d. to 9½d. Queensland—500 bales; scoured, 1s. 2½d. to 1s. 6d.; greasy, 8d. to 10d. Victoria—2,500 bales; scoured, 8d. to 1s. 6½d.; greasy, 5d. to 11½d. South Australia—1,400 bales; scoured, 9½d. to 1s. 5d.; greasy, 5½d. to 9½d. West Australia—900 bales; scoured 7½d. to 1s. 1½d.; greasy, 5½d. to 10d. New Zealand—3,400 bales; greasy, 4½d. to 10d. Cape of Good Hope and Natal—400 bales; scoured, 7½d. to 1s. 4d.; greasy, 6½d. to 8½d.

The second day's session opened with a full attendance of buyers. The offerings consisted of 9,737 bales, and were a better selection than that offered yesterday. The supply of scoured merinos was small and was eagerly bid for by the German and Yorkshire buyers at hardening rates. Victoria greasy merinos were well represented and sold readily to France and Germany. Fine good crossbreds were in good demand, and were taken by the home and French buyers. Medium low stock ruled irregular. Shabby stock showed a drooping tendency, and sold 10 per cent. lower. Lambs were well represented, and were strongly competed for. Following are the sales in detail: New South Wales—3,000 bales; scoured, 10d. to 1s. 7½d.; greasy, 5d. to 11d. Queensland—800 bales; scoured, 1s. 1d. to 1s. 6½d.; greasy, 9½d. to 10½d. Victoria—1,600 bales; scoured, 5½d. to 1s. 1½d.; greasy, 4½d. to 1s. 6d. South Australia, 200 bales; greasy, 4½d. to 9½d. West Australia—500 bales; greasy, 5d. to 9½d. New Zealand—2,800 bales; scoured, 6½ to 7½d.; greasy, 5½d. to 9½d. Cape of Good Hope and Natal—700 bales; scoured, 1s. 1½d. to 1s. 4½d.; greasy, 6½d. to 8½d.

At the wool auction sales on the 9th, 13,373 bales were offered. The continental representatives operated freely, with increased animation for merinos. The German buyers, however, secured the larger portion at a slight advance. A small supply of scoured was keenly competed for at occasionally 5 per cent. higher. A large selection of fine crossbreds ruled firm, and received strong home support. Punta Arenas wools sold well at from 5 to 7½ per cent. above the November figures. There was a full attendance, and the demand was active. The following is the sale in detail: New South Wales—2,700 bales; scoured, 11½d. to 1s. 6½d.; greasy, 5½d. to 10½d. Queensland—1,200 bales; greasy, 7½d. to 10d. Victoria—800 bales; scoured, 11d. to 1s. 5d.; greasy, 5d. to 1s. ¾d. South Australia—1,000 bales; scoured, 1s. 2½d. to 1s. 5d.; greasy 5½d. to 10d. West Australia—1,300 bales; scoured, 1s. 1d. to 1s. 2½d.; greasy, 5½d. to 9½d. New Zealand—3,900 bales; scoured, 7½d. to 1s. 5d.; greasy, 5d. to 9½d. Cape of Good Hope and Natal—300 bales; greasy, 6½d. to 8½d. Punta Arenas, 1,400 bales; greasy, 5½d. to 7½d.

The best selection of the series so far was offered at the wool auction. The offerings were 12,496 bales, including good lines of fine-haired New South Wales, Queensland, and Victoria merinos, which were largely taken by the French, German, and Belgian buyers after spirited competition. A few choice Russian crossbreds and some

better grades of Geelong were taken principally by the home trade. During the week 56,000 bales were sold. Following are to-day's sales and the prices obtained: New South Wales, 2,800 bales; scoured, 9d. to 1s. 7d.; greasy, 4½d. to 11d. Queensland—2,100 bales; scoured, 1s. 3d. to 1s. 6½d.; greasy, 6½d. to 10½d. Victoria—1,300 bales; scoured, 10½d. to 1s. 2½d.; greasy, 5½d. to 1s. South Australia, 600 bales; greasy, 5½d. to 9½d. West Australia—700 bales; scoured, 1s. 1½d. to 1s. 2½d.; greasy, 5½d. to 10½d. New Zealand—3,800 bales; scoured, 6½d. to 1s. 2d.; greasy, 4½d. to 10d. Cape of Good Hope and Natal—1,000 bales; scoured, 9d. to 1s. 5d.; greasy, 6½d. to 9½d.

### THE PREPARATION OF RHEA FIBER FOR TEXTILE PURPOSES.\*

BY PERRY F. NUPSEY.

(Concluded from last issue).

Arriving from his own experience at the same conclusion as Sir Joseph Lee, namely, that there was room for the mechanical engineer to step in and improve spinning machinery, so as to adapt it to rhea fiber, Mr. Ferguson has given his attention to that part of the subject. He introduced several improvements into a spinning frame which the author saw at the Phoenix Mills, but not in operation, so that he cannot give any particulars of its working.

The next chapter in the history of the preparation of rhea fiber is furnished by Taylor Burrows, who is a recognized authority upon the fiber question, having been all his life practically engaged in connection with fiber dressing and spinning machinery in England and on the continent. The system of treatment devised by Mr. Burrows, and which is covered by the patents of Taylor Burrows, and D. Edwards Radclyffe, was taken up a few years since by the Ramie Syndicate. The Hythe End Mill, at Wraysbury, near Staines, was fitted up with plant and machinery for working the process and was visited by the author in 1896, when it was in full operation, as it still continues to be. There the author traced, step by step, the treatment of the material from the decortication of the stems of the rhea plant to the production of the finished yarn. He need hardly say that he did not see the actual fiber which was produced by decortication in his presence converted into yarn, but he followed the general process, stage by stage, throughout. The process commences by decorticating the rhea stems, which upon the occasion of the author's visit were freshly cut, having been grown upon the Duke of Wellington's estate at Strathfieldsaye. And here the author would refer incidentally to the warm interest manifested by the Duke in the present question. In several experimental trials at which the author has been present the rhea stems have been contributed by his Grace, having been grown at Strathfieldsaye. In the Burrows-Radclyffe system decortication is effected on two machines, the first of which is a scutcher or breaker, and consists of a table on which the stems are laid, and from which they are fed to a pair of fluted metal rollers, between which the wood

receives its first break. The stems then pass between a pair of smooth wood rollers, giving a second break, to another pair of fluted metal rollers, giving a third break to the woody stems. After this treatment the bundle of crushed stems or ribbons is put through the second machine, which is a finishing scutcher, which clears away all the broken wood from the bark. The second scutcher consists of a vertical revolving drum, upon the outer periphery of which the ribbons are deposited and are carried down through guides to a pair of horizontal fine fluted rollers, which reduce the fragments of wood still adhering to the bark to mere splinters. On passing from these rollers the ribbons encounter a set of revolving beaters, which clear away all the wood fragments and leave the ribbons clean and ready for chemical treatment. From the finishing scutcher the fibrous strips are conveyed to the boiling-house, where they are boiled in an alkaline solution under a pressure of 45 lbs. per square inch for about three hours. This dissolves the gum without injuring the fiber, and if the dissolved resinous substance be washed away and not allowed to dry on the fiber, the fiber is secured in the degummed condition as filasse. Therefore, after leaving the boiler, the strips are well washed in cold water, and are passed through squeezing rollers to deprive them of surplus moisture. They are then placed in a bath of permanganate of potash for a quarter of an hour, after which they are submitted to a bi-sulphide of soda bath for three-quarters of an hour or so. If it is desired to give the filasse a maximum of brilliancy, it is bleached either by a chlorine or sulphurous bath. After the final washing the filasse is taken to the drying-room, which is heated by steam pipes, and where it is dried. In summer, however, it is air-dried. The filasse is now ready for the spinning-mill, where the author saw it in course of conversion into sliver and yarn. The mill is fitted up with the usual series of machines for this purpose, and there the filasse was put through successive stages in the drawing frames, combing machines, fine-drawing frames, roving frames, spinning frames, doubling frames, reeling machines, and, finally, the hanking machines. The machines generally are modifications of silk and woolen machines. The long fibers from the combs are spun into yarns of all numbers, whilst the noils or short fibers are used for mixing with wool for the cloth trade. An important innovation in the machinery at the mill is the wet-spinning frame invented by Mr. Burrows. In this machine the fine counts are produced, the frame spinning a thread from which the hairiness so objectionable in some goods is absent. The loose hairy fibers are wrapped in, and a wiry, even thread is produced, the process of gassing, which is necessary with dry frames, being thus obviated. At the time of the author's visit the Hythe End Mill was in active commercial operation, the stated output being 500 lbs. of yarns per week. The author has the satisfaction of stating that according to recent advices the mill is still a busy going concern, the output being about the same as that already stated.

A long experience has taught the author that writers of papers are invariably asked during the discussion why

\*From a paper read before the Society of Engineers.

they have omitted to notice such and such a machine, system, or invention, as the case may be. In view of this and hoping, rather than expecting, to escape this delicate tribute to incompleteness, the author has endeavored to bring before the society everything worthy of notice pertaining to his subject. He regrets, however, that in one instance at least—namely, that of the Gomez process—he cannot do so satisfactorily, but that his notice must be of a negative character—a notice without a description—although he has done his best to procure the necessary information. And here the author would remark that in his endeavors to obtain particulars respecting processes for the treatment of rhea fiber, which have not come under his personal observation, he has more than once been surprised to meet with a considerable amount of reluctance to impart information. In this connection he may mention the Colonial Rhea Company who control the Gomez patents. In 1886 the company advertised that samples of the products of their process might be seen and particulars obtained at their office. The author duly presented himself for the purpose of seeing the samples and obtaining the information, but was refused either privilege—if such it may be called. Later on, namely, in April last, the author again presented himself with the same object, stating that he sought the information to embody it in the present paper. He was told by the secretary that his application would be brought before the directors, and that he would be written to on the subject. Not hearing anything the author wrote the secretary a reminder on August 25 last, but no notice whatever has been taken of his letter. The only information vouchsafed by the secretary at the last interview was that the company used a very weak alkaline bath, and this is all the author is able to state. He feels it due to himself to give this explanation, as the Gomez process was at one time prominently before the public.

The foregoing remarks apply—although in a considerably modified degree—to the Macdonald Boyle process of treating rhea fiber, plant for which the author is informed is now being laid down in India. The author has made several personal applications to the firm for particulars of process, which have several times been promised him, but have not been received. The only information the author is able to impart is that the stems are decorticated and the fiber separated on the plantation as the stems are cut. The fiber is then sent to the degumming sheds, in which it is cleaned by a chemical process and afterwards dried and packed for the market. The author is aware that the inventors of this process have been much engaged of late in connection with its introduction abroad, and this perhaps should be allowed to operate as an excuse. All the same, the author has still to regret that his paper is less complete than it otherwise would have been but for unfulfilled promises.

The most recent process that has come under the notice of the author is that of Lorenzo Eysen, of Guatemala, who has been engaged for some years past in perfecting a decortivating and degumming machine. In this, it is stated, he has at last succeeded, the machine not only

removing every particle of wood and bark, but also removing the gum without in any way damaging the fiber. The apparatus by which this is effected is described as consisting of peculiarly constructed cylinders, between which the rhea stalks are passed, and which completely remove the wood. The bark or ribbons containing the fiber are then passed between polished pressure rollers, by which the gum is squeezed out. The bark is then washed away from the fiber, and the latter is rinsed in clear cold water, which frees it from every remaining particle of bark and gum. A working machine on this principle is stated to be in course of construction.

In glancing retrospectively at the present paper, the author cannot avoid the conclusion that the net results of a century of work done in developing the fiber of the rhea plant into an article of commerce do not appear to be at all commensurate with the time, thought, and money that have been expended upon the question. It may be that there are some present who have a more extended knowledge of its development than the author has, and who will be able during the discussion to impart further information upon the subject. It appears to him, however, that the most that can at present be said is that some progress—more scientific than commercial—has certainly been made towards the desired end, and that mechanical and chemical science have both played a useful part in the work of development. And it appears certain that they must continue to do so conjointly and in combination; that is, not singly, neither of them alone being capable of efficiently preparing the fiber for the spinner. Chemistry must here step in as the handmaid of mechanics. If the information imparted by the author is of less positive value than could be desired, he trusts that its negative value as indicating failures may to some extent compensate for deficiencies which are to no one more clearly apparent than to himself. Although his paper may not possess the usefulness of a fingerpost, he trusts it may in some sort perform the function of a danger signal to those who may be disposed to embark on the fascinating study of rhea fiber.

#### HUMIDIFICATION IN TEXTILE FACTORIES.

BY THE LATE SIR BENJAMIN DOBSON.

Into the manufacturing processes whereby cotton, silk, wool, flax and other vegetable and animal fibers are transformed into fabrics, two natural factors enter which are of primary importance. These factors, which are closely allied, are temperature and humidity. In earlier and pre-scientific days the recognition of their importance was shown by the selection of special districts and sites for these manufacturers, and the supremacy long held by the textile products of the sheltered and well watered valleys of Lancashire (which were rivalled only, if at all, by those of the flat plain of Lower Flanders), proves that the creators and pioneers of the great staple industry of England were wise in their generation with the wisdom of which necessity and experience are the fruitful parents. Ignorant though they were of the laws of saturation and evaporation, of hygrometry and electricity, of attraction and repulsion, of atoms and globules, of the suspension, diffusion and elasticity of aqueous vapor, of ventilation, and generally of the chemistry and mechanics of air and water, they knew that the fibers and threads which they had to manipulate were more difficult to

combine, and broke more frequently and rapidly in dry than in moist conditions of the atmosphere, and that their labor was increased and its results spoiled by a disregard of these conditions. Recognizing the want, they looked to nature for its supply, and with infinite prudence selected districts and localities where that supply was most ample and most constant.

But what was possible for them is impossible for us to-day. The enormous expansion of the textile trades all over the world, the growth of competition, the facility of transport, the dearth of land in civilized countries, and many other causes have combined to make it impossible for the spinner and weaver to select his site simply from consideration of its atmospheric suitabilities.

And if this be true of our home industries still more is it true of foreign countries, where the textile trades live and flourish by grace of high protective duties, and where the profit to be derived from them is a motive which ignores all initial considerations of climate suitability, and trusts to science to supply the favorable conditions which nature desires. But to the inherent and chronic drawbacks of an unsuitable climate are now added other difficulties, which also affect to a large extent even the most suitable districts. These difficulties, which are the direct result of new and greatly improved processes of manufacture and of the construction of buildings and machines, may be summarized under the head of atmospheric electricity. The tremendously high speed at which machinery is driven in modern factories causes friction, which generates electricity and the iron which is now so much used in their construction conducts and spreads that electricity all through the rooms, so that the plant of a modern mill is practically one great electrical machine. The effect of this is not only to dry the air, but also to separate the threads and fibers in process of manipulation, and to make them loose, friable and elastic, thus increasing the labor of the operatives, while diminishing the quantity and marring the quality of the yarns or pieces that they can produce, enhancing their cost by the waste of material and time in their manufacture. The cause of the difficulty both in the natural and artificial conditions, described in the above paragraphs, admits of an easy explanation, especially with regard to cotton. It arises from the peculiar construction of the cotton fibers, the waxy envelopes of which, when they are cold and dry or "harsh," become congealed, and consequently resist the processes known as "drawing" and "spinning;" and when they are hot and dry, are peculiarly susceptible to the influence of electricity, which produces mutual repulsion, with the result that in the processes of spinning and twisting, the ends of the fibers not immediately under control have a tendency to radiate from the centre of the body of fibers in action, and to produce tough and what is familiarly known as "oozy" yarn.

Now the only way to remedy or avoid these difficulties is to moisten the air in which the process of manufacture is being conducted. The founders of cotton spinning and weaving, as we have seen, did their best to obviate them by selecting districts in which there was generally a normal quantity of moisture. The operatives sprinkled the floor, or used the watering can freely. The more scientific manufacturers moisten the air or "kill the electricity" by injecting steam into the rooms, and this method became so general that in England the legislature laid down rules for regulating its employment. But none of the former, and very few of the latter know how intimately allied is the question of humidity with that of temperature, which was stated at the outset to be one of the two great factors which influence textile manufacturing. A priori, it might be expected that it is easier to moisten warm than cold air, whereas the opposite is the case, the reason being that the former has so much more capacity for holding water in suspension; and there are other laws governing the atomic assimila-

tion and combination of air and water, which need not be detailed here. At the basis of them all lies the question of temperature, and in the Cotton Cloth Factories Act of 1880, there is a table of the "maximum limits of humidity of the atmosphere at given temperatures." The problem to solve, therefore, is not only how to supply the requisite amount of humidity, but how to do this with a given temperature, whether natural or artificial, especially as it is obviously impossible to maintain the same temperature in a mill or factory all the year round.

The following information will aid readers to a correct appreciation of the real value of a well designed system of artificial humidification: In carding rooms the advantage of putting humidifiers in is chiefly experienced in connection with the cards and drawing frames. Troublesome electricity will be destroyed, and the roving will run more even. Though it is not possible to give any exact figures as to the amount of economy, it has been proved that a great saving is effected by the use of humidifiers in connection with slubbing, intermediate and roving frames, especially where low grades of cotton are used. In mule and ring spinning rooms humidifiers are a great boon to the spinner, and lessen his work by preventing broken ends and consequent waste, the result being that the yarn is so much stronger that the "break" is often increased by six or seven pounds, and the production by 3 to 5 per cent. In weaving rooms there will be less stoppage, the size will not elate, and the cloth will be more even and smoother. In the case of coarse goods which are heavily sized the greatest increase in production is effected, because in a very dry atmosphere a percentage of the size in threads is lost during the process of weaving, whereas in a moist atmosphere the size is retained and the cloth is consequently stronger and is less liable to breakage. In woollen, worsted and silk mills the usually troublesome electrical conditions are eliminated, waste reduced, and the yarn and threads strengthened and improved. In flax, hemp and jute mills the fluff and dust usually so prevalent in the preparatory rooms is satisfactorily laid, rendering their atmosphere very much more wholesome. The amount of waste is reduced, and the roving sent into the spinning rooms is in a much stronger condition, while in the spinning and weaving rooms the same advantages are gained as in the case of cotton spinning and weaving.

#### WATERPROOFING COTTON FABRICS.

In an article in The Berlin Farber Zeitung, Edward Gruene described a method for the preparation of waterproof awnings and similar fabrics. The gray calico used was in pieces nearly 100 feet long and about 40 inches wide, and each piece weighed 23 lbs. When finished the weight was increased to about 28 lbs. The calico was first treated on a jigger with a bath of 33 gallons of water containing 6½ lbs. of 66 per cent waterglass for every three pieces. After an hour of treatment with this bath at the boil, the stuff was wrung, and dried at 20 deg C. Too strong wringing spoils the appearance of the cloth. Next comes an impregnation with alumina soap in combination with india rubber and wax. This can be done with two or three baths. In the latter case the first bath is a 6 deg Be solution of acetate of alumina, the second a solution of waterglass, and the third a soapbath in which indiarubber and melted wax have been stirred up. In the former case the second bath is dispensed with. This is the better way, as when the goods are impregnated with acetate, dried and taken straight to the soap bath, they become thicker and more waterproof than when they have had a second treatment with waterglass. The latter seems to hinder the precipitation of the alumina.

If the second bath is used it should be made of 33 gallons of water and 3¼ lbs. waterglass of 66 per cent for every three



pieces, and the goods should be passed through it three or four times lukewarm on the jigger, and then dried at 20 to 25 deg. C. The acetate of alumina is made by dissolving 55 lbs. of alum in 11 gallons of boiling water, and then precipitating with 40 lbs. of sugar of lead. The precipitate is filtered off and washed, and the wash-waters are run into the filtrate till it is down to 6 deg. B. The goods are thoroughly impregnated with this by passing them through it several times. They are then hung up to dry at 20 to 25 deg. C. The final bath is made up as follows— $4\frac{1}{2}$  lbs. of indiarubber (the best Para), having been cut up fine, are treated with  $2\frac{1}{4}$  gallons of oil of turpentine. After four days' frequent stirring add another  $2\frac{1}{4}$  gallons of turpentine and stir for four days more. The stuff should be kept warm in a vessel surrounded by warm water. The sticky mass obtained is brushed through a fine sieve of 150 meshes to the sq. inch, and then through one with 200. Any indiarubber which will not pass through the second sieve is treated with about half a gallon more turpentine until it all goes through. The whole lot now gets  $2\frac{1}{4}$  gallons more turpentine and is worked up till all of it passes through a sieve with about 300 meshes to the square inch. As this part of the work takes a long time it is advisable to make up as large a quantity of indiarubber at a time as possible, but it is not advisable to handle more than double the amount of indiarubber above indicated at a time. Besides  $4\frac{1}{2}$  lbs. of indiarubber are enough for fifteen or sixteen pieces, say 500 square yards of calico. In the meantime two other liquids have been prepared, one by melting 33 lbs. beeswax in a jacketed pan, and then adding  $2\frac{1}{4}$  gallons of boiled linseed oil and boiling up the whole. The other is made by dissolving 40 lbs. of resin soap in 22 gallons of soft water. The solution containing  $4\frac{1}{2}$  lbs. of indiarubber is poured into the boiling varnish, and then the mixture is sent through a hair sieve into the boiling soap. The whole is gradually diluted, with constant heating and stirring, to 44 gallons. The alumed cotton is passed through this stuff hot and without folds. It must then be dried, hung up, and be then passed through the hot soap mixture again. There is danger of want of uniformity at this final stage. If a cheesy mass forms on the surface of the bath, which is to be feared, a plain solution of soap (about 10 per cent.) should be added to prevent the separation of the ingredients of the bath.

### DESIGNING BY PHOTOGRAPHY.

About two years ago it was announced that an Austrian inventor had devised a method of textile designing which was expected to entirely revolutionize the designer's method of procedure, and which would abolish the skilled labor of transferring sketches on to design or point paper. Pessimistic designers quaked in their shoes and began to wonder what other outlet could be found for their talents, expecting the arrival sooner or later of some wonderful machinery which would, figuratively, take away their daily bread. Two years have elapsed, however, and designers still hold their positions and perform their work in the same old-fashioned way. The services of extra designers are still in requisition, and our technical schools continue to train our young men for this profession, utterly regardless of the fate which has been arranged for it by the Continental inventor. This gentleman (of unpronounceable name) has meanwhile been perfecting his invention, and further wonders have lately been detailed as to the effectiveness and economy of this wonderful process. The new process is decidedly novel and ingenious, but with this, favorable comment must cease, says *The Textile Manufacturer*. In this practical age manufacturers put all the novelty into their goods and require practical economy in their processes, and it does not appear probable that business men who profess to

have great difficulty in making ends meet will waste money on an expensive photographic plant, with large scale apparatus, dishes, washing tanks, dark-room, and endless accessories, and dispense with the simple desk or table of the "old-fashioned" designer. After all this outlay of capital the new process will require a constant supply of chemicals, photographic plates, sensitized paper, etc., to say nothing of the endless variety of "screens" with which the inventor fills in the groundworks. These screens will be expensive and well-nigh innumerable, owing to the large variety of groundworks used and the different gauges of design paper required in designing the various builds of cloth. The process would probably require the services of two men to manipulate it, and it is unlikely that they would cover more ground than one designer. The original sketches would require a more careful finish for use with the new process, and the cutting of the jacquard cards would take much longer, owing to the indistinctness of the design. All the above remarks apply directly to the economical side of the question; but apart from any disadvantage of this kind, all designers, and all manufacturers who have the slightest knowledge of designing, know that with the exception of plain groundworks it is impossible to mechanically insert a ground effect. This could be done in the body of the ground, but the working of the ground weave up to the figure in a proper manner can only be accomplished by a trained and skilful designer. The invention has many other serious disadvantages, and even in a more perfected state could only be employed as an assistant to the designer. Apart from all other considerations, the inventor seems to have overlooked the fact that designing in all its branches is an art, not a mechanical or chemical process, and that even in the painting of the original design on to design paper a master touch and finish is required which can never be properly attained by other means than the human hand.

### RECENT TEXTILE PATENTS GRANTED IN CANADA.

No. 62,205.—Sewing machine; Amedée Tetrault, Montreal, Que., Canada.

Nos. 62,295, 62,296, 62,297, 62,298, 62,299.—Sewing machines; The Union Special Sewing Machine Co., Chicago, Ill.

No. 62,318.—Sewing machine; Elouild Duplessis, St. Hyacinthe, Que.

No. 62,340.—Sewing machine for honey-combing work; Arthur & Co., Glasgow, Scotland.

No. 62,419.—Spooling device for sewing machines; Caroline C. M. Wagner, No. 7 Market, Bergedorf, Hamburg, Germany.

No. 62,437.—Machine for treating yarns for mercerizing, dyeing, etc.; James R. Hope, Philadelphia, Pa.

### CARPET YARN DYEING.

It is the custom to dye the yarn used in the carpet industry before weaving. This is done not only when the carpet carries a design, but even when it is of one uniform tint. It is obvious that this must be so, for the size and weight of carpets place a practical bar against their being dyed after weaving, as is done with many other textile fabrics. Dyeing in the yarn is simple and does not necessitate the use of elaborate machinery, says a writer in an English technical journal. Where only small quantities are being dealt with, a plain rectangular vat, with the hanks of yarn hung over sticks, is all that is needed; where larger quantities are worked, then a Klauer-Weldon dyeing machine may be used with advantage as regards economy of dyes and other wares used and cost of labor. It is important that the yarns be well scoured before dyeing to remove any oil

grease from them. After scouring they ought to be thoroughly rinsed in water, and it is a good plan to steep them in a little weak sulphuric acid (2 lbs. acid in 10 gallons water). For bright pale yellows, pinks, blues, etc., bleached yarns should be used; the bleaching is best effected by the use of either peroxide of hydrogen or peroxide of sodium, both of which leave the yarn in a condition for obtaining level shades. Sulphur-bleached yarn is apt to dye unevenly. In dyeing it is on the whole best to use that class of dyes known as the easily levelling dyestuffs; they go on to the fiber easily, and good level shades are obtained; they can also be compounded together to produce a great variety of compound shades and tints, which the dyer is most frequently engaged upon. There are two agencies which the colors of the finished carpets are called upon to resist—light and dirt. Carpets are laid down in rooms and are consequently much (although unevenly) exposed to the action of the light which streams through the window of the room, and this light will have some effect on the colors of the carpet. Much, of course, depends upon the situation of the room—whether it receives direct sunlight into it or only diffused daylight from the sky, whether the duration of the light be long or short, or whether its intensity be great or small. The colors in a carpet which appear to be fast in one room of a particular house might not be so if that carpet were laid down in a house in another situation. Dirt is a great enemy to the colors of carpets. Carpets are made to be walked on, and dirt must inevitably be carried on to the carpets by the walkers thereon, and such dirt will tend to make the colors look dull. Then dirt is always more or less alkaline (from the lime it contains), and this alkalinity will affect the shades and tints of the carpet—to what extent will depend upon the character of the soil and roads in the district. In those places where limestone, chalk, and other calcareous and magnesian rocks abound, the alkalinity of the road dirt is at its maximum, and the action on the colors at the maximum too. On the other hand, in districts where granite, sandstone, and silicious rocks abound, the alkalinity of the dirt is at the minimum, and the colors of carpets keep brighter much longer. It is therefore desirable in dyeing carpet yarns to use dyes which yield colors that are fast to both light and dirt. The alizarine group of dyes yield colors which have the maximum degree of fastness in these respects, but they are rather troublesome to dye, and the carpet dyer does not care to use them. However, by careful selections from the group of "easily levelling dyestuffs," colors can be dyed possessing a satisfactory degree of fastness to the two influences just noted.

## Textile Design



Design 1 is a Campbell or Mayo. When woven with a worsted warp and woolen weft in mixture shades, a good custom cloth is obtained. Design 2 is similar in details, which are—Warp—2/40's white worsted, 4288 threads, 67 inches wide in the loom. Reed, 4/16's. Weft—1/22's white worsted, 56 picks per inch. Clear finish, 56 inches wide. Weight 12 ozs. per yard.

Design 3 shows a worsted costume cloth with a granite effect. The warp is of a pale China-blue color, and the weft a light fawn, which produces a very pretty cloth. A woolen weft on a worsted warp will also produce a good cloth, but the design is not a suitable one for a cotton warp.

Design 4 is a worsted coating suitable in weight and design for tailor-made costumes, and is principally intended for navy-blue and black colors, in which its appearance is both neat and attractive. The weave is one of the corkscrew class, and one which gives both a clear twill and a cloth that drapes well. Warp—2/40's worsted, 6800 threads, 68 inches wide in the loom. Reed, 5/20's. Weft—2/32's, 52 picks per inch. Shrinkage in fulling, 10 per cent. Clear finish 56 inches wide. Weight, 16 ozs. per yard.

Design 5 is suitable for a vicuna cloth. These goods maintain their firm hold upon the market, but are being imitated in inferior qualities. Such imitation is generally fatal to high-class cloths, but has not yet affected vicunas. Many makers employ worsted warps with woolen wefts for these goods and give them a melton finish. Such goods have almost displaced meltons. Warp—2/36's worsted, 4800 threads, 80 inches wide in the loom. Weft—woolen, spun 16 yards per draw, 48 picks per inch. Mill and melton finish, 58 inches wide, 25 ozs. per yard.—The Textile Manufacturer.

### TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the sterling values of the textile imports from Great Britain for January, 1898 and 1899:—

	Month of January,	
	1898	1899
Wool .....	£8,617	£1,027
Cotton piece-goods .....	66,722	84,669
Jute piece-goods .....	10,415	7,849
Linen piece-goods .....	19,971	23,345
Silk, lace .....	1,957	1,835
" articles partly of .....	1,926	2,009
Woolen fabrics .....	23,026	25,799
Worsted fabrics .....	81,022	82,071
Carpets .....	17,878	12,797
Apparel and slops .....	23,462	16,714
Haberdyery .....	13,479	22,465

### ELECTRICAL CLOTH PRESSING.

At a recent meeting of the Industrial Society of Elbeuf, a report was made by Ch. Mouchel on a new process invented by Mr. Chedwell, which is known as the "electro-calidor" process, and consists of pressing cloth by means of boards heated by electricity. A special committee appointed for the purpose examined the manufacture and operation of the press boards. The result is declared to be most satisfactory, and the report is as follows: "The body of the press-board is composed of asbestos-paste covered by a netting of German silver. This is again covered by paper pulp, which gives a pliable surface without materially increasing the thickness of the press board, which measures from 2 to 4 millimeters (0.078 to 0.157 inch). The first experiments were made by applying the electric current through holes pierced in the portion of the board projecting beyond the cloth. Experience, however, has led to the adoption of press boards with a trapezoid projection, of which the two obtuse angles are covered with copper. Spring clips, provided with a metal connection and attached to a pliable conductor, serve to transmit the electric current to the copper-covered corners of the boards, when the press is arranged for work. The electric press boards are used in the following manner: On a plate of sheet iron is placed a piece of cloth, between the folds of which are placed at equal distances three electric press boards; then there is another plate of sheet iron, another piece of cloth, and so on until the press is full. An ordinary press holds eight pieces, the folds of the cloth being one meter (1.09 yards) wide. The Messrs. Blin employ a system of hollow presses, and an iron track, sufficiently long to accommodate ten, communicates with each one of their hydraulic presses. Against the ceiling and parallel with this track are arranged two conductors, one positive and one negative. They are placed on either side and a little beyond the line of the track. Large clips

for transmitting the electric current are attached by pliable wires to these conductors. The hollow press is then placed between two of these clips, each of which communicates with a movable vertical distributor. The distributor is a simple grooved rod, the conductor being placed in the groove. Thirty pliable wires, each terminating in a spring clip, hang at an equal distance from this distributor. The clips are readily adjusted to the metal corners of the electric press boards, the positive on one side and the negative on the other. The current is thus established and the proper degree of heat generated, the time necessary varying from three-fourths of an hour to one hour and a half.

"The required current for a press board measuring 1 meter (1.09 yards) by 70 centimeters (27.5 inches) is 2 amperes under a pressure of 110 volts. A press of eight pieces, with twenty-four press boards, demands a current of 48 amperes to heat the press, and the amount of electric force expended in one hour and a half is as follows:  $48 \times 110 \times 1.5 = 7,920$  watts per hour. The mechanical force given a dynamo of 90 per cent.

$$48 \times 110$$

working capacity is  $\frac{7,920}{720 \times 0.9} = 12.5$  h.p. The labor expended

$$720 \times 0.9$$

in one hour and a half is as follows:  $12.5 \times 1.5 = 18.75$  h.p. per hour. Supposing a consumption of 15 kilograms of coal per horse-power per hour, the quantity of coal necessary to heat a press may be estimated at about 30 kilograms (66 pounds). Estimating coal at 25 francs (\$4.83) per ton, the maximum cost of heating a press would then be 75 centimes (14 cents). Comparison being made between the amount of coal required by the new system of pressing and the old—viz., direct heating in a special oven by means of sheet-iron plates interspersed between the folds of the cloth—it is found that the old method is slightly dearer than the new, as the Messrs. Blin, who used the old system with as little waste as possible and had thirty presses per day, state that they used at least a ton of coal a day for the heating of their plates, which involves an expenditure of 33 francs (\$6.37) for the presses used, or 1.10 francs (21 cents) per press. There is thus an economy of fuel, but the new system has other and more important points of superiority. The first is the perfection of the work. The heating of each press, and even of each piece, can be regulated mathematically, either by varying the number of press boards or by increasing or diminishing the length of the heating. The cloth is heated slowly and without the inequalities resulting from the old system, under which the two ends of each piece were almost in contact with plates heated to 500. All manufacturers who have employed the new system speak of this point as a great advantage. A second advantage is the extreme cleanliness with which the pressing can be effected. The old style of plates heated in an oven often resulted in soiling the cloth, which is now entirely avoided. Another advantage is the economy in laborious handling necessitated by heating and transporting heavy cast iron plates. The workshops can also be kept at a lower temperature, more favorable to the health of operators. The heat generated in the folds of the cloth is completely utilized by the new process, and a fraction less is lost by radiation than under the old system of heating by plates. If there is already an electric plant in the establishment (and few modern houses devoted to commerce or manufacture are without one), the expense is reduced. The boards are not costly, and with proper care will last several years. Mr. Mouchel thinks that the process above described is, from all points of view, a most important invention and should be generally adopted.

—T. B. Powell, 9 St. Mary-at-Hill, London, Eng., patents a process for coating textile fabrics in order to render them waterproof.

## HISTORY OF THE CANADIAN TEXTILE TRADE.

Toronto, 17th March, 1899.

The publishers of the CANADIAN JOURNAL OF FABRICS are compiling a history of the textile and kindred trades of Canada. This will embrace a history of the cotton mills, woolen mills, knitting mills (including the hand loom weaving and hand knitting trades), carpet, haircloth and oilcloth factories; cordage twine and flax manufacturing; sail, tent and awning manufactures; hat and fur manufactures; button and glove factories; manufactures of clothing and ladies' wear in all branches; and every other branch of trade coming under the head of textile fabrics. Everyone in the trade can contribute a greater or less number of facts of interest in such a work, and any notes will be gladly received. Do not hesitate because you are not a good writer; send us the facts and we will do the polishing up. As the present generation passes away many valuable bits of history are lost, and it is the purpose of this work to rescue this information from oblivion. We shall be glad to know the date of starting of factories in any part of the country, the prices paid for raw materials and prices received for manufactured goods compared with present day; conditions of trade then and now; notes on the development of machinery, descriptions of early machinery; conditions of labor then and now, in short anything throwing light on the beginning and development of each or any branch of the trades mentioned. Valuable bits of such history may be gleaned from old journals or account books. Search your records or your memory and send along the results. You will never regret it. This will be the first history of the kind published in Canada.

Address

Or Fraser Building,  
Montreal.

BIGGAR, SAMUEL & Co.,  
62 Church St.,  
Toronto.

## METRIC SYSTEM AND ITS EQUIVALENTS.

In much of the technical literature of the day the weights and measures are given according to the metric system. The following tables of metric equivalents will be found useful for reference:

Are (100 square meters)	= 119.6 square yards.
Bushel	= 2150.42 cubic inches, 35.24 liters.
Centare (1 square meter)	= 1,550 square inches.
Centigram (1-100 gram)	= 0.1543 grain.
Centiliter (1-100 liter)	= 2.71 fluid drams, 0.338 fluid ounce
Centimeter (1-100 meter)	= 0.3937 inch.
1 cubic centimeter	= 16.23 minims (Apothecaries).
10 cubic centimeters	= 2.71 fluid drams (Apothecaries).
30 cubic centimeters	= 1.01 fluid ounces (Apothecaries)
100 cubic centimeters	= 3.38 fluid ounces (Apothecaries)
473 cubic centimeters	= 16.00 fluid ounces (Apothecaries)
500 cubic centimeters	= 16.90 fluid ounces (Apothecaries)
1,000 cubic centimeters	= 33.81 fluid ounces (Apothecaries)
Decigram (1-10 gram)	= 1.5432 grains.
Decimeter (1-10 meter)	= 3.937 inches.
Deciliter (1-10 liter)	= 0.845 gill.
Dekagram (10 grams)	= 0.3527 ounce.
Dekaliter (10 liters)	= 9.08 quarts (dry), 2.6418 gallons.
Dekameter (10 meters)	= 393.7 inches.
Dram	= 1.772 grams.
Dram (Apothecaries or Troy)	= 3.9 grams.
Foot	= 0.3048 meter, or 30.48 centimeters.
Gallon	= 4.543 liters.
Gill	= 0.118295 liter, or 142 cubic centimeters.
Grain (Troy)	= 0.064804 gram.
Grain	= 0.0648 gram.
Gram	= 15.432 grains.
Hectare (10,000 square meters)	= 2.471 acres.
Hectogram	= 3.5274 ounces.
Hectoliter (100 liters)	= 2.838 bushels, or 26.418 gallons.
Hectometer (100 meters)	= 328 feet 1 inch.
Hundredweight (112 pounds Avoirdupois)	= 50.8 kilograms.

## FINISHING.

Inch = 0.0254 meter.  
 Inch = 2.54 centimeters  
 Inch = 25.40 millimeters.  
 Kilogram = 2.2046 pounds, or 35.274 ounces.  
 Kiloliter (1,000 liters) = 1.308 cubic yards, or 264.18 gals  
 Kilometer (1,000 meters) = 0.62137 mile (3,280 ft. 10 in.)  
 Liter = 1.0567 quarts, 0.264 gallon (liquid), or 0.908 qt. (dry).  
 Meter = 39.3704 inches, or 3.28087 feet.  
 Mile = 1.609 kilometers.  
 Mile = 5,280 feet, or 1609.3 meters.  
 Millier or tonneau = 2,204.6 pounds.  
 Milligram = 0.0154 grain.  
 Millimeter (1-1,000 meter) = 0.0394 inch.  
 Myriagram = 22.046 pounds.  
 Myriameter (10,000 meters) = 6.2137 miles.  
 Ounce (Avoirdupois) = 28.350 grams.  
 Ounce (fluid) = 28.3966 cubic centimeters.  
 Ounce (Troy or Apothecaries) = 31.104 grams.  
 Ounce (Avoirdupois) = 28.35 grams.  
 Peck = 9.08 liters.  
 Pint (liquid) = 0.47318 liter (liquid), or 0.568 (dry).  
 Pound (Avoirdupois) = 453.603 grams.  
 Pound (English) = 0.453 kilogram.  
 Pound (Troy) = 373.25 grams.  
 Quart = 1.1352 liters.  
 Quart (liquid) = 0.94636 liter.  
 Quintal = 220.46 pounds.  
 Scruple (Troy) = 1.296008 grams.  
 Ton = 20 hundredweight = 2,240 pounds (Avoirdupois)  
 1016.070 kilograms.  
 Yard = 0.9144 meter.

## APPROXIMATE EQUIVALENTS.

Centimeter, about 1-3 inch.  
 Cubic centimeter, about a thimbleful.  
 Dime, about 2½ grams.  
 Dollar, silver, weighs about 25 grams.  
 Five-cent nickel, about 5 grams.  
 Kilogram, about 2 pounds.  
 Kilometer, about ½ mile.  
 Liter, about a quart.  
 Meter, about a yard.

## MISCELLANEOUS WEIGHTS.

Bale of cotton (in America) = 400 pounds  
 Bale of cotton (in Egypt) = 90 pounds.  
 Bag of Sea Island cotton = 300 pounds.  
 Cable = 120 fathoms.  
 Cask of lime = 240 pounds.  
 Fathom = 6 feet.  
 Hand = 4 inches.  
 Hogshead = 63 gallons.  
 Keg (nails) = 100 pounds.  
 Pace = 3.3 feet.  
 Palm = 3 inches.  
 Pipe = 2 hogsheads.  
 Stone = 14 pounds.  
 Tun = 2 pipes.  
 Cubic foot of water weighs 62.4 pounds.  
 Cubic foot of water is 7.48 gallons.  
 Gallon of water weighs 8½ pounds.  
 Gallon of water is 1.728 cubic inches.  
 Wool is sold by the sack, or boll, of 22 stones, which, at 14 pounds the stone, is 308 pounds.  
 A pack of wool is 17 stones and 2 pounds, which is rated as a pack load for a horse. It is 240 pounds.  
 A tod of wool is 2 stones of 14 pounds.  
 A wey of wool is 6¼ tods. Two weys, a sack  
 A clove of wool is half a stone.

The sewing machine is coming, or has come to be an essential part of the finishing plant. There is no question that in several of the different stages the sewing machine is a positive advance over old methods. The rough sewing of the two ends of the several pieces together often leads to uneven, streaked finishing near the ends. It often entails the leaving unfinished a very much longer end than is necessary where the number is sewed on, and at the other end of the piece. If the sewing machine has the effect of doing away with the uneven, streaked appearance, and also saves a little, if it is no more than an inch or so, on a piece, in the long run it will aggregate quite a nice saving in loss and expense, says a technical writer in *The Boston Journal of Commerce*. It really does not take any longer to sew a seam by machine than it does to run the ends together with a cord and large needle, and the saving is all on one side. Nevertheless, it sometimes happens that in the fulling mills the use of the sewing machine is not always free from attendant evils. While the streaked finish is partly done away with, it is not entirely gone. There will still be a tendency to this fault even when a sewing machine is used, but it will not be so common as heretofore. Then another result that sometimes follows where the sewing machine is used is due to the seam pounding or striking against the mill as the goods pass over the rollers. If this pounding keeps up, the yarn may break, and the outcome will be a separated seam with the goods in the bottom of the mill. While this is by no means the usual result, it is none the less annoying when it does occur.

Perhaps as satisfactory and all-round suitable a plan as could be mentioned is to sew the goods at the ends with a good, strong thread by hand, the seams to be small, short and even, but with a sufficiently strong thread to last in all the work and running of the mill. This method will practically do away with the risk of breakage, and if the seams are well made, with small, even stitches, there will be little difficulty with streaks. The care and attention bestowed upon the washing machine is inevitably essential to good work, and if we wish to have goods clean and pure and free from odors and stains, it is important that we keep an eye to the washer, as well as to the cloth, the water and the soap. In the washer the sewing machine may well be employed to make the end seams on the goods that are run into the machine. For some reason, we scarcely know why, but the results are better, the cloth at the seam is likely to turn out cleaner, and less room is allowed for dirt and grease to stick and accumulate than when the seam is made with coarse thread and by hand. Another thing that must be watched in washing a cloth is the way the suds and grease and dirty water run away. Take a cloth which is allowed to run in the soap twenty minutes, then in clear water thirty minutes. The operation usual is to run off the soapy water and then turn on the clean water at once. If the soapy water cannot run away immediately, if any amount of it is compelled by bad outlet to remain any length of time on the goods while the clean water is running in, it is evident that the actual length of time in the soap is increased, while the actual length of time in the clean water is decreased. The outcome of it all is that the operation is really different from what we hoped or intended, and uniform and regular results cannot thus be positively assured. The only way to avoid this effect is to see to the outlet valves, to know from frequent examination that they are clean and open, and that the outflow is unobstructed. Any tendency that leads toward hindering this perfect and complete outflow is going to cause difficulty and annoyance and result in unsatisfactory work at last. As we proceed in our random mention of items of interest and importance, it just occurs that in speck dyeing, where speck dyeing is practised, there is always

a most fruitful source of difficulty in the shape of blotches and cloudy and off shade goods, in the fact that the speck dye is not used cold, or else the goods are run into it before they are perfectly cool. It is usual to be very careful about the dye; it is always used cold and no operative should be so careless as to make a mistake at this point; but not quite such great care is exercised regarding the temperature of the cloth when the dyeing is done. Here lies the danger and here the caution is needed.

Teasels next meet our notice. Teasels are undoubtedly in use in many of the mills of to-day, common and needful as is the napping machine, which is more and more growing into favor. The use of the teasel calls for special caution in the setting of the slats. We have known cases repeatedly where this work was entrusted to the biggest blockhead in the whole room; where a man or boy who was good for nothing else was supposed to be good enough to fill teasel slats. This is a mistake, and cannot help but lead to trouble. Better be careful about the way teasels are set than have to bother with streaked gigging and teasels falling out of slats. It will usually be found most satisfactory, though admittedly not so easy, to set the teasels dry. When they are set wet it is necessary to dry the slat before it can be used, and unless they are placed in

that has come in contact with the wet cloth to get out, is quite as necessary as a chance for the hot air to get in. To merely push in the hot air without watching the outflow of the moist air is to waste heat and time, and to injure the quality and condition of the fiber.

#### A. R. CLARKE, & CO., TORONTO.

The glove factory and morocco tannery of A. R. Clarke & Co., Toronto, is one of the largest in Canada. About fifty years ago John Clarke, Peterboro, Ont., established a tannery in that town and built up a thriving business. He devoted his attention to colors with much success, and the business gradually drifted in this direction, although upper leather tanning was the original product. After the death of Mr. Clarke the business was removed to this city in 1882 and conducted since by his sons, A. R. Clarke, F. G. Clarke and C. E. Clarke, who have together developed a business of which they may feel proud.

Perhaps in no branch of the leather trade has there been as complete a revolution in process and methods, as in the production of glazed kid and other lines of light shoe leathers, during the last ten or fifteen years, says The Canadian Shoe



CHROME FINISHING DEPARTMENT.

the slat very closely and solidly they are going to drop out when the slat becomes dry and cause trouble on the gig. If you have the teasels mounted dry, as soon as they are wet they will swell somewhat, and this will have the effect of making the slat solid and substantial. Its life is extended and its usefulness is thus considerably enhanced.

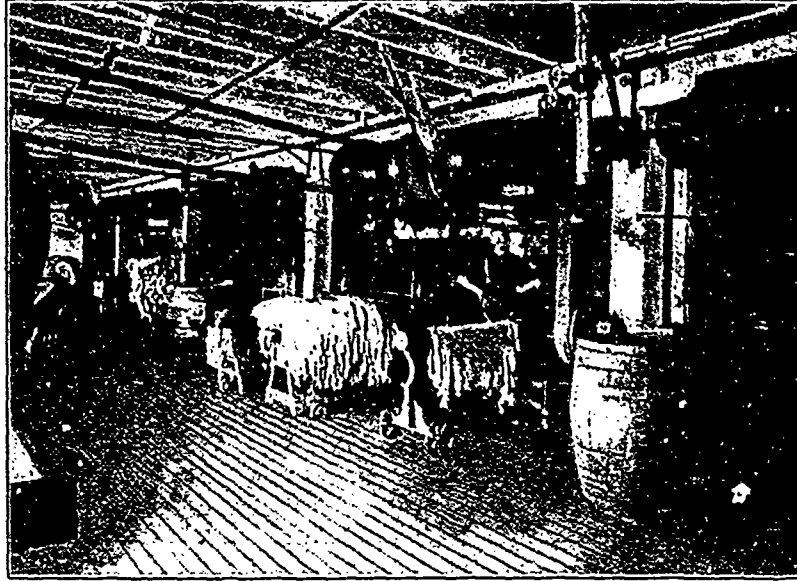
The drying process is one which calls for care and caution in ways that are often overlooked. The mere hooking of the goods at the selvage is sometimes carelessly done, and it must result in bad work. The hook wants to be inserted in the middle of the listing, neither on the outer edge nor in the body of the cloth. But one of the greatest evils in the drying of woollen cloth is to allow the hot air to get so saturated with humidity that it loses its drying power. It often happens that the temperature is increased beyond the needed point in the hope that the drying may be expedited. The trouble in this case is not so much in the heat as it is in the dampness and moisture of the heated air. Ventilation, or a chance for the moistened air

and Leather Journal. Even apart from the chrome process, which has superseded sumac and other agents in the tanning of goat and calf for shoe purposes, there has been a change in the manipulation of sheep leather for bookbinding, pocketbook and even shoe manufacturing. Sumac and gambier have hitherto been used almost exclusively, but now even in tannages where chrome is not generally used gambier is bidding fair to be supplanted by quebracho, which is becoming more extensively used in the production of sheepskin lines. In shoe leathers French kid, brush kid, and polished calf have disappeared before the victorious march of the chrome product, which has now become standard wherever these former were used. Practically all the glazed kid that is used to-day is chrome tanned. In fact the morocco or kid factory of to-day has been so transformed as to be as different from the institution of fifteen years ago as the modern vestibuled train is from the old-fashioned stage coach.

Previous to 1884, the agents employed in the production of kid almost exclusively were gambier and sumac, but these have

been entirely superseded by the products of the laboratory, in the shape of chemical solutions, and the application of treatment so essentially different as to make comparison most difficult, the result being a class of stock cheaper, better and more serviceable in every way. From the beamhouse to the last finishing touch to the skin, change is everywhere apparent. In addition the important changes in the manipulation of limes and

weather, whiskey and his disposition to work. It sometimes took a whole week to finish a ten dozen lot, although four dozen was considered under favorable conditions, a good day's work. Each finisher had his little compartment, equipped with the necessary kit and materials, and he was responsible for the stock committed to him turning out right when finished. Herein will be noticed perhaps the only drawback in the new



SHEEPSKIN TANNING AND COLORING DEPARTMENT.

bates, have come machines for fleshing, unhairing and slating that make the task of preparing the skins for the tanning process less arduous and unpleasant as well as more perfect. In the old sumac process of tanning it was the custom to form a bag out of the skin by sewing it, and fill it up with liquor, afterwards throwing the whole into a vat of the sumac liquor

system of things, where each man is trained to a certain operation, and has no further responsibility when the stock leaves his hands. He does what he is told, and the fault lies with the superintendent, if indeed it can be located, when the skins do not turn out right at the close of the finishing operation. Where one man carried the whole process through, he could



CHROME TANNING DEPARTMENT.

for a day. The skins were afterwards opened, cleaned and allowed to dry. Then followed the finishing process, which was both laborious and slow. One man finished a lot of skins right through from the time they were tanned and dried until they were warehoused, the speed of his work being regulated by the

adapt his methods to the particular conditions that developed. The finisher in the time to which we are referring first "staked" or softened the skins, prepared them for coloring, colored them, dried and colored them again. Afterwards they were treated with a seasoning mixture, then a sort of paste or

varnish, consisting of logwood and flaxseed, was applied, and the skins polished with a stiff brush or a glass sphere. They were then softened by rolling with a slab of cork and the surface slightly oiled, and the product was ready for the market. This system simplified manufacturing, although entailing considerable expenditure of space in giving the finishers individual

money and stock in the endeavor to secure the right thing.

The finishing process is also conducted along vastly different lines than formerly, being divided into separate operations, almost all of which are performed by machines. After tanning, the skins are shaved and put into another drum containing the coloring solution, and when colored taken out, oiled, and "put



SHEEPSKIN FINISHING DEPARTMENT.

compartments. To-day this has all disappeared. In the first place sumac, as we have said, has been superseded by the chemical solution. The skins are, after coming from the beamhouse, thrown into a huge revolving drum, or a large vat provided with a paddle wheel. There are two processes of chrome tannage, the two bath and the one bath, the former being the one most largely used, and by the majority of those who know their

out" or slicked, after which they are hung up to dry. When dry they are staked on the staking machine, the jaws of which work the skin into pliability. Formerly this result was secured as the name of the operation implies over an upright "stake" attached to the floor and provided at the apex with a broad rounded blade. The skin was drawn back and forth over this blade by the operator, the weight of his body being thrown



GLOVE FACTORY—MACHINE OPERATING ROOM.

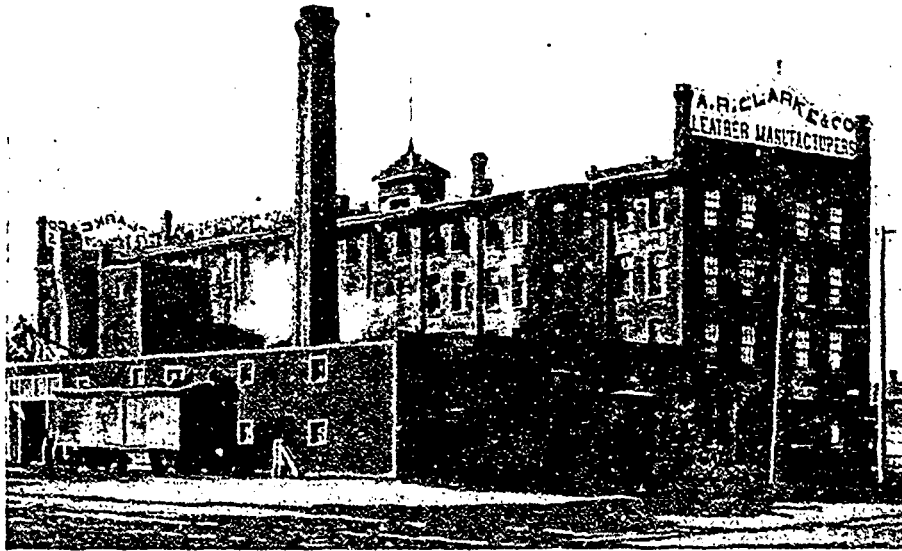
business. The first bath is called the chrome bath, and consists of a solution of salts of chromium or bichromate of potash, hydrochloric acid and water. At a certain stage the skins are taken from the bath and treated with a reducing agent, consisting of hyposulphite of soda and hydrochloric acid. The whole occupies a few hours where the revolving drums are used, or as much as a couple of days when paddles are used, many preferring the latter process as yielding better results. Methods vary considerably, and thousands of dollars have been spent in

upon it. As may be easily judged the hand, or rather knee staking was attended with more or less danger to the stock. The machine does the work evenly and quickly. After being staked the skins are seasoned and the color brought up, then the finishing material is put on, after which they are glazed by the glazing machine. This machine is provided with an arm at the end of which is attached a glass ball or roller; this roller is drawn by the arm rapidly over the surface of the skin. The operation of seasoning and glazing is repeated in some cases

three or four times, then finally glazed the skins are ready to be put up in dozens for delivery.

So much for the changes in tanning and finishing. As we have already stated the development and growth of the business has made the morocco factory an institution of such magnitude as to be well worth a visit of inspection. We provide our readers with the accompanying illustrations of A. R. Clarke & Co's factory. It covers a space of 200 feet by 90 feet, being of brick, four stories high. Immediately at the front are the offices of the concern. A railroad siding on the eastern side is convenient to the store rooms where are kept the stock of skins, tanning materials and other supplies required for the purposes of the establishment. The factory proper is well laid out and is planned to secure the utmost expedition in putting through the stock. The front half of the building in both the

to improve on nature. The best results are still obtained through using the pure air of heaven for drying purposes. Two elevators at either end of the building provide communication and transportation between the ground floor and the succeeding flats. The roof is also brought into requisition for drying purposes. A portion of the third flat is used for finishing of their glove stock, and the rear half entirely taken up with their glove factory. In addition to their leather business the firm does an extensive business in gloves, mits and moccasins, the lines comprising between four and five hundred samples. Their goods have made a reputation for reliability of stock, make and finish that has been the foundation of their large trade in this line. An idea of the magnitude of this great enterprise may be gathered from the accompanying illustration of their machine operating room. It is in leather, however, that our readers are



A. R. CLARKE & Co's WORKS, TORONTO, CANADA.

first and second flats is devoted to their sheepskins, skivvers, etc., while the rear half is set apart for their chrome kid, calf, etc. On the first floor we therefore find in department No. 1 the vats, drums, paddles, striking and putting out machines, etc. In this department the sheepskin stock is tanned and colored. Adjacent to this department we find Department No. 2 of the first flat, where are the drums, paddles, striking, putting out machines and the other equipment necessary for the tanning and coloring of chrome stock. By careful methods and persistent effort, splendid results have been attained in this class of stock. The capacity of this department is severely tested by the demand for both glazed and chrome calf. The beamhouse is situated at the rear of this flat and is equipped with the most modern appliances and machinery.

Taking the front half of the second flat we have the finishing department for sheepskins. Here, as may be noticed in the engraving, will be found the necessary machines and operatives for the softening, brushing and glazing of the different classes of goods in this line turned out by the establishment. The rear-half of this flat fulfils the same purpose in connection with the chrome stock. Staking, glazing and finishing machines are busy completing the preparation of the various lines for the market. The most modern machinery is found in every department and the utmost efficiency secured throughout the establishment by personal supervision of the proprietors. The third and fourth flats are devoted to the drying purposes, being arranged with natural and artificial drying processes. There is one department in which man's inventive genius has not availed

most interested, and in their particular line, A. R. Clarke & Co excel. They turn out large quantities of black and colored glazed kid, black and colored chrome calf, sheepskins in plain and colors for both shoe manufacturing, bookbinding, and fancy leather goods trade; glove leathers, buck, elk, etc., and similar lines. The works give employment to about one hundred and fifty hands.

#### EUROPEAN NOVELTIES.

The staple and chief attraction is to be half-silk jacquards with silk warp and small pleasing figurings. In the various grades of cotton pretty Scotch plaids are shown in crepon and parama weave, and with a noticeable admixturing of black. Then there are large lots of jacquards with colored warp in doubled English chevrots, shoddy silk, imitation silk (mercerized cotton) crossed with a wool of wool and cotton. The figuring is small and medium patterns, the special correspondent of *The Dry Goods Economist*, New York, writes from Gera, Germany:—

Much is expected, for the export trade, of the goods with a warp of mercerized cotton. Among the samples are many checks and plaids in pretty color schemes, mainly in reps and crepon weave, utilizing black spiral and pearl threads; or the same in brighter colors with dots, dashes and flecks in white. In reps goods many narrow stripes and small checks are shown. Pure wool plaids are coming into favor again. They are shown in 2-78 worsted with 1-30 best English thread



Scotch plaids are the usual designs, although effects with strikingly colored threads are occasionally seen.

There is a new invention, which is made by the Ulzen weaving mills in Gera, and which has been the subject of experiment since last summer. This is a novelty which is undoubtedly destined to create a considerable sensation, and its merits and far reaching importance will not perhaps be fully comprehended for some time to come. It is the new plushes, designed to be used mainly as dress goods, which will doubtless soon play an important part in the export trade. The importance of this production lies in the fact that the plush is made on the ordinary looms used in Gera-Greiz heretofore, and therefore can be manufactured at a price which will soon put all other styles of the same goods out of the running. The plush is manufactured in cotton or silk. The former style is made with warp of finest cotton threads and a wool of stronger cotton (mule) in two varieties of weave, plain and jacquard. The plain goods are piece-dyed in solid color, but can be printed in other shades and simple figurings if the caprice of fashion should so require it. Even in these early stages, when the process has not yet been fully exploited, the goods present a most favorable and promising appearance. The jacquards are shown in very striking and attractive designs, made of materials in natural color or thread dyed. Those made of natural shade raw materials are colored in the thread just sufficiently to bring out the design in the most effective manner.

So much for the Ulzen cotton plushes. It has been stated that it is now possible to produce silk plush on the ordinary loom in use in Gera-Greiz factories, and in proof of this are samples shown with warp of pure colored silk and wool of a fine-grade imitation in the same shade. This style is made with all thread-dyed materials, and, judging by the samples already shown, the silk plush should soon enjoy unlimited favor among the better class of customers. The entire production of the goods—sizing, coloring, printing and dressing—is the secret of the manufacturer, and it is not at all improbable that his success in this line will lead to a production of articles belonging more to the rug and carpet branch, such as tablecovers, scarfs, etc. Of course it will never be possible to produce the true carpet cloth on the simple Gera-Greiz looms, because of the narrow width of the machines and the impossibility of their handling the heavy threads necessary for the making of carpets. But the success of these new plushes allows of many interesting experiments in this direction.

In Apolda, the home of the Thuringian fancy woolen manufacture, there would be great joy at the restoration of the former good relations with America, even at the expense of Agrarian anger. The German fancy wool trade has also a novelty to show. This is a cape for ladies and children, finished on the looms up to the last touches. The capes are made in perfection of workmanship, with Medici collars, sailor collars or capuchons. The material of these capes resembles the eider-down flannel made here several years ago, only the new goods are far prettier and more practicable and durable than the former specimens. The goods are made on newly patented machines, and have every prospect of meeting with general favor. They can be used beautifully for dressing sacques and peignoirs. Many pieces have already gone on orders to England and Paris to be made up for this purpose, while the home manufacturers are also turning their attention to this branch of the business. Apolda has other styles of similar stuffs to show, in smooth, rough and Persian surface, which are used for children's clothes mainly. Advance orders for large quantities for next winter have already come in. New goods in dainty colors in stripes and plaids find much favor with buyers. The machines for the making of these goods have been slightly changed, being fitted up with new patents to the great improvement of the finished wares.

## WEIGHING OF COTTON BALES.

The Liverpool Cotton Association proposes to change its methods of weighing and invoicing cotton, and its directors have submitted the following propositions for the consideration and adoption by the association:

(1) That the weighing and invoicing of cotton shall be in pounds instead of hundredweights, quarters, pounds as at present; (2) that the allowance for tare on American cotton shall be 4 pounds per 100, instead of per 112 pounds, and that the allowance for "double draft" be abolished; (3) that the allowance of 1½ per cent. discount in invoices be abolished, and that the rate of brokerage shall be 10d. per bale for buying or selling "American spot cotton" (Sea Island and extra staples excepted), and for "American futures" a minimum rate of £3 10s per contract of 100 bales. (The above recommendations apply only to American cotton. Should they be adopted, their application to other descriptions of cotton can afterward be considered).

1. The directors state that they are of the opinion that there would be no practical difficulty in weighing cotton in pounds, although it might be necessary to use weights, either wholly or partially, of 100 pounds and multiples thereof, such weights having received parliamentary sanction. The operation of weighing in itself would be more simple than at present.

2. The simplification of invoicing in this way, however, cannot be satisfactorily accomplished without altering the allowance for tare from 4 pounds per 112 pounds to 4 pounds per 100 pounds. The directors also recommend the abolition of "double draft." Note: Double draft is supposed to be an allowance made in error in the turn of the scale, and also to ensure the buyer receiving at least the net amount for which he pays, but as the seller calculates this allowance in the price he takes, if it were abolished he would be enabled to take about ½ per cent. less for his cotton.

3. The abolition of 1½ per cent. discount, the directors state, would show to both buyer and seller the actual cost of the cotton per pound. At present this deduction is, of course, taken into consideration in calculating the price, and is in no way an actual concession to the buyer from the seller. The 1½ per cent. discount is a modification of the old custom of allowing three months and ten days' interest at 5 per cent. on all payments. The difference made by the abolition of this allowance, together with that of "double draft," would be equal to about 2 per cent., or 3-6d. per pound, calculating the bale at 500 pounds, and the price at 3¼d. In conjunction with this, the directors state that they think it is desirable to alter the rate of brokerage on "spot" and "futures," as proposed, instead of the existing percentage rate. The convenience to the importer would be that the addition to c.i.f. and 6 per cent. prices would always be a fixed sum, instead of a variable one, as at present, while to the spinner and his broker it would not signify whether the price of cotton was high or low, the remuneration only depending upon the amount of work performed. Associate members will be entitled to have their business in futures done for half the above rates. Again, the abolition of double draft and 1½ per cent. discount would enable both buyer and seller more nearly to arrive at the net price in which they are trading, and Liverpool quotations would no longer appear to be so much above those of c.i.f. and 6 per cent., and those of the southern markets. The directors state that they are of opinion that no practical difficulty will be experienced in making the alterations required, and they recommend the adoption of their proposals in the interest of the association, and the cotton trade generally. The above proposals are brought forward on the recommendation of a special committee appointed by the board.

## Foreign Textile Centres

MANCHESTER.—The new lace effects for the season include some remarkably attractive Plauen goods, known as mollifs, or lace objects. That is the way they are described, but they are floral, geometrical, and other figured designs in the shape of single objects (that is, not the portion of a fabric, but an article in itself) produced by the Plauen lace machine. Thus one may see a clever machine-made representation of a rose-bud, a lovers' knot, a beetle, and so forth, in these new goods, which are intended, by the way, for millinery and dress purposes. The novelty is sold by the "object," or where made on a lisse ground, by the yard. The imitation of flowers produced by the Plauen machine is a remarkable illustration of the progress made by the manufacturers of the Vogtland. Some buyers for the wholesale houses have supported the new styles liberally, says *The Drapers' Record*. Embroidered mercerized cotton effects on lisse for military purposes afford a further illustration of the extended use made of the modern development of John Mercer's original invention. The new styles referred to have been applied to berthas and epaulettes. The bugbear of German competition has as yet hitherto frightened English velveteen dyers. The Germans have for years led the way in the manufacture and dyeing of silk velvets, but as far as cotton velvets are concerned they are much behind us. There is a good deal of dyeing done in Germany for English firms, but it is principally confined to other classes of goods—silks, for instance. The statement that Americans are "insisting" on goods being sent over in the raw or "picker" state, the dyeing to be done on the other side, does not refer to a new departure. The custom of sending goods over in the gray was caused a few years ago by tariff charges, specially devised to produce such a result. It is not unlikely that the practice may, however, be extended by the action of the dyers, if the latter care about cutting their own throats, which one can hardly fancy likely. A good deal is being written locally about the new calico printing syndicate, but the industry is going on its way quietly, and is not, fortunately, likely to be seriously perturbed at what has been published during the last few weeks in Manchester about the calico printing business.

LEEDS.—There is a steady business in all branches of the cloth trade, and for medium suitings, low meltons, and tweeds there is a gradually improving demand. Buyers from the Midlands, Durham, Northumberland and Ireland, representing important ready-made clothing factories, are placing orders which for low-priced fabrics are occasionally large. Recently Canada has been the only important outlet for these goods, says *The Textile Mercury*, but at present there is a prospect of a considerable home consumption, while quotations are no higher than they have been for the past year or two. In more expensive cloth such as worsteds, serges, and vicunas, the demand is slowly expanding, and prices are firmly maintained. Yarns are dearer, and the question as to the value of the manufactured article is thereby settled. Repeat orders for costume and mantle cloths are much wanted. Fancy tweeds and worsted trouserings are dearer, which is due to better prospects on the Continent. The requirements for the United States are still upon a disappointing scale, but there is an excellent enquiry from Canada, ready-made clothing operations being larger than ever before. Dyers and finishers report a satisfactory amount of work in hand. In blankets there is a better sale for colored as compared with white, and prices are steady. For army cloths, rugs and sealskins there is no change.

BRADFORD.—Although the tone of the wool market here is

fully firm, and holders of all classes of raw material are not at all pressing sales, there has been rather less buoyancy in the market than we had hoped would have been the case at the beginning of March. All classes of merino wools and tops are very firm, and the opinion is growing that these wools are likely to be more largely used in the manufacture of dress goods both in this country and on the continent, and should this surmise prove to be correct, the decreasing supplies of these fine colonial wools would soon occasion another distinct advance in prices. The forthcoming colonial wool sales of colonial wools only contain a very small quantity of fine merino wools, so that very little relief to the small stocks at present held here can be expected to come from there. Crossbred colonial wools are in fair demand in the finer classes, but the immense quantities of the coarser crossbreds coming forward from various parts of the world have, to some extent, checked the confidence in the recent advance in prices, and, as the continental demand for yarns continues quiet, prices for the latter are barely maintained. There is a better business doing in the best hog pure lustre English wool, but other classes of home-grown wools are somewhat neglected. Consumers of raw mohair have now acquired a sufficient supply to meet their requirements until after the next clip, and, as there is very little of the best hair now left in the open markets, purchasing operations have recently been quiet. A very considerable proportion of the colonial wools used in Bradford, as well as a fair proportion of the home-grown wools, are sent in the raw state to machine woolembers, who comb it into the form of tops, in which state it is purchased by the worsted spinner. This industry of commission woolembing has very greatly expanded in recent years, and has now attained very large proportions indeed and will deal with millions sterling worth of wool annually. During the recent time of depressed trade in Bradford there have been frequent complaints that the keenness of the competition had created such a cutting down of prices in the woolembing trade that some classes of wool were being combed at an absolute loss. In worsted yarns buyers of two fold worsted yarns on the continent are still refusing to follow the upward tendency of prices, and that in a few instances weak spinners have been induced to accept a slightly reduced price rather than let business go by. There is, however, a much improved demand for all classes of worsted yarns in the home trade, and the best spinners of mohair welt yarns are finding it difficult to keep up their deliveries. In the home trade warehouses, in the dress goods trade, the past week has brought to hand more orders and greatly increased deliveries both to London and the provinces, and the general prospects of the spring season's trade are now good. As the season advances the demand for all classes of high-class bright dress goods becomes more assured, and the dyers who make these goods a specialty are unable to keep pace with the requirements of the trade, even by working day and night. For the United States, also, some good repeats have been put through for bright goods wherever reasonably quick delivery could be given, and the Bradford representatives, also, are finding business for the next autumn opening out extremely well in dress goods. Makers of coating costume cloths are still busy, and are getting good repeats, and as these goods have proved themselves to possess particularly good wearing properties it almost seems as if a permanent business had been established in them.

ROCHDALE.—At the flannel market recently negotiations for the next season's trade were continued, but when the full advance recently quoted was put into force merchants were content to order sparingly, and for a time are risking the future tendency of the market. The market may be said to be more cheerful than is usual at this period of the year. The orders which have been placed will enable manufacturers to tide over

the quiet portion of the season, and for the most part full time is being worked. In a few cases there are exceptions in which a full complement of machinery is not running.

**KIDDERMINSTER.**—A good steady trade is doing in carpets, with overtime in places, but, generally speaking, the trade is steadier and more evenly distributed over the various makes of carpet than has been the case for some time past. There appears to be a fair demand, but next to no speculation. All that can be said of yarns is that they hold their price well. Not much new business is offering, but where prices are tested the market is found to be very firm. Deliveries, particularly of woolen yarns, are fairly satisfactory.

**NOTTINGHAM.**—The conditions of the lace trade of this centre are fairly good, but the season opens out slowly and complaints are heard of slackness in the home demand and of an indifferent enquiry from the nearer markets of the Continent. These complaints are always heard, in fact, and from enquiries among the trade, at least an average business is being done, while some manufacturers report good orders, says *The Dry Goods Economist*. The most markedly active branch is again that concerned with plain goods. The fortunate holders of suitable machinery to produce mosquito nets are making good profits, prices being much above the normal. Bobbinets, mechin and zephyr tulle and spotted nets are steady in value. There has been no further change in the demand for silk tulle. Stuff foundation nets are dear, and orders are sparingly placed. The curtain branches are also brisk and are doing a good business for home and export in window blinds and furniture laces. There is no special change in styles, and though competition has not abated, prices are steady. Some machinery is only partially employed, owing to the severity of outside competition, but this has become a normal condition now. Cotton embroidery laces and everlasting trimmings are rather quiet. Valenciennes and torchon laces and insertions are most in demand, but there is a sale also for malines, duchesse and point de Paris laces and insertions to match. Houghton braids and silk, cotton and linen purls are steady, Irish trimmings, crochet edgings and tattings are slow and inclined to dullness. American crochet and Irish laces are not in full request, and the machinery is only partially employed. Advices from London speak of a slackening off in the demand for torchons, and the lower makes of valenciennes are also quiet. For the shipping trade there is a better demand for the finer makes of Nottingham curtains. The demand for Irish prints has been moderate. As far as the States are concerned it is believed that the lower grades of lace curtains have not the support accorded to them last season. Some attractive makes of Plauen galloon insertions have been brought forward. In veilings 18-inch fancy meshed Tuxedos receive attention for the New York market, and new effects in gauze veilings may also be mentioned. In ready-made veils, cream cotton articles are noticeable.

**SOUTH OF SCOTLAND.**—There has been little or no improvement in the South of Scotland tweed trade since my last report. Orders are extremely scarce, and the outlook is not reassuring. The regular makes of tweed are still in disfavor, the main demand being for worsted goods. The result of this temporary aberration of taste is that many carding and spinning machines are idle. Spinners are loud in their complaints. Wool continues high in price, but the rates for yarn are not in proportion, and many orders have consequently to be declined. To enable makers to clear a little profit, there must be a considerable advance in prices of yarn and cloths.

**KIRKCALDY.**—The linen manufacturers at Kirkcaldy speak hopefully of their trade. Their machinery is well employed, and prospects are satisfactory. As has been the case for the past two or three years, the linoleum and floorcloth factories

are doing a splendid business. The outlook is most encouraging.

**BELFAST.**—The steady improvement that has characterized the linen market for some time past has been fully maintained. The amount of business has surpassed that of any recent period, and all departments of the trade share in the increase, and prices are surely, if slowly, tending upwards. There has been a better trade in yarns. The finer qualities of tow yarns have been in active demand. For line warps and wefts there has also been more request. Prices are very firm. In the market for brown cloth business has been brisk, and manufacturers have been able to secure higher rates in several instances. There has been a reluctance to speak too confidently of improved trade, but the indications are all favorable to the continuance of the steady and satisfactory expansion that has been experienced for the past month or two. Manufacturers have plenty of orders on hand, and decline to book further ahead, unless at increased rates. The demand for thirty-eight-inch powerloom linens continues steadily good for both green yarn and boiled yarn qualities. Unions are in brisk request. For tow-made goods demand has improved. Damasks and house-keeping goods are selling freely and rates have advanced. A steady business is passing in cloth for dyeing and hollands. Handkerchiefs, linen and cotton, and piece cambries have been in increased demand. Handloom linens for bleaching continue to sell steadily. Bleached and finished linens share in the general improvement. Home trade orders have been very satisfactory, and shipments across Channel are in advance of any recent week. The aggregate would amount to a large sum, and would compare favorably with the weeks of other years. The making-up trades are ordering freely of white linens and unions. The demand for damasks and household goods is fully maintained.

**LYONS.**—The activity in the Lyons market is gradually increasing. At the same time, it can be observed that the increased demand is not occasioned by pressing wants for fresh supplies, but results with a great number of buyers from the conviction that higher prices will rule. Some of them appeared personally in the market, but their number was not great, while more orders had been placed into the hands of commission houses. All of them, however, appeared to be actuated by the desire to secure goods at old prices, or, in the case of fresh goods, to minimize the advance. Prices, therefore, were rather irregular, as less resistance was encountered from manufacturers who had provisioned themselves before the rise in raw silk began. Their number, as must be admitted, is small, but sufficient to impart a tone of uncertainty to the market which will doubtless last until all are forced to insist upon the full advance. The difference was particularly perceptible in the case of powerloom goods, in which fairly large quantities were ordered. The eagerness of the lucky owners of cheap raw materials in securing work for their mills for months ahead at paying prices can easily be understood, but the interests of the silk industry at large would doubtless have been more benefited if actual values had been taken as a guide. Prices, however, are slowly rising, and as the raw silk market remains extremely firm, an adequate price-level for manufactured goods will doubtless be reached before long. Plain silks in the different fashionable weaves so far enjoy the best demand, and, among these, taffetas in black, plain colors and glaces hold the first place. Next to these are surahs, satins, satin liberty, pongees and moires, while for fancy styles the demand has not yet quite developed, probably on account of the absence of sufficiently clear indications with regard to the coming fashion. The prices for fancies, especially those mixed with cotton, were much complained of. The demand for mousselines, crepe lisse and crepe de chine was good at improving prices. The old

orders for tie silks and parasols are nearly complete and new orders are rather slow in arriving. The demand for velvets for immediate use is gradually falling off, but the number of fall orders is increasing and a good season is expected.

**CREVELD.**—The wholesale branch of the silk trade has been very active during the week under review. Men on the road are meeting with much success and mail orders also were plentiful, owing to the good demand which comes from the retail trade. The manufacturing trade is particularly busy, and all styles which have been taken up either for cloaks or blouses attract increased attention. The orders, as a rule, are not large, but all signs point to early development of a lively demand for those styles which are particularly favored by fashion. The only complaint is with regard to the prices, the trade so far remaining completely indifferent toward the rise which has been in progress for nearly three months. Many buyers refuse to discuss new orders at an advance and appear to have encountered no difficulty in securing at the old prices all the goods they required. It is the more difficult to obtain the advance, as the demand is chiefly directed toward plain goods, in which the production is naturally larger than in fancy styles. There has been no change with regard to fashion and no falling off in the demand can be reported for any of the styles which had been taken up, but in some grades an increased activity is noticeable. The demand for black taffetas has particularly increased, and although no scarcity manifests itself, the time cannot be distant when the supply will prove inadequate, as many orders had been held back on account of the higher prices. Striped and checked taffetas were in good demand, plaid combinations having gained renewed prominence. The ruling shades are red, dark green and purple. Duchesse and faille remain highly fashionable. There is no change in the velvet trade except a better demand for mantle plushes. At last advices no progress had been made with the settlement of the strike, which continues in all the mills.

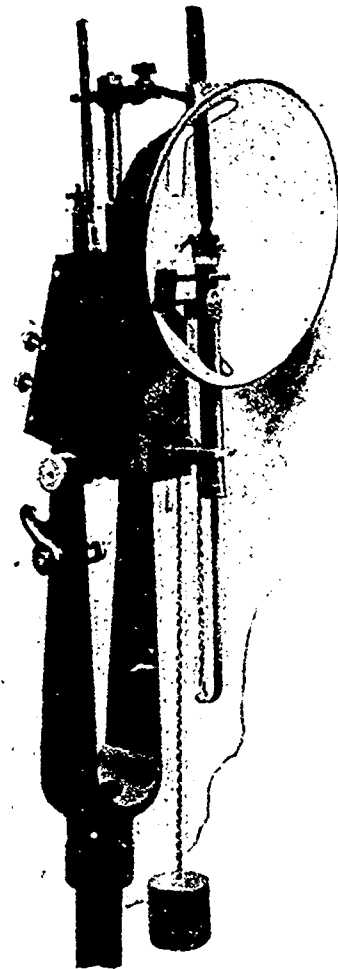
**CHEMNITZ.**—There is still a large business doing in hosiery goods at Chemnitz. Staple goods, black and leather shades, especially have booked large orders. Prices are in many cases called unsatisfactory, but then it very seldom happens that manufacturers admit them to be profitable, and such statements are received with due discount. The current orders from the United States are not as voluminous as reports from New York might suggest; still there is a fair number on hand, and more are expected. Richelien and boot patterns a jour have the best call, but fine embroidery patterns are also selling well. Gloves are pressed on all hands for delivery for the summer season, and as second-hand stocks are small, re-orders should be plentiful by and by. Buttoned gloves, cut and whole loom makes are well sold, and machinery is fully employed. In crochet underwear good qualities are most in request, and the prospects are for a very good season in tricot fold-shirts, with percale inlets, of which some very choice patterns have been sent out. Cotton and silk combinations are doing very well, and their use in the home markets is rapidly gaining ground.

**MILAN.**—There were fewer transactions in raw silk recently than for some time, reports The Dry Goods Economist, but the market appears to have become more settled. There is less irregularity in the prices, which in most cases gained a further slight advance, including those for organzines. Some purchases were made by speculators, but the principal demand came from the mills, which seem fully convinced now that lower prices cannot be looked for. Spot silk was sought, but the supply is too much reduced to allow important deals, and while the volume of the week's business was therefore rather restricted, increased disposition is shown by the mills to make contracts for later delivery. A good demand appeared for best grades of weaving greges for both foreign and home consump-

tion, which, however, proved very scarce. The Piedmontese districts report a more quiet tone with fewer transactions, but very firm prices. The scarcity of spot silk is beginning to make itself unpleasantly felt in those markets also.

**ZURICH.**—The week under review passed rather quietly, in sympathy with the Italian markets, where the excitement witnessed during the last few weeks appears to have subsided. The advance in the prices is apparently halting, but, although the highest figures may have been reached for the time being, it is not thought that the upward movement has spent its force. A still higher level appears hardly desirable, but the condition of the still existing supply and the now developing demand for manufactured goods clearly point to a reappearing demand for raw materials which cannot be met. Buyers of silks are becoming impressed with the condition of the market, and show themselves more eager to place orders, while more resistance is displayed by the manufacturers against low bids. The prices are being advanced, and some cases became known during the past few days where manufacturers withdrew their former offers after the buyer had failed to accept them in time. The demand for goods from stock was very satisfactory.

#### SCHOFIELD'S IMPROVED AUTOMATIC ELECTRIC FOCUSING LAMP FOR PHOTO-ENGRAVERS.



This lamp is the result of a series of experiments and a special study of the requirements of process photographers. It is simple in construction, all movements are electrical, there are no springs or clock movements; the arc is absolutely stationary, requires little or no attention. Any necessary adjustments can be made by any person of ordinary intelligence, the

makers claim. The lamps will burn on any direct current system, and are capable of any degree of candle power from one to ten thousand, are perfectly automatic and give a steady light without flickering, or giving the operator any anxiety or trouble. They are very carefully made, and only the best materials and the highest grade of workmanship are used in their construction. The principles have all been thoroughly tested, and the construction only changed to suit the most modern requirements of the art of photo-engraving. Each lamp is mounted by a specially constructed stand with a heavy base, rendering it very steady, and can be adjusted at any height or any desired angle. Rheostats are not supplied to the United States trade, as they can be purchased just as cheaply in the United States, and a saving in duty is thereby effected. The illustration shown gives a very good idea of the appearance and construction of the lamp. The accompanying testimonial from a firm at present using this lamp speaks for itself:

Richard Schofield, Toronto, Ont.—Dear Sir: I am very pleased indeed to be able to inform you that the two focusing lamps we purchased from you some time ago have given the utmost satisfaction. They burn steadily without flaming or sputtering, and give a wonderfully clear white light. I consider them superior to anything I have seen, and I may say in this connection, that before purchasing your lamps I examined personally all the lamps at present on the market in New York City, and consider your lamp very much superior to any of them. Enclosed you will please find an order for another lamp, which please complete and deliver to us as soon as possible.

Yours very truly,

GEO. A. HOWELL, Manager.

The Grip Printing and Publishing Co., Toronto, Ltd  
Toronto, January 10, 1899.

### NEW GAS SINGEING MACHINE.

No system of singeing by sucking gases at an elevated temperature through the meshes of the tissue has thus far been sanctioned by usage, says Felix Binder in Bulletin de la Soc. Ind. de Mulhouse. The author has undertaken to find out the reason. The principle of suction is rational, because it utilizes all parts of the flame and particularly the exterior zones which attain the highest temperatures. The singeing machines at present employed take no account of these conditions, their construction compels the flame to play upon the surface of the tissue just at the moment when the latter passes over a metallic roller. In most cases even the flame spreads itself, fan shape, over the convexity of the roller and lets the outer zone, which is just the most active one, escape into the air. Struck by this fact, the author made his first experiments in September, 1896, at the works of the Emile Zundel Manufacturing Co., at Moscow, by means of a very simple apparatus of the width of one piece of tissue. The apparatus consists of a sheet-iron cylinder closed at both ends, and with a longitudinal opening which looks like that of a gas lamp. In the upper part of the cylinder is made a slit opening into the chimney which is connected with the sucking orifice of a ventilator. Two cheeks, assuming the shape of the cylinder, serve to regulate the width of the opening. Two muffs fitting in the cylinder with right and left screws can thereby be set at a distance corresponding with the width of the tissue between the selvages. Roughened surfaces cause the complete obturation of the opening by the tissue.

This apparatus has been put into the place of the guide roller upon one of the two Ducatel-Leleux gas rails of a singeing machine, the system has been put into action, and the author observes the following, viz:

Instead of spreading out in fan-shape, the flame preserved

under the action of the current of air a perfect steadiness and kept itself within the limits of the slit; the intensity resulting therefrom necessitates an acceleration of the passage in order not to burn the tissue. This condition being fulfilled, everything seemed to go for the better, when a new inconvenience manifested itself; the apparatus had gradually become heated to dark red heat, while the air current became gradually weaker, and finally made leaps which marked the tissue with horizontal unevenly singed bands. The experiment had, therefore, to be interrupted until the apparatus had cooled down. The same phenomena presented themselves in all the following essays. They have led the author to admit that the process could only succeed if the heating of the apparatus could be prevented. And to the fact that this precaution has been neglected he attributes for the greater part the ill-success of the preceding suction gas-singeing machines. The results of the first trials, however, had been encouraging as regards the action of the flame and the production of the machine. Mr. Binder, therefore, had in October, 1896, an apparatus of double the size built of sheet iron, with hollow walls for the passage of a stream of cold water, as described in the Bulletin de la Societe-Industrielle de Mulhouse for August to November, 1898. The suction of the flame has been accused of "thinning" the tissues. This assertion is not exact when the operation is well carried out. All depends upon the intensity of the flame and the quickness of the passage. As compared with the old leading process the speed ought to be double. The author has the singed, bleached dyed and printed tissues minutely examined, and has never observed that they had been "thinned." More than that, the dynamometrical tests demonstrated that the new singeing preserves the tissues more than the old did. When very light tissues are singed, such as organdies, bareges, crystallines, etc., the ventilator must be stopped. In this case is the natural draft of the chimney sufficient to produce the desired effect. Silk and woolen tissues behave like the cotton ones, and the same is the case with linen. We have continually observed, that in all these cases the flame only imperceptibly browns these materials. The author leaves it to the reader to draw from these results the practical conclusions. The quality of this singeing has been regarded as irreproachable by all competent manufacturers who were present at these experiments, and the examination of the goods has not called forth any criticism. This little cumbersome apparatus possesses the additional advantage, that it can be placed upon any singeing machine for the purpose of increasing its production. It can likewise replace the singeing upon the red-hot plate, because, with equal production, it saves considerably in fuel.

### FROM AN ENGLISH STANDPOINT.

The Canadian markets have improved considerably since the reduction of the tariff in favor of this country, and the improvement is being assisted by the gold discoveries and a quicker ocean service. The tastes of the people and the style of goods they affect run closely on British lines, making stocks held here available for both markets, says Texter in The Textile Recorder, Manchester, England. That is a decided advantage, and numerous firms now make their Canadian trade a branch of their regular business. Some send travelers each season, but the wholesale buyers visit this country twice a year, and their demand for the latest novelties amounts to fastidiousness. Canadians are very much up to date in matters of dress, and no longer take our surplus stocks and job lots in quantity. That is a sure sign of prosperity. Worsteds goods suit their summer heat admirably, and are much in favor both in plain and fancy of medium weight—say, 20 oz. to 24 oz., 56 in. width. For the extreme cold of their winter climate woolens of heavier weight are a necessity, but in both cases neatness of design

combined with a bright finish are always preferred. Wool-backed worsteds suit their winter climate, as well as our fine beaver cloths, which are worn with fur linings. The Northern trade is in the hands of the Hudson's Bay Company, which is a chartered company, and their annual supplies are bought by tender, after the manner of our Government contracts. Fashion has little influence in those latitudes, the necessities of the fur hunters and trappers being the first and last consideration. The contracts are issued and paid in London on short terms, presenting a strong contrast to the slow terms and six months' bills which form the basis of the Canadian trade.

#### CANADIAN COTTON IN CHINA.

The following gives the amount of shipments of Canadian and American cottons (so far as they go over the Canadian Pacific) to China, the figures being for the calendar and not the fiscal year. These cottons run about  $3\frac{1}{4}$  to  $3\frac{1}{2}$  yards to the pound:

	Canadian Cottons. Lbs.	American Cottons. Lbs.	Totals. Lbs.
1887.....	1,742,205	4,055,970	5,798,175
1888.....	2,009,974	6,816,798	8,826,772
1889.....	886,322	12,245,150	13,131,472
1890.....	2,279,150	17,079,730	19,358,880
1891.....	2,466,944	7,413,167	9,880,111
1892.....	1,825,259	4,322,452	6,147,711
1893.....	1,742,312	9,321,205	11,063,517
1894.....	3,770,343	4,303,701	7,074,044
1895.....	3,521,004	5,208,654	8,730,158
1896.....	3,392,042	11,834,372	15,226,414
1897.....	2,471,278	4,898,470	7,369,748
1898.....	1,375,257	8,639,191	10,014,448

The above figures do not include 36,727 lbs. of cotton duck shipped to China and 296,549 lbs. shipped to Japan from Canada in 1897, and 63,648 lbs. cotton duck from Yarmouth, N. S., for China, and 211,683 pounds for Japan in 1898.

#### NEW CATALOGUES.

The Unbreakable Pulley and Mill Gearing Co., Ltd., West Gorton, Manchester—A Treatise on the Economical Transmission of Power. Eighth edition. Cloth covers, 160 pages.

Darling Bros., Reliance Works, Montreal, Que.—Illustrated catalogue of Darling Bros., Reliance engineers, machinists and manufacturers of special and patented machinery. Boards, 100 pages.

Prescott Emery Wheel Co., Ltd., Prescott, Ont.—Catalogue and Price List No. 16.—Paper, 40 pages, illustrated. Attention is called to some new features, as the "Semi-Vitrified," which is more open in texture than the other wheels, and which has an abrasive bond.

Gas and Gasoline Marine Engines and Launches.—The John Gillies Slate Co., Carleton Place, Ont.

The McMichael & Wildman Mfg. Co., Norristown, Pa.—Kibb knitting machinery. Paper, 15 pages.

#### THE WOOL MARKET.

MONTREAL.—The market is very firm. The English market for merinos has advanced another 5 per cent., and stocks are at present very light. Capes are still firm, and a few sales reported. A cargo of Capes on the way to Boston should arrive about the beginning of April. We quote: Capes, 15 to 17½c.; Natal, 17 to 20c.; Canadian fleece, 16 to 17c.

TORONTO.—The market for Canadian wools continues dull with a fair demand from the mills for imported wools.

#### COTTON MARKET.

The prices of manufactured goods is a little lower, especially in the finer whites, but gray staple lines remain unchanged; except job lines of grays, which are being offered at a reduction of at least  $\frac{1}{2}$  cent.

#### THE DROUGHT IN AUSTRALIA.

In our last issue we referred to some of the causes that were at work to make the finer classes of Australian wools increasingly scarce from year to year. These were gradual in their operation, but the drought which is now being experienced will have a sharp effect on next season's clip. Recent despatches state that cattle are dying in great numbers and millions of sheep are spoken of as having already perished, and farmers of Crown lands are applying for remission of their rents.

#### FABRIC ITEMS.

The Nine Little Tailors, Toronto, Ltd., has been incorporated; capital, \$10,000.

Brook & Patterson, wholesale millinery and fancy dry goods, St. John, are enlarging their warehouse. They now employ the whole block.

J. W. T. Fairweather & Co. (J. & J. Lugsdin, Toronto), are closing up their Peterborough store, and will confine themselves to the Toronto trade in future.

A final dividend of 17 cents on the dollar in the estate of R. Walker & Sons, formerly dry goods dealers, King street, Toronto, has been ordered by the Master-in-Ordinary. The firm will have paid 77 cents on the dollar when the settlement is completed.

When W. & D. Paterson, dry goods dealers, Belleville, failed, their mother, Jane Paterson, succeeded them. Last August she made a transfer to the wives of W. and D. Paterson, who have since conducted the business as the Paterson Co. Now they offer 70 cents on the dollar, cash.

S. D. R. Fernie, who represents the Hudson Bay Knitting Company, and Horsfall & Sons, clothing, Montreal, was one of the unfortunates in the Manitoba hotel fire. He lost his clothing samples and also his personal effects. The Knitting Company's samples were fortunately at another place and were saved.

In March, 1894, McKenzie & Petch commenced the dry goods business at Watford, Ont. Two years later they assigned, owing \$10,700. When the stock was sold it realized creditors 35 cents on the dollar, cash, Mrs. McKenzie being the purchaser. Recently they made an effort to arrange another compromise at 40 cents on the dollar, but failing to find security, have assigned.

The wholesale, retail and manufacturing departments of the "Tiger Brand" Clothing establishment (E. Bosseau & Co.), Toronto, held their first annual dinner in the Board of Trade restaurant recently. The room was elaborately decorated with flags, "tiger" skins, etc. The banquet was a complete success in every way.

A number of Toronto laundrymen waited upon the Ontario Government recently and asked that Parliamentary grants be withheld from public institutions which perform laundry work in competition with private firms. The request was promised consideration. Some of these institutions do such work at less than half the regular trade price.

Bernard B. Hughes died suddenly at his home in Toronto last month. His illness had only extended two weeks, and it was not thought to be serious until a few days before his death.

He had been suffering from la grippe and the disease attacked his heart and caused his death. Mr. Hughes was born in Newry, county Down, Ireland, May 26th, 1838, and was consequently in his 61st year. At an early age he came to this country and settled in Toronto. Since taking up his residence here he had been a leading citizen. For a number of years he, in company with his brother, Patrick, carried on one of the largest dry goods houses in Canada at the corner of Yonge and Melinda streets, Toronto, under the name of Hughes Bros. Later they instituted the "Golden Griffin" store on East King street near St. Lawrence market. On retiring from the partnership he entered the real estate business. On January 7th, of the present year, Mr. Hughes was appointed senior clerk in the central office of the High Court of Justice at Osgoode Hall, but he held that position only two weeks, when his health began to fail. Deceased was a member of the Roman Catholic Church, a prominent worker of the St. Vincent de Paul Society and a Liberal. His interest in politics prompted him to become a candidate for the Dominion House, but he was defeated. He leaves a widow and five children, four of whom are daughters. Vincent J. Hughes, the son, is a member of the legal firm of Millar, Ferguson & Hughes, Toronto.

## Among the Mills

Co-operation is one of the guiding principles of industry to-day. It applies to newspapers as to everything else. Take a share in "The Canadian Journal of Fabrics" by contributing occasionally such items as may come to your knowledge, and receive as dividend an improved paper.

The Cloak Mfg. Co., Toronto, Ltd., has increased its capital stock from \$3,000 to \$30,000.

Milton P. Hersey, C.E., is now on the staff of the Dominion Cotton Mills Co., Magog, Que.

J. Beaumont, woolen manufacturer, Glen Williams, Ont., has fully recovered from his recent illness.

It is proposed to remove the Hamilton Distilling Co. to Dundas, Ont., to occupy the old cotton mill.

The Mississippi woolen mills, Appleton, are running overtime under the superintendence of Arthur Devitt.

The Toronto Rubber Shoe Co. is to rebuild its factory at Port Dalhousie, Ont., which was burned down some time ago.

Foreman Crompton, of the finishing department, Kingston, Ont., knitting mill, has been succeeded by M. Buck, a New Yorker.

D. Manchester, Ottawa, Ont., has added yarn making machinery to his woolen mill. It was supplied by Geo. Reid & Co., Toronto.

John Crossley, who has carried on hand-weaving in Almonte, Ont., for many years, has given up business owing to advancing years.

J. W. Wylie, Almonte, Ont., is adding some machinery to the Golden Fleece mills, and is running full time with increased capacity.

Dundas, Ont., is in correspondence with a soap manufacturing company in England, which proposes to establish a Canadian branch.

Emerson & Hague's overall factory, Winnipeg, Man., has been the scene of a strike recently among the sewing girls, which was satisfactorily settled.

Rife & Co., Walkerton, Ont., have added yarn making machinery to their woolen mill. Geo. Reid & Co., Toronto, supplied the addition to the plant.

The Mississippi woolen mills, A. Tesky, Appleton, Ont., have recently installed a number of hood looms supplied by Geo. Reid & Co., Toronto.

Jas. Grant, Chesley, Ont., and P. Purvis, Teeswater, Ont., have installed spinning machinery in their woolen mills, supplied by Geo. Reid & Co., Toronto.

D. Allport, Smith's Falls, Ont., woolen manufacturer, has bought the machinery of the old Code woolen mill at Innisville, Ont., and has removed it to the former town.

The estate of M. & W. Reid, woolen manufacturers, Gardula Hill, Ont., insolvents, has been wound up, and the creditors have received nothing. Expenses being equal to assets.

— Newbold, Montreal, has given up his hosiery manufactory, St. Lawrence street, Montreal, and has entered the employment of the Penman Mfg. Co., Paris, Ont.

A company is being promoted to take over the Renfrew, Ont., mills, and the Ferguslea mill. Logan Bros. and John Ferguson will be the chief shareholders in the company.

A 14 year old boy, named Pollakowski, employed at Jacob Y. Shantz & Son Co.'s button factory, Berlin, Ont., had his scalp torn off recently by having his head caught in the elevator.

Alexander Morton & Co., Darvel, Scotland, one of the great textile manufacturing concerns of the world is, it is said, to build a great factory at Niagara Falls, and use electric power from the cataract to operate the factory.

Chief Justice Meredith has dismissed the action of John Clark, a Toronto hammock dealer, against the Smith Wool Stock Company, for \$5,000 damages for injuries received in June last by the plaintiff while in the latter's warehouse.

A valve in one of the boilers at the Canadian Colored Cotton Mills Co., Hamilton, Ont., blew out a few days ago, and narrowly escaped seriously injuring one of the firemen. The accident necessitated the closing of the mill for a few hours.

Thos. Randle, Meaford, Ont., has almost completed the removal of his woolen mill plant into the large premises formerly employed as a carriage factory. A new flume has been built. The output of the mill will not be enlarged at present it is said.

At the annual meeting of the Mount Forest, Ont., Woolen Mills Co., Jos. Staples was elected president, and Geo. Watson vice-president. Arrangements were made for a reduction in expenses during the present year. The output of last year was valued at \$20,000.

Albert Ashton, boss carder in the Hawthorne Woolen Co.'s mill, Carleton Place, Ont., has removed to Almonte, and is now filling the position of head of the carding department with the Almonte Knitting Co., which latter mill is working overtime at present.

Wm. Ferrie, for many years chief dyer in the Canadian Colored Cotton Co.'s mill, Cornwall, Ont., and his son, Robert Ferrie, have gone to Montmorency Falls, Que., where they have secured lucrative positions, and to which place the rest of the family will remove later on.

Mr. Kimball, for some months manager of the Dominion Cotton Mills, Brantford, has been appointed to a similar position in one of the mills of the company at Magog, Quebec. D. Cook, for a number of years manager of the Brantford mill, will resume his old position there.

The new clothing company has begun work at its factory St. John's, Newfoundland, under the superintendence of J. H. Meyers. About 50 operatives (male and female) will be employed in the factory, while 200 more will be given piece-work outside. Coats alone will be done in the factory, vests and trousers being given out. Six cutters are employed.

The estate of S. S. Clutton, woolen manufacturer, Vienna, Ont., was offered for sale recently in Aylmer, Ont., but the reserve bid was not reached and it remains unsold. Mr. Clutton's friends are doing all in their power to arrange matters so that he will carry on the business in Aylmer in future.

A company is in process of formation to start a hosiery factory in Penetanguishene, Ont. The proposed factory will occupy the old town hall building, now the property of the Reliance Loan & Savings Co. D. J. Shanahan, Mayor of Penetanguishene, is one of the chief movers in the matter.

The stock of the J. R. Stouffer Button Company, Berlin, Ont., manufacturers of covered buttons and suspenders, was almost completely ruined by smoke and water in a fire which destroyed the stock and plant of the Berlin Publishing Co. The damage to the J. R. Stouffer Co. was estimated at \$17,000; covered by insurance.

The Louisville Shirt Mfg. Co. is incorporated with a total capital stock of \$25,000; chief place of business Louiseville, Que.; to manufacture neckties, shirts, coats, braces, ready-made clothing, women's linen apparel, etc. The applicants are: M. Weissman, Montreal; Fabiola Beaudoin, Louiseville; B. Weissman, Montreal; H. Caron, St. Leon, and E. Spitz, Montreal.

The seventh annual drive and dinner of the overseers and second hands of the Dominion Cotton Mills, Magog, Que., was held recently at which the employees took the opportunity to present to Manager Whitehead, accompanied by suitable remarks, a handsome silver punch bowl, on which was engraved the following: "Presented by the employees of the D.C.M. Co.'s Print Works, Magog, to Wm. T. Whitehead, their late manager, as a token of the esteem in which they have held him for ten years.—Jan. 28th, 1899."

In reply to a question in the Ontario Legislature recently the Hon. Mr. Davis stated: Wool has been supplied to the Central Prison during the past three years by Wilson & Co., Robt. Berrymann, John Hallam, Smith Woolstock Co., J. Hallam & Son and E. Leadlay & Co. The price paid for the wool ranged from 11 to 25 cents per pound, according to quality and the condition of the market at the time of purchase, all purchases being made by competition and the most favorable market prices secured in this way on all occasions. The various qualities of wool bought included both domestic and foreign selected fleeces, pickings, tub-washed, clothing fleeces, rejects, fine English wool, coarse English wool and Scotch wool. These purchases were made by the warden and the inspector.

John Murdoch died last month at Cypress River, Manitoba. He was born in Lanark, and was the son of the late John A. Murdoch, once well known as a school inspector for the county of Lanark. His mother was a sister of the late James Hall, sheriff and M.P. for West Peterboro. Mr. Hall many years ago carried on a tanning business in Lanark and deceased learned the tanning trade in his establishment. He moved to Paisley, Bruce county, in 1855, as one of the pioneers, and carried on a woolen factory there until it was burned up. He left there in 1881 for Manitoba, first locating at Cypress River, before there was a sign of a railway in that section, then lived for a time in Birtle, where he published a newspaper. He afterwards settled at Pilot Mound, where he founded the Sentinel newspaper, which exists yet. Finally he removed back to Cypress River, where he remained till his death.

The clothing and woolens stock of Douil & Gibson, valued at over \$200,000, will be sold at auction in Montreal, April 3rd. The furniture and machinery will also be sold.

## LITERARY NOTES.

The place of honor in the January number of *The Textile World* is held by a biographical sketch with portrait of Louis Simpson, manager of the Montreal Cotton Co. at Valleyfield, Quebec.

The Merchant, Toronto, comes to its subscribers now enlarged and printed on better paper than formerly. The change in this valued servant of the mercantile community is a good one.

Manila and the Philippine Islands is a pamphlet sent out to those interested by the Philippines Co., 7 Broadway, New York. This company has been organized to carry freight, express and passengers to the Philippines. The information has been compiled from consular reports, and includes a mass of interesting statistics and a very clear map which shows: (a) the islands in relation to the various continents; (b) the islands themselves; (c) the city of Manila, locating the chief buildings, forts, etc.

In the February Century Prof. Wheeler's papers on Alexander the Great are continued; the current instalment is devoted to the Macedonian victory at Issus. Though Mr Crawford's "Via Crucis" is a romance of the Second Crusade, there is no warfare in the present chapters; and peace, not war, is celebrated most entertainingly by Gen. Sherman in the diary of his tour of Europe in 1871-2. The opening article, "At the Court of an Indian Prince," is written and illustrated by R. D. Mackenzie. But nothing in the March Century is better worth careful consideration than "British Experience in the Government of the Colonies," by the Right Hon. James Bryce, M.P. The frontispiece is a reproduction of "The Golden Galleon," by Ross Turner, engraved on wood and printed in gold and green.

The Canadian Magazine for March is a pleasant and interesting number. As a distinctively Canadian publication it should reap the benefit of the great falling off in the circulation of the United States magazines, which Canadian newsdealers report as now being so marked a feature of the trade.

We have received advance sheets of Dockham's Textile Report and Directory of the textile manufacturers and dry goods trade of the continent, published by C. H. Dockham & Co., 131 Devonshire street, Boston, Mass.

Morton, Phillips & Co., stationers, 1755 Notre Dame street, Montreal, are now placing before the trade special prices in blank books and stationery, etc., as stated in their advertisement on another page.

The annual report of F. W. Hodson, superintendent of farmers' institutes for Ontario, for the year 1897-8, just issued, is a most comprehensive and valuable repository of information in connection with every branch of agriculture. It comprises some 500 pages, and is copiously illustrated.

## NEW THEORY OF LUSTREING.

Dr. Frankel, of Vienna, considers that the silky lustre of mercerized cotton is mainly due to the cotton having lost a thin cuticle during the process, and hence insists on the desirability of selecting cotton for mercerization from which the cuticle can be readily separated. He admits, however, that the imparting of a cylindrical shape to the fiber may have something to do with it. The doctor's theory seems negatived by the fact that if mercerized silky cotton is again subjected to the action of cold strong soda lye, it contracts nearly as much as raw cotton would do, and loses its silky lustre entirely. Dr. Frankel considers that the presence of water is necessary for the formation of the compound of caustic soda and cellulose which is the first step in the mercerizing process. A 10 per cent. solution of caustic soda in 96 per cent. alcohol has no action upon cotton. If



however, it is then exposed to the air so that it can absorb water vapor, the ordinary effects of mercerization begin to appear in the wet yarn, and stretching will produce the silky lustre.

### SOME CAUSES OF DEFECTS IN TEXTILES.\*

The actual production of the finished cloth from the greasy wool is dependent upon so many different persons and processes that there must always exist a certain liability to error and imperfect goods; good management and close observation may reduce the chance to a very small one, but it still exists, and we find that even in the best managed places imperfect goods occasionally turn up and cause trouble and loss to all concerned. When a piece of cloth has been dyed and finished it is often found to be a very difficult matter to locate the cause of the defects, and place the responsibility upon the proper shoulders. The manufacturer may think the fault is not his, but the dyer and finisher, or possibly the spinner, and vice-versa.

It may be urged that it is not within the province of everyone to have the opportunity of gaining the all-round knowledge necessary. This is only partly true. It must be admitted that experience teaches one a great deal in regard to these defects, but experience often proves very expensive, and causes one to wish that the knowledge had been gained by some other means, and the trouble to have been anticipated and prevented. Technical schools, among many useful offices, place within the reach of everyone the opportunity to gain a knowledge of all the processes of manufacture from the wool to the finished fabric, which is of very great help in enabling one to understand how certain defects come about in dealing with either the wool, yarn, or cloth, and well repays the time spent in studying them, giving a much wider knowledge than if narrowed down to one particular branch, as is often the case.

We might now proceed to ask: Where do the defects arise? and in answer I propose, for simplicity, to divide the causes into six sections as follows:

- (a) In the wool;
- (b) In the making of the yarn;
- (c) In the preparation of the warp for the loom;
- (d) In the weaving;
- (e) In the dyeing and finishing;
- (f) In the actual structure of the cloth.

Where a good and even thread is necessary, such as in the majority of worsted goods, the one thing of first importance is the proper selection of a good and sound character of wool. If it is tender or weak in places, it becomes simply impossible to produce a smart and even thread, and such wool should only be used for low class goods. The cause of weakness can generally be traced to the sheep, it may be bad breeding, lack of proper food, sickness, or sudden chills, which check the growth or nourishment which is necessary for its proper growth. A further defect which causes part trouble are fibers known as "kemps," or dead hairs, which are deficient in regard to the cellular structure possessed by ordinary wool, rendering the a very difficult to deal with in the various processes. They are strong, bright fibers which do not unite readily with the other fibers in forming the spun thread, but are always of a stiff nature, appearing largely on the surface, and simply held in position by the other fibers. Further, by reason of their deficiency in regard to cellular formation, they have practically no powers of absorption, which renders them difficult to dye. Instead of the agents penetrating into the fiber, they just tint the outside, giving anything but a pleasing effect if they are present in a fairly large quantity. They are chiefly found in the

fleeces of the lower or wilder classes of sheep, and sometime amongst the more cultivated ones, but by care in choice of sheep for breeding, as well as in rearing, the fault can be to a large extent stamped out.

A matter where very often insufficient care is shown in dealing with the wool is in the washing. What is required is to remove all the impurities, dirt, grease, etc., in as gentle a manner as possible so as to retain to the full all the natural properties the wool may possess. To do this, the following things are absolutely necessary. Soft water, soap which is not strongly alkaline (i.e., as near neutral as is expedient for the proper cleansing of the wool), and liquor of not too high a temperature. We must now see where the bad effects come in when these points are not watched. We find that water will generally contain a certain quantity of mineral matter, which, if present in a large quantity, causes it to be hard, the degree of hardness depending upon the quantity of mineral matter present which must be precipitated before the water can be used with safety for cleansing the wool. Lime is often present in some degree, and must always be got rid of before adding any soap; if not, the lime decomposes the soap, a portion of which unites with the lime and forms a nasty sticky matter, or lime soap which is not the slightest use for scouring, but damaging to the wool. This sticky matter settles on the fiber, and is never satisfactorily got rid of afterwards, causing trouble when the piece comes to be dyed, as it is almost impossible to scour it clean, and the dye consequently does not settle on the fibers all over alike, giving shady and flecked pieces. It sometimes happens that the same mistake is made by scouring the woven piece with water containing a quantity of lime, which produces exactly the same results. To precipitate these mineral substances various methods are employed, but probably the most simple is by the addition of carbonate of soda or potash, the quantity to be added being altogether dependent upon the quantity of mineral matter present. For a fair good water, 2 lbs. per 1,000 gallons would suffice, but a very hard lime water would probably require 6 to 8 lbs. per 1,000 gallons.

On examining the wool fiber under the microscope we find it shows on the surface a series of scales or serrations overlapping each other like a fir cone; the greater the quantity of them, the better the quality of wool is in regard to its spinning and felting properties. The finest Merino wools, which possess the largest number of these serrations, spin to the highest counts and produce the very finest and best qualities of cloth. From this, I think, it must be very evident these serrations are of special value, and should not be injured in any way. We find, however, that sometimes by using strongly alkaline soaps and water at a high temperature, these scales are partly dissolved and their useful properties to a large extent destroyed, rendering the wool somewhat harsh and of a yellow color instead of being soft, silky, and white. Soaps having a soda base are often used for washing exceedingly dirty wool, because they cleanse it quicker than potash soaps; but the latter will always treat the wool kinder, and though taking longer to do the work, give a better result in the form of a nice handle and good color. Soda soaps, especially when the alkali is much in excess, are exceedingly dangerous. Attention to these points can make all the difference in the quality of the finished fabric, and from the same class of wool, by harsh treatment in the washing, a much inferior article may be produced.

The blending of the wool next claims our attention, and my observations for the present will apply chiefly to woollens. For woollen goods more liberty is generally taken in blending various materials (especially in the lower-class trade) than in worsteds, because the effect to be produced is of quite an opposite nature. In the worsted fabric the thread structure is distinctly visible, and so evenness is of great importance, while in woollens it is to a large extent hid by milling or felting; but

\*Abstract of a lecture delivered at the Technical Schools, Shibley, England, by Albert M. Chapman.

and great care is necessary in regard to the selection of the materials to form the blend, or very unsatisfactory results are produced. If the contrast in quality and length is great, it becomes all the more important they should be thoroughly mixed. Because there is always a tendency on the part of the long and short to keep separate; further, if the qualities are much apart the dye will act on each rather differently, producing probably one rather darker or duller than the other, and unless the fibers are thoroughly well distributed will result in uneven and cloudy pieces. Where an even and smart cloth is required, wools which are much different in their characteristics should not be mixed together for piece dyeing; but in the lower types of fabrics, where a fair amount of strong fiber is raised on the face, then rather more liberty may be taken.

The method adopted in blending fibers for woollens is of quite a different character to that in existence for worsteds. Briefly, it consists in the first place of building up a stack or bed of wool composed of layers of the various materials placed

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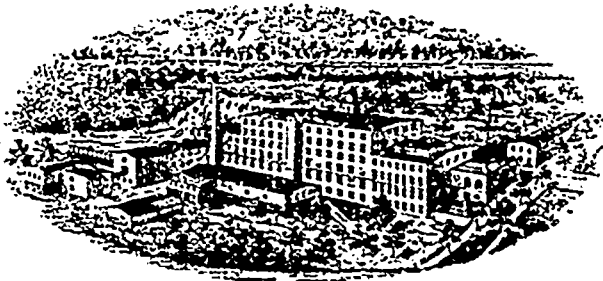
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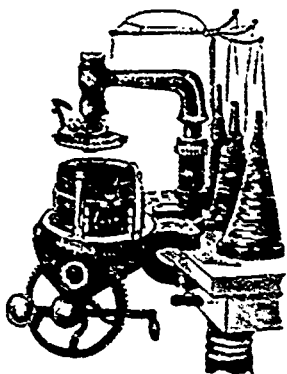
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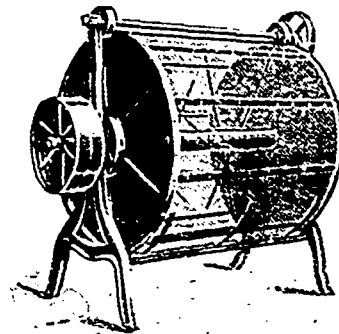
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one above the other. A layer of one quality, a few inches thick, is laid on the floor and oiled, next a layer of another quality is laid on the top and oiled, this process being repeated until the stack is built; the thickness of the layers is dependent upon the relative quantities of the various materials. The mixing is done by feeding it into the "Teazer," which roughly mixes up and disentangles the fibers, and afterwards into the "Fearnought," which gives it a better mixing and further disentangles the fibers. One of the most important points is to see the feeding is done by drawing the wool out of the stack from top to bottom, and thereby ensure that something like a proportionate quantity of each material shall always be going into the machines, and further to see the blend is put through the machines a sufficient number of times to give it a thorough mixing, if not, it results in shady or cloudy pieces. I shall just here give two examples to illustrate these points: (1) A number of pieces of piece dyed woolen coatings were made from a blend of two qualities of materials, one of which was a trifle brighter and harder than the other, and did not possess the same shrinking properties. Nothing was noticed wrong until the pieces were being milled, when the defect appeared in a cloudiness and unevenness distinctly showing small patches of the two materials, and by reason of one shrinking a trifle less than the other gave the piece a slightly cockled appearance. The cause was carelessness in the feeding, by drawing away from the top instead of the side of the stack, and insufficient mixing

(2) A quantity of vicuna mixture coatings were made from a fine soft quality of lamb's wool, all of one quality, but various shades forming the mixture. In the unfinished state the trouble was not suspected; certain places looked darker than others, but were only looked upon as bobbins of slightly soiled welf which would scour up clean. When scoured, however, the bars were still there, showing across the width of the piece. The line was not of an exactly definite character (as would be the case with a bobbin of a wrong shade of welf), but irregular, with the color showing in a trifle larger patches than the other parts. The shadiness could be seen also in the warp, but not so as to be objectionable, because the warp threads had been well distributed. The cause had been exactly the same as the previous example; i.e., bad feeding and mixing.

(To be continued).

—The tenders for police uniforms in Montreal have this season caused the aldermen a great deal of trouble. Some enquiring journalist made comparisons in the prices, which offended a number of aldermen, and some one unearthed the fact that one of the tenders, which was accompanied by the usual cheque, was from a firm of which no one had ever heard, nor could anyone be found to even guess who it might be. They have more than dark horses in Montreal municipal politics.

**CHEMICALS AND DYESTUFFS.**

The demand for chemicals and dyestuffs continues fair. Blue-stone is higher, lowest figure now for round lots is 6½ cents. Sumac has again advanced \$5 Gambier firm, advance this week ¼ cent per lb. The following are current quotations in Montreal.—

Bleaching powder .....	\$ 1 95	to \$ 2 00
Bicarb soda .....	2 00	" 2 05
Sal soda .....	0 70	" 0 75
Carbolic acid, 1 lb. bottles .....	0 35	" 0 37
Caustic soda, 60° .....	1 75	" 1 80
Caustic soda, 70° .....	2 00	" 2 10
Chlorate of potash .....	0 13	" 0 15
Alum .....	1 35	" 1 50
Copperas .....	0 70	" 0 75
Sulphur flour ..	2 00	" 2 50
Sulphur roll .....	3 00	" 3 50
Sulphate of copper .....	4 50	" 5 00
White sugar of lead ..	0 07	" 0 08
Bich potash .....	0 09	" 0 10
Sumac, Sicily, per ton .....	60 00	" 65 00
Soda ash, 48° to 58° ..	1 15	" 1 25
Chip logwood ..	1 90	" 2 00
Castor oil .....	0 09	" 0 09½
Cocconut oil .....	0 06½	" 0 07

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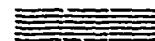
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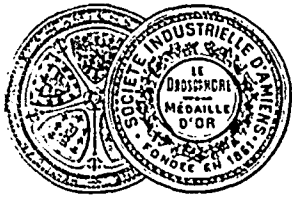
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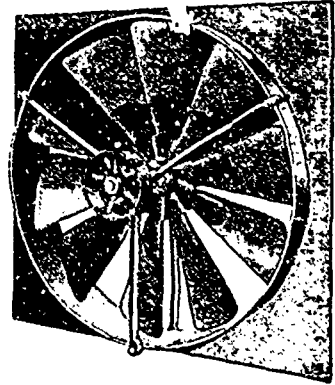
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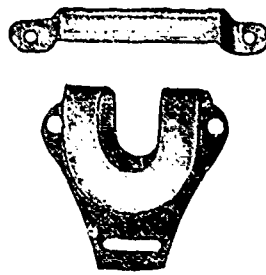
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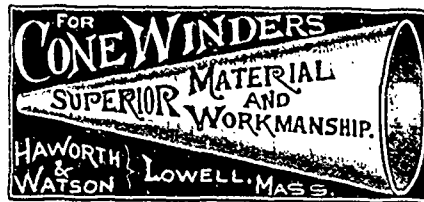


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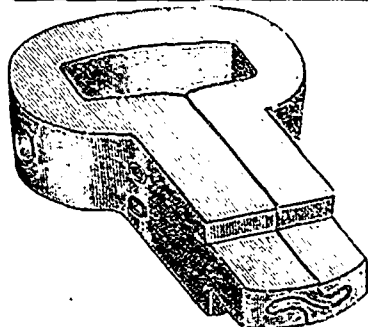
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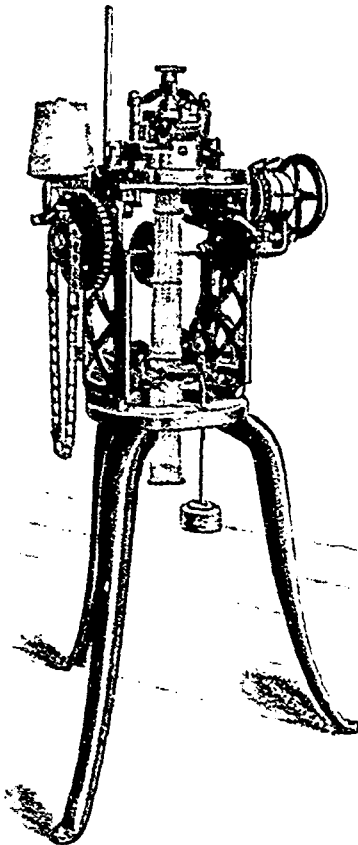
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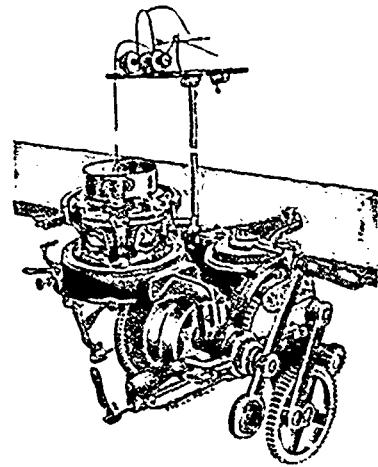
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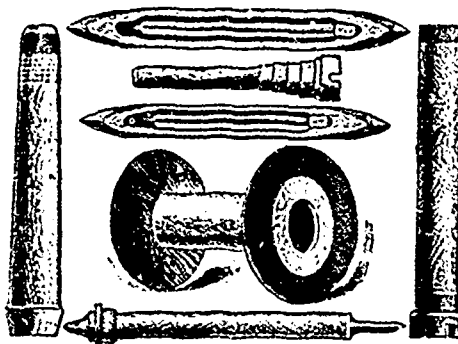
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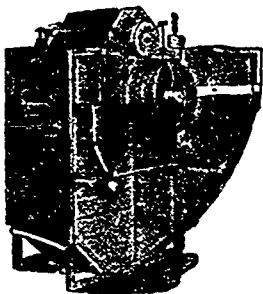
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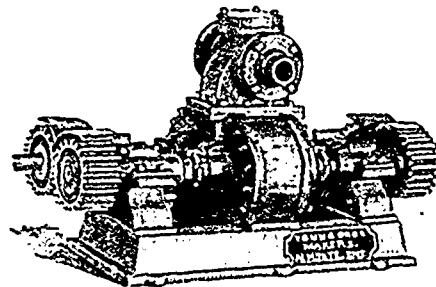
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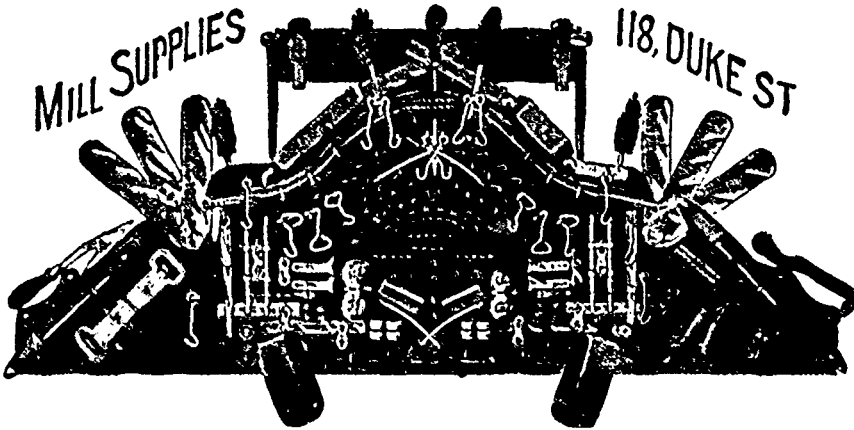


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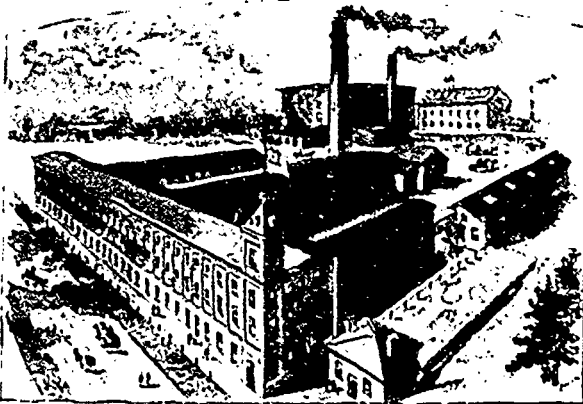
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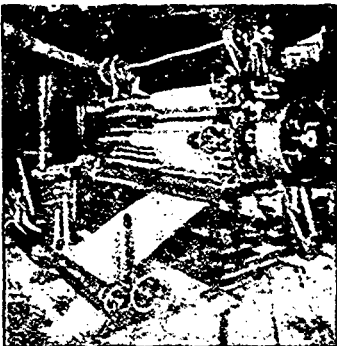
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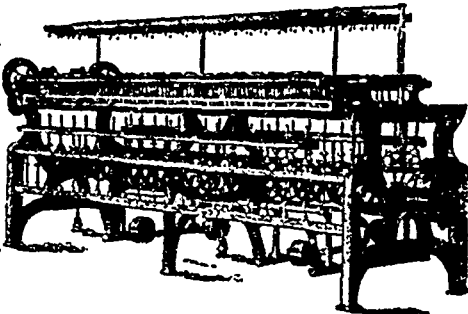
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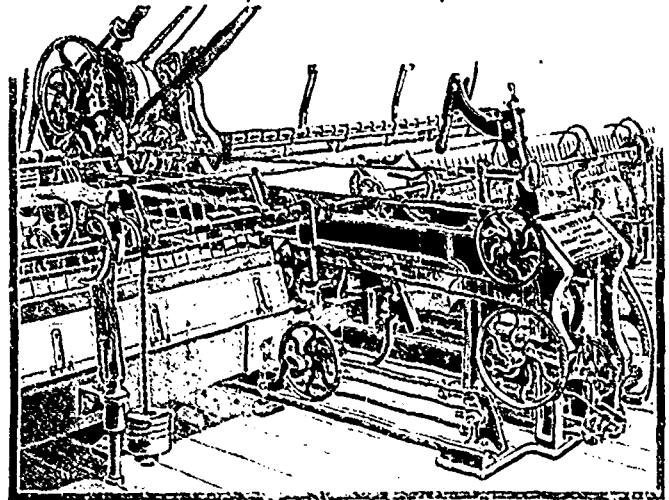
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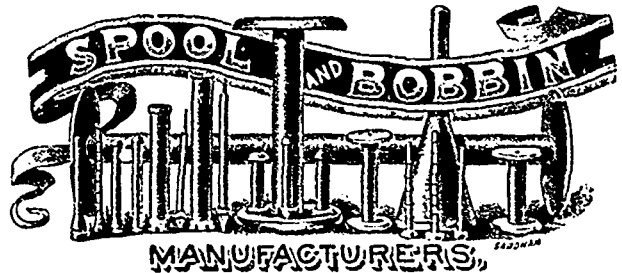
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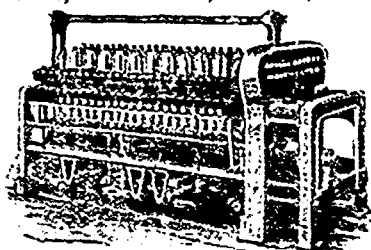
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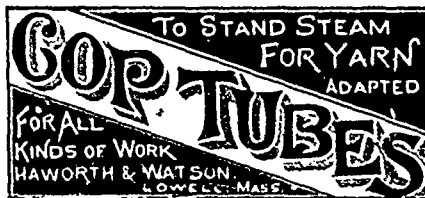
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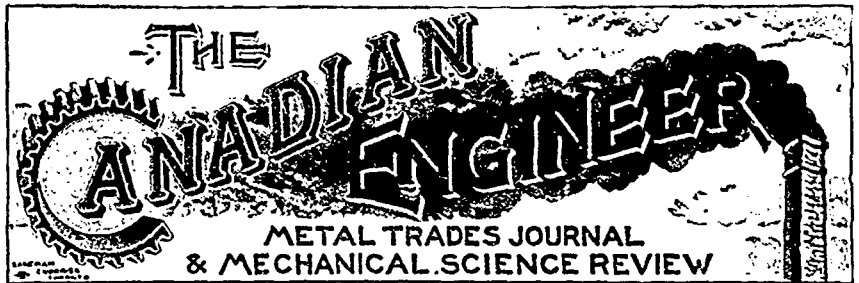
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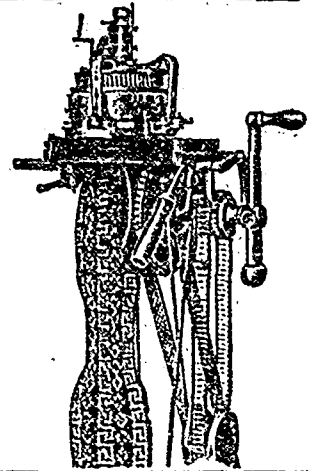
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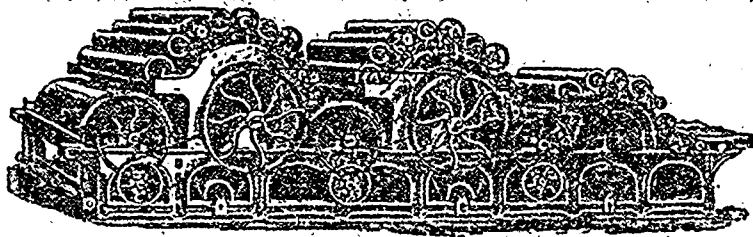
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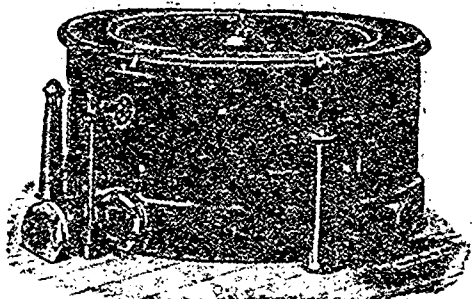
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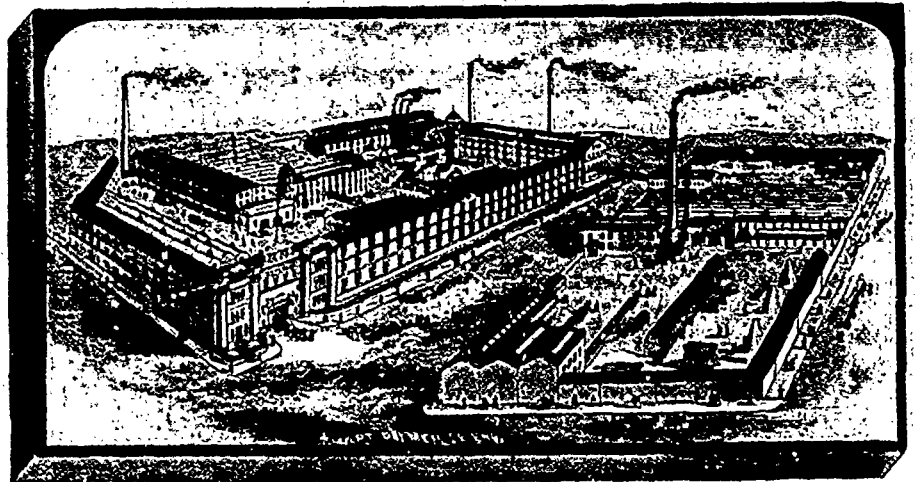
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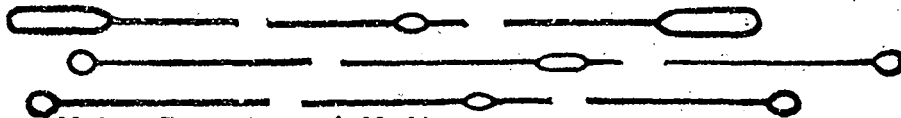
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