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CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XV.

TORONTO AND MONTREAL, JULY, 1898.

No. 7.

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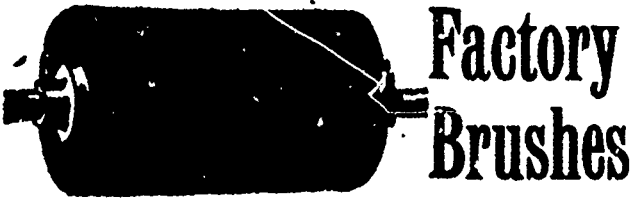
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Canadian Journal of Fabrics

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

Subscription. Canada and United States, \$1.00 per year. Great Britain 5/ Advertising rates on application.

Offices. 62 Church Street, Toronto, and the Fraser Building, Montreal.

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Editorial.

WOOL.

The Canadian wool market at the leading centres of the trade has almost a holiday air of leisure and inactivity in contrast with the feverish condition which characterized it at this period of last year. Wool is being taken up from the producers quite eagerly in the outlying country districts, but after passing into the hands of the local buyer or manufacturer, it seems to have little further effect on the market. The reason is that when exporters are quoting at 16 cents, and local dealers are competing with each

other to secure the wool at 17 to 19 cents, naturally the local dealer does the trade. Recently 70,000 lbs. of Canadian wool passed into the hands of a Canadian dealer on the Boston market at 27 cents. What this should mean to Canadian prices is at once evident when we deduct the duty of 12 cents per pound and freight and handling ½ cent each per pound.

The general storekeepers throughout the country have been buying freely ever since the clip came on the market, even those who do not usually handle wool being incited to trade in it this year by the fact that all local dealers who handled wool last season made money out of it. Once started buying a country storekeeper cannot shade his prices as the city dealer would. Local patriotism demands that he should attract trade to his village rather than to the neighboring sections, and frequent competition of one small dealer against another maintains prices within the town even more strongly than does the competition of two neighboring points. Buying at a price which prevents a turnover at a profit does not always imply a serious loss to the storekeeper. He rarely pays cash, or more than part cash, and he can afford some apparent loss in order to close long standing accounts or to dispose of goods on his shelves. The added price is often looked on in the nature of a bonus, given in order to retain profitable custom at the grist mill, sawmill, hotel or other business of the storekeeper.

The local mills are also competing and maintaining prices beyond what is apparently a profitable basis. In many instances the mills, however, are actuated much in the same way as the general storekeeper. It may be necessary to retain local trade or custom work would be lost; the manufacturer may be obliged for political reasons to retain his popularity by avoiding the appearance of price-cutting, or he may be interested in other industries.

The strength displayed by wool at present may also be somewhat owing to a strong feeling among the growers who have realized good prices last year and are determined to get as much as possible this year. Statistically, however, their confidence does not appear to be justified

INTERVIEW WITH M. J. TAYLOR, OF JOHN TAYLOR & CO.

After visiting the leading British and foreign textile centres in Europe, M. J. Taylor, of John Taylor & Co., Toronto, has returned to Canada very well satisfied with the prospects of trade both at home and abroad. In an

interview with the CANADIAN JOURNAL OF FABRICS, Mr. Taylor stated that the British manufacturers were adapting themselves to the changed conditions brought about by the McKinley tariff, and Bradford and Huddersfield were gradually reviving from the shock which had been dealt their trade by the imposition of the new duties. Canadian manufacturers are not apparently so far behind in the industrial race as the pessimistic among us sometimes aver. Mr. Taylor finds that Canadian mills are adding largely to their plants along the newest and most approved lines. Many of them are equipped with machinery which is fully equal to that possessed by their great rivals across the Atlantic. Dyestuffs being on the free list helps to lessen the cost of production, and the fact that all new colorings and new departures in methods are brought before the attention of the Canadian producer almost as soon as to his British competitor, should enable us to hold our own fairly well. Of course allowance must be made for the limited market and the great variety of output which that limitation enforces.

Carpets from the United States are no longer a factor in the Canadian market, and probably will not be seen at all here for some time, except job lines, which for some special reason are sent out of the country to be slaughtered. The new wool duties in the United States have raised the cost of carpets entirely beyond an export basis. The carpet market of the world is of course affected by the shortage in hemp occasioned by the Spanish-American hostilities in the Phillipine Islands, and this shortage will be felt more strongly in the United States, so that prices there will probably advance still further. The Canadian carpet manufacturer is subjected to a particularly severe form of competition by means of the sale in Canada at bargain prices of imported goods, which are for the most part seconds, and could not be offered on the home market by the producer without injuring the reputation and prices of his regular output. As no one but an expert can detect a second in carpets of this class, the competition is most injurious.

The soap manufacturers of Canada are keeping abreast with the times also, Mr. Taylor finds, and are offering the manufacturers soaps quite equal to those on the British market. These soaps are also produced by the most improved methods, and the bi-products, such as glycerine, etc., are saved.

Mr. Taylor commented on the prevailing tendency of commerce in Great Britain towards the formation of huge joint stock companies which carry on, under one management, the various businesses of the firms which become a part of the new organization, thus effecting large savings in management and avoiding the unnecessary duplication of agents, travelers, etc. The most recent organization of this kind of interest to the textile trade is the British Dye-wood and Chemical Company, which has been formed to carry on the business of E. D. Milnes & Bro., Bury; Mucklow & Co., Bury and Glasgow; John Dawson & Co., Alloa, and W. R. Scott & Co., Glasgow, with capital stock of £570,000. The employment of such a mass of capital as this should enable the new company to carry on pro-

duction on a most profitable basis and at the same time to place the product on the market at very reasonable rates.

THE AMERICAN COTTON CROP.

The statistics which are periodically issued by the United States Agricultural Bureau, form the means by which an approximate estimate of crop prospects can be arrived at. It may fairly be presumed that any error in the method of estimation is a fairly constant one, and that, for that reason, approximate comparisons can be made. According to the figures supplied a short time ago, only 92.35 per cent. of the area planted last season has been devoted to the cultivation of cotton this year, the acreage being actually 22,400,000, against 24,320,000. On this showing it would naturally be expected that there would be a decrease in the quantity of cotton grown, and that the supply would be to that extent limited. As a matter of fact, no such decrease is spoken of, and the condition of the plant is reported to be better than at any time during the past five years, with the exception of 1897. The increase in the yield which follows this state of things will more than compensate for the decreased acreage, so that, unless there is during the next two months considerable damage, there is not likely to be any actual decrease in the quantity of cotton harvested. It may therefore be taken for granted that there is not likely to be much chance of a scarcity of American cotton for the next season.

COTTON FIRES AND COTTON BALES.

BY R. H. SCOTTER, C.E.

In order to appreciate the importance of adequate fire preventative measures in cotton warehouses, it is necessary to point out the enormous extent of the cotton trade in Liverpool. In the early days of the growth of the cotton manufacture, Manchester, South-East Lancashire, and North Cheshire seemed marked out by nature as its ideal situation. An abundance of running water, a damp climate, and the presence of an industrial community assisted among other causes to make Manchester what it is to-day. Now at least three quarters in value of the raw cotton imported for use in South Lancashire comes from the United States of America, and of this amount all but a very small proportion passes through Liverpool. Liverpool, it must be remembered, is a port of transit, as owing to the various causes it is not possible to manufacture the cotton there. It is, however, warehoused for some time pending delivery to the mills inland. In 1896, the total weight of cotton imported into the United Kingdom was 15,668,900 cwt., valued at £36,272,039; of this amount 12,446,000 cwt., valued at £27,965,000, came into the country from the United States. The

total imported into Liverpool amounted to 13,384,000 cwt. This arrived from the following countries, America, 2,900,688 bales; Brazil, 72,996 bales; Egypt, 398,954 bales; West Indies, 46,560 bales; East Indies, 58,126 bales. It generally happens that a considerably greater quantity is imported than can be disposed of to the manufacturers, as for instance, at one time, March 24th, 1898, it was estimated that 1,175,439 bales were stored in Liverpool warehouses, 1,073,535 of which were bales of American cotton. This gives some idea of the warehouse accommodation necessary, and also some idea of the value of the "risks" involved.

A few years ago, 1891—2, Liverpool seemed to be suffering from an epidemic of cotton fires; on one day, June 13th, 1892, no less than three serious fires happened and the fire brigade was kept continuously at work for twenty-seven hours. The cause of most of these fires could, however, not be discovered. In 1892—3 matters eventually became so serious and the destruction of property so enormous, that the salvage association offered substantial rewards for evidence regarding the origin of any outbreak, more particularly as to the carelessness (if any) of employees. These rewards resulted in it being proved that a great number of cotton fires were the result actually of carelessness on the part of warehousemen. A hot pipe, a match thrown away unextinguished, or sparks from a lighted tobacco pipe, have no doubt been the immediate cause of much of the loss. It was seen that one of the first remedies would have to be the appointment of several fire inspectors, and the rigid application of the rules as to smoking, open lights, etc., with the enforcement of which they were entrusted. The benefits of this action may be seen from the following figures, showing the number of cotton fires occurring in Liverpool. The decrease of fires after 1892—93 is most marked.

Before action was taken. 1890—1893.	After action was taken. 1894—1897.
1890.. . . .14	1894.. . . .10
1891.. . . .13	1895.. . . . 3
1892.. . . .32	1896.. . . . 4
1893.. . . .18	1897.. . . . 6

It is also interesting to note the value of property at risk at actual fires since 1893. Taken roughly, the value of buildings and contents at stake was as follows:

	Stock.	Buildings.
1893..	£771,625..	£54,892
1894..	194,845..	22,556
1895..	28,600..	3,866
1896..	97,850..	11,155
1897..	88,776..	17,500

Setting aside the actual cause of fire by open light, self-combustion or otherwise, the spread of an outbreak is primarily due to insufficient packing and inadequate compression.

Now it is a remarkable fact that nearly all the damage by cotton fires in Liverpool only affects Ameri-

can cotton, though the aggregate of bales from other countries is quite one-fifth of the total quantity shipped to that port. Egyptian and Indian cottons are very seldom affected in the great Liverpool conflagrations. This is largely due to the fact that the latter classes of bales are more securely and densely packed before being shipped to Europe, and to my mind no really successful attempt can ever be made to lessen the extent of a cotton fire while raw cotton is packed in the United States in the present unsuitable manner in bales of the "turtle-backed" description. The old American bale is produced in a compress which masses together under a sudden pressure of 2,000 tons per bale, cotton fiber, sand, and unfortunately any amount of foreign matter which dishonest or careless packers may see fit to introduce. During the process it is impossible to exclude an appreciable quantity of air. This air and the foreign substances already mentioned as present in the bale, together constitute, on a rise of temperature, two sources of concealed danger against which ordinary preventive measures are applied in vain. Added to these dangers from within there is also the danger of the inefficient outer covering, as the bales are generally only sewn up in coarse jute. This jute is in itself highly inflammable, but it also allows the cotton to get through, with the result that the outer surface of a bale is fluffy and only too easily catches fire. Again, the size, weight and shape of these bales necessitate many processes during transportation which considerably add to the risk of fire. In loading and unloading a free use of hooks is made and these are responsible for the ragged condition in which bales arrive at the warehouse or mill. It is this extra raggedness which again assists the spread of flames.

Anyone who may have witnessed the commencement of a cotton fire and seen the lightning rapidity with which the fire spreads along the warehouse floor, will appreciate the great danger from these ragged ends.

The "waste" occasioned by the ragged bales makes the floors literally a tinder line, and with even the most careful of sweepers the floors cannot be kept clean where the "turtle-back" bale is used. Recognizing the great necessity there is for a different system of packing cotton, if we are to take steps towards preventing cotton fires in the future, I shall try to briefly describe how the new style of bale is made which is at present attracting the attention of the cotton world, and the makers of which claim that its adoption will materially reduce the risk from fire to which cotton is at present exposed.

This so-called "round," or more properly speaking the "cylindrical" bale is produced by a new hydraulic press. The cotton coming from a gin, just touches the underside of the condenser wheel or drum and is immediately deposited between the two aprons of a bat former; the air and dust pass out through the meshes of a wire cloth above. The two aprons of the bat former

carry the cotton down, gradually compressing it, and the bat then passes between a compression roll and a stationary roll. A solid bat of cotton is thus formed which again passes on to a bale now being formed between the two main compression rolls. The pressure of the bale is produced by an hydraulic cylinder and as the bale increases in size, it regulates automatically the pressure required. By an ingenious contrivance the pressure can be regulated up to a maximum of 200 lbs. per square inch. The standard "round" bale produced is cylindrical, weighs 425 lbs., is 4 feet long, 2 feet in diameter, and its density is about 35 lbs. per cubic foot, or 50 per cent. more dense than a best compressed bale on the old system, although the average pressure exerted in making the "round" bale is only about 10 tons, as compared with 2,400 tons in making the "compress" bale.

As the tendency of modern fire prevention methods is to reduce, rather than increase, the storing capacity of each separate room in the warehouse, this advantage as to bulk is important. The Liverpool Fire Prevention Act grants the maximum of 4,000 sup. feet for warehouses, 6,000 feet for sheds of two floors, and 7,000 square feet for ground floor sheds only. As an example of what may be done in packing these bales in a small space, I may mention that in December, 1896, the largest single truck load of cotton ever carried was conveyed by the Illinois Central Railway in a box truck, the bales being made on the "round" bale system. It consisted of 165 bales and weighed 68,628 lbs.

Now the principal feature of this bale in relation to fire prevention is that it is claimed to be both fire and water proof. It is formed in a short space of time and not left about the yard to pick up dirt, sand or wet; it contains no compressed air; it is much better packed and secured, and is not only less liable to self-ignition, but should the warehouse or shed in which it may be stored be attacked by fire we have ample proof from theory, from experiment, and from practical experience, that this form of bale resists the attack of fire admirably. Various experiments have been made in placing a "turtle-back" and a "round" bale on the same fire. In favor of the former it may be said that should a fire have worked its way into a bale before it is discovered, a dash at the bands with a hatchet will release the cotton and allow water to be thrown on the burning spot. On the other hand the "round" bale would have to be unwound in a similar contingency. But it must be remembered that it is denied that a fire can penetrate a "round" bale, and if a non-inflammable covering be used in the packing, no doubt this risk will be reduced to a minimum.

An interesting experiment was made last year in Liverpool, where a cylindrical bale and an ordinary bale were both exposed to the same fire. After half an hour the fire was extinguished and the bales rolled off. The old bale fell off with bands complete, but the new bale became unrolled in the process of removing it

from the furnace and the cotton blazed up. However, only a small portion was found to be alight, and this was extinguished in a few seconds, while the cotton in the old bale was still burning next morning. Prior to the test the old bale weighed 410 lbs., of this, 261 lbs. of sound cotton was obtained after the fire, showing a loss of 36.3 per cent., while the "round" bale, which weighed 504 lbs., lost 22.2 per cent., or 112 lbs. by damage from the fire.

This shows in favor of the new system and taking into account the greater density of the cotton, and under recent improvements the non-combustibility of the Hessian cloth, chemically treated, with which it is suggested all cylindrical bales should be encased, the latter have a decided advantage in the matter of fire prevention.

But leaving experiments which have been carried out in the interests of insurance offices, both in this country and America (with the result that the offices have reduced the premium on round bales by one-half), I will just mention a fire which occurred in the Rock River Cotton Co.'s works at Janesville, Wisconsin, in July last year. The official report says "the main building with machinery became a total loss. The cotton, some 40 round bales, which was lying where the fire was the hottest, and could not be reached until after the building was entirely burned out, was entirely saved. When found, only the covering was gone and about an inch of cotton scorched, the rest of the cotton perfectly dry, white and wholly uninjured. The bales with ends cut, opened as well as if they had never been burned. The water had not penetrated any at all." This latter statement is, perhaps, of primary importance, for it is well known how often more damage is done to the cotton by water than by actual fire. To repeat, I hold that the spread of a cotton fire can only be limited by giving more attention to the packing of bales, which not only governs the extent of the spread, but the extent of the salvage after the fire. As the expense of improved bales is often argued, I would only add that, as a matter of fact, what with the easier portorage, reduced insurance rates and other economies which the new bales allow for growers, shippers and merchants alike, their introduction means a material saving to all concerned, quite independent of the lesser risk, which should count for something, considering the inconvenience generally caused by fire loss, no matter how well goods may be covered by insurance.

THE STEAM GIG.

The steam gig is used almost exclusively for steaming kerseys, beavers and face goods. The upright steamer is effective, but requires too much unnecessary handling of the goods back and forth from the roll-gig, unrolling, wet gigging, and rolling again. The principal object in steaming any of the modern types of steam gigs is to keep the steam right, the cylinder

in good working condition, and the adjustment of the goods correct. The common form of steam gig consists of a perforated copper cylinder on each end of the machine, and a stiff brush in place of the gig cylinder in the center. The couch roll jacket, and the first and second press felts, should be in good condition. The press felts should be light in make and have the nap or pile well raised. To obviate the tension in the direction of the length of pieces, care should be taken to prevent undue strain at the points where the cloth is transferred from one section of the machine to another.

Especially in the steaming of heavy beavers, a good supply of steam is necessary. The mistake of making the steam pipe connections too small is frequent. Supposing, with a half-inch pipe, we had a 1,000 pound pressure, and had an unlimited supply of steam there? Would we get unlimited power through that half-inch pipe? No. The quantity of steam which would run down would be limited. Only a certain quantity could flow, because of the size of the pipe being small. If there were a pipe twice as large we would get twice as much steam. And if the pressure were twice as great, we would obtain about twice as much steam also. If the head were only of 500 pounds' pressure, we would get about one-half as much steam per minute as with the pressure at 1,000 pounds. With the machine right and steam pipes in order we are ready to begin work.

There are some specific imperfections that fail to come to view in the goods until the cloth is on the steamer or has just left it. These defects happened the same on the old-fashioned steamers in which the cloth was rolled on perforated metal rolls of about 2 or 2½ inches in diameter. One trouble is unevenness, due very often to improper flocking at the fulling, and yet often blamed to the steaming process, because the trouble is not noticed until the goods are steamed. I do not know of anything as trying for the finisher as a piece that does not steam out even. Pieces that are not flocked, or are flocked only a little, very seldom give trouble in steaming, if the steamer is all right, but pieces that are flocked very heavy, or are set back in the mill and flocked, sometimes steam out uneven. If we are sure that the steamer is all right, let us go back to the fulling mill and see what the fuller has been doing. Generally we find the trouble here if he has been putting on the flocks too much at a time, or has not been running them long enough in dry flocks, or has not been putting on soap enough to start the grease all through the piece. When the grease is started, the fuller will take the flocks more than where it is not. If there is too much soap, it will make them sticky, and, when running round, they will not open out. The part that is outside will get more, and the action of the steamer on the steam gig will do the rest.

It may be necessary to go back as far as the warping in order that the cause of streaks in the direction of the warps in the goods may be located, says a writer

in the 'Textile Manufacturers' Journal. Irregularities in the tension of the threads are one of the evils, and varying sectional lengths are another. The favorite point of attack is the rack, the particular points, the friction-paddles, and the object, differential friction. This differential friction must not only be perfect in itself, but it must also be correspondingly alike with all the spools in the rack. If the point of frictional contact were always the same, possibly this result might be attained. But it is not; it is greatest on the full-sized spool and gradually diminishes until the minimum is reached. The uneven tension on the warp yarns is best overcome by the use of improved frictional forms of dresser spools.

Another class of irregularities, which bother the men at the steaming and which are often laid to supposed bad work of the steamer, is shaded and off-color stock. I have known the colors to be affected in steaming and off-shades to be produced; but nine times out of ten the irregularities are due to mixing lots of stocks from which the yarn in the goods was spun. For instance, a lot composed of Australian fine is rarely put down by itself, but generally is mixed with domestic wool, the object in putting in domestic being to give the yarn a fuller or more lofty appearance. When a lot has been made up, it ought to be entirely run out by itself. But the trouble is that this is not always done. The superintendent will come along through the mill and look over the stock and order that lot to have some different quality of wool put in. The consequence is the grade is changed. Now, the grade of any lot has no business to be allowed to fluctuate, and if the quality of a lot has been determined on it is the superintendent's business to see that it is kept up to the standard. If he wants to change, let him run one lot out and start another one, getting every advantage of the change. The change of the lot, when part of it is on the cards, means that the two kinds of yarn will be made, and these two kinds will result in irregularities at the steaming and finishing that no man can prevent. Hundreds of thousands of dollars are expended every year in our mills in various ways of improvements; this is all right. I believe in keeping our machinery well repaired with all necessary improvements, but I believe, at the same time, that it is not policy to neglect one of the most important parts of manufacturing. It seems to be a settled fact with many of our mill men that the very excellent improvements that have been applied to cards, drawing frames and spinning will regulate any and all imperfections liable to occur in the picking rooms. If that is the case, why is it that we find, in some of the best appointed mills, yarn that shows an unevenness of from two to five numbers, and a variation from 5 up to 25 per cent.? I am convinced that mismanagement is more the cause than anything else.

If the delicate descriptions of colors are apparently affected in the steam finishing process, I would find out how those particular colors were applied before mak-

ing any changes in my methods of steaming. Trouble is experienced frequently in the use of light-colored dyestuffs from unevenness. If a bath be made up and the wool entered, it will be found that only a portion of the coloring matter goes on to the wool, but that a large amount is left in the bath. This is the case with brilliant pinks produced by the use of the eosine dyestuffs. There are a number of these, and they vary from a very blue shade down to one that is quite yellowish. If a strong acid, such as sulphuric (oil of vitriol) be added, and the wool re-entered, it will be found that the color goes on very rapidly, and that the bath is left nearly colorless. This shows not only that an acid is necessary for the full development of the coloring matter, but shows also that a strong acid acts so quickly that the coloring matter goes on too quickly and thereby causes unevenness. This unevenness is what bothers, particularly on steam-finished goods. The best remedy is in the use of a weak organic acid, as acetic, in the bath, which causes the color to go on slowly and uniformly. If you use steam gigs it is best to use only the ones that are large and well and strongly built. None but the best machines should be used.

WOOLENS FOR WINTER WEAR.

The under web of a thick cloth being generally of looser yarn, and readily felting when fullled, it is necessary to use a yarn of equally quick fulling tendencies for the upper side. On the other hand, if the yarns on the face are slack and full readily, a slow-fulling yarn must not be selected for the under side, or the cloth will shrink into wrinkles. Consequently a proportion of shoddy is mixed with the under web, the kind of admixture practiced depending on the feel required of the cloth—e.g., for hard feel, Thubet and low-grade shoddy, or mungo; for soft, flannel and croppings.

In securing a good felting surface, a deal depends on the yarn, since if this be too fine, it will not produce enough body; while excessively coarse yarn gives a rough and uneven appearance to the surface. To prevent lateral shrinkage in fulling, longitudinal shrinkage should be encouraged by cutting. The goods must be well soaped and frequently measured while in the mill, and tented to prevent wrinkling. As when dyed in the piece goods are apt to shrink on washing, milling should not be pushed too far, and it is always advisable to dress with fuller's earth after soaping and rinsing. Olein is often advisable to use in filling, especially for thick goods and where the pieces have been mordanted or boiled too long with acid. Semi-woolens and goods containing much shoddy felt very slowly and easily become hard. With goods dyed in the piece, and consisting of shoddy under web, the white upper surface is often discolored in washing by the bleeding of the dyed shoddy, and must in such case be drained at once in the hydro-extractor and dried, says a writer in *Leipziger Monatschrift*.

Winter goods are mostly raised on both sides, the face being finished first, which is a wrong plan to adopt, since by raising the under side first the cloth is made more yielding, can be held better, and the cards engage more uniformly in the upper felted surface. The best plan is to pass the under side through the raiser two or three times, then raise the face, and finally give the under side a couple of turns more, with care. When the goods are too wrinkled to raise evenly, they must be stretched until smooth, wound, full width, around a steaming roller laid all night in hot water, and roughed after treatment in the hydro-extractor.

After roughing, the goods are cropped, care being taken not to shear too deep at a time, or the appearance will be spoiled. In calendering, a little moisture is advisable to preserve the proper luster, and the cylinder press is generally sufficient. For steaming, a pressure of 1—1½ atmospheres, acting for twenty to thirty minutes, is best in the case of dull goods, or two atmospheres for fifty to ninety minutes for lustered goods; in either case the pieces are left on the rollers for a couple of hours or so to cool. In the final cropping each piece is best passed through two or three machines in succession. When piece dyed goods are steamed unusual care is necessary, the dye not being always fast, and steeping in water at 50 to 70 degrees C. for several hours is often preferable. The finer the goods the lower the temperature that may be used, though higher temperatures produce greater luster.

TWO CRYING EVILS.

At the summer gathering of the Maine Woolen Manufacturers' Club recently, a subject was discussed which, while evidently of deep interest to manufacturers of men's wear woolens, is also closely connected with the prosperity of manufacturers and wholesalers in branches of the textile industry more intimately related to the dry goods trade, says the *Dry Goods Economist*, New York. It appears that the woolen manufacturers of Maine have for a long time suffered severely from the tendency of the purchaser to cancel orders without any regard for the obligations under which he placed himself when he allowed the order to be booked. In the men's wear woolen trade, as in other lines, orders according to the special styles and patterns desired are placed ahead so that the mill may have time to make up the goods and have them on hand when the purchaser calls for them. Before the goods can be delivered, however, it may happen that the purchaser, believing that styles will change or that there will be a lessened consumption, or for some other reason, cancels his order and throws back on the manufacturer's hands either the completed goods or the material, in various stages of manufacture. Maine manufacturers claim that for years it has been impossible for them to bank to any certain extent on the future or reckon upon the orders they receive.

This year the cancellation evil appears to have reached an especially flagrant stage, the outlook, in the opinion of purchasers, having, on the breaking out of war with Spain, suddenly changed from exceptionally good to "mighty onerous." Cancellation after cancellation, according to Mr. Anderson, president of the Maine Woolen Manufacturers' Club, was the result. This subject of cancellations is closely allied with the readiness of certain houses to return goods, a matter which formed a prominent topic of discussion at the special meeting of the dry goods men held at Detroit recently, in connection with the convention of the National Association of Credit Men. The dry goods men, like the woolen manufacturers, failed to arrive at any direct solution of the difficulty. Yet it is easy to see the way, and the only way, in which a remedy for these two evils can be had. For it is clear that reform is to be brought about only by co-operation among the members of the wholesale trade. At present a wholesaler knows that if he refuses to sell a concern, no matter how grossly it has imposed upon him by cancelling orders and returning goods, other houses will gladly sell it. Hence, rather than see the business go elsewhere, he accepts the cancellation or return and again seeks to sell the customer, in spite of the previous transactions having proved unprofitable. If the wholesalers would stand together and make and carry out an agreement not to sell merchants who are careless of their own responsibilities and of the rights of other people, unjustifiable cancellations and returns would soon begin to diminish.

FELTING IN WOOL.*

The evidence we have gathered serves conclusively to show that the process of felting is not by any means as simple as most writers assume. On the contrary, it depends upon several both intrinsic and extrinsic causes, and instead of resulting merely from the interlocking of the superficial cells of adjacent fibers, it must be regarded as the outcome of a series of modifications in the structure and composition of the fiber. We must therefore dismiss the conclusions of Mr. Youatt upon this question, and look in other directions for the causes. The primary requirements of a good felting wool are: (1) A large number of fusiform cells with extremely thin and elastic walls which respond very readily to the influence of water and permit of its free absorption into every portion of the fiber. (2) The cells must be small so as to impart the necessary flexibility and elastic nature to enable the fibers to readily intermingle and mat together. (3) Its constitution must be more of the nature of gelatine than horn, so that when submitted to the action of hot water, assisted by acids and alkalies, the cell walls are softened, and the fibers readily adhere. It is a well-known fact that under these conditions the felting

capacity is very materially increased, and as seen in the case of hard felt, appears to be almost without a limit. If, however, it is solely dependent upon the interlocking of the individual serrations, it is hard to understand how this can be, since it is impossible for the points of the scales to penetrate beyond the cuticle, which, therefore, limits the extent of felting and shrinkage. In the first instance, two essential features must be borne in mind—viz., the presence and influence of moisture, and the shrinkage which always results from the felting. To ignore these is to miss the crucial part of the problem, because their universal presence in every instance shows that they are intimately connected with the process. Further, so far as my microscopic investigations have proceeded in this direction, it would appear that when the fibers are saturated with hot water the imbrications do not readily lend themselves to interlocking, owing to the tips of outer cells or scales becoming soft and swollen and bending more towards the shaft of the hair. Under these circumstances it is difficult to see how they can penetrate between each other. Further, since extreme felted goods are obtained by using a hot acid solution, which greatly facilitates the operation, this places another obstacle in the way of Mr. Youatt's conclusions, because since both acids and alkalies act upon the wool, especially when they are heated, gradually dissolving the cells, we must admit that the exterior of the fiber will be the first to be injured, thus removing the serrations, which ought, therefore, really to prevent any felting taking place, whereas it becomes more pronounced. To what, then, can the property be assigned? In the first place, I am inclined to regard it more as a chemical than a mechanical phenomenon, owing to the fact that however much we may agitate and entangle perfectly dry wool, it never becomes felted in the true sense of the term. We know that absolutely dry wool fibers have no attraction for each other. Every fiber mutually repels its neighbor, thus being what is termed "electrically negative;" but this disappears as moisture is added, until they begin to attract each other or become "positive." This is well known to most carders and spinners, and so strong is the attractive force that the greatest difficulty is experienced in drafting wool containing an excess of water. The combined action of hot water and acids cause the cell walls to soften, change in form, and adhere more closely together, this becoming more pronounced where pressure is applied as well. Under these circumstances the cells and fibers lose their individuality, and become practically fused together into a more or less homogeneous mass.

SIMPLE WEAVES.

Effects in elementary schemes of weaving suggest the production of patterns on economical lines. Really genuine design in relation to the arts and crafts should be an economic as much as a decorative and useful pro-

*Extracted from an article by M. M. Buckley, Lecturer in Worsted Spinning at Halifax Technical School, published in the Textile Manufacturer.

duct. Not that art, beauty, novelty of texture and excellence of finish should be sacrificed to cheapness. The process of debasing skilled work which is practiced by some manufacturers is strongly to be deprecated. Many an excellent fabric that has only been obtained at considerable cost and by the exercise of ingenuity in designing has been prematurely excluded from a high class market by spurious imitations, says a writer in the *Textile Recorder*. All know something of the history of style degradation in the textile industries. How frequently the sale of what has proved to be an expensive novelty is suddenly interrupted by the inferior works of those whose business it is to exist by imitating in low materials the invention of others! We must distinguish between economies and cheap manufacturing. The former is lawful, the latter a system of adulteration. Fabrics which will scarcely survive the processes of tailoring are disgraceful loom productions. All textiles made for apparel ought to possess sound wearing properties. The more economically these can be acquired the better, but they should always be present in the manufactured article. The Scotch tweed trade is an example of a branch of industry built up and maintained by the practice of simple but ingenious schemes of design and manufacture. All the patterns observed in Scotch fabrics are the results of using elementary weaves. There is little or no elaboration of design resorted to. The yarns, being of a medium thickness, do not require fine spinning, and the woven goods are submitted to a very simple routine of finishing. Here we have the elements of inexpensive and yet sound cloth production. If the fine West of England woolen cloths are considered, cost of yarn making, weaving, and finishing are materially higher than in tweed manufacture, because they are of a more intricate character, requiring greater skill and more time to perfect; but even here the plan of fabric construction is extremely simple, a feature which always effects economical loom results.

It is feasible to analyze the subject of effects in simple weaves, by two methods: First, by considering the range of patterns obtainable in any typical weaves by changing the order of coloring, and second, by taking one group of shades and illustrating the various styles it may be made to give by executing it in different crossings or plans of interlacing warp and weft threads.

Primarily, however, it should be pointed out that in all the elementary builds of cloth it is possible to produce simple stripe and check patterns by combining yarns of one shade, but of distinct materials. For example, effects of this order are made in considerable variety in coating and mantle cloths by using woolen threads for the general bulk of the texture and single threads of mohair for striping and checking purposes. Another scheme of manufacturing adopted when the texture is plain or common twill and probably piece

dye, and yet some small effect is required, consists in using yarns of dissimilar counts or diameters. Thus assuming a fabric to be woven tabby and of one color throughout, then a check of more or less pronounced character is sometimes got by forming the ground work of comparatively fine yarns, and the checking of single threads of a stouter yarn. Of course the pattern in this case is really due to such yarns being more prominent on the surface of the texture than those making the rest of the cloth, and hence they impart a somewhat rough touch to the cloth, but this is not an objectionable feature in some classes of textiles.

SILK WEAVING IN JAPAN.

Kioto is the Lyons of Japan. It has been for many centuries the centre of the silk-weaving industry and the place where gold-wrought brocades, figured damasks, and painted crapes and velvets have been turned out from time immemorial. Lying in a broad and fertile valley, hemmed in on each side by ranges of wooded mountains, and watered by broad streams, Kioto, the royal city, where generations of Mikados played out their short lives of pomp and pleasure; the gay city where the dancing and the singing girls have always outnumbered those of any other town; the city of flowers, where in gardens of blossoming trees the light-hearted people fling care to the winds; it is still the ideal city of the weaver and the potter, where for centuries, in little workshops and in artisans' homes, trade secrets have been handed down from father to son, and the lamp of generous enthusiasm for art-work has been kept alight. In the long dull streets of Kioto there is nothing to distinguish the modest exterior of a silk-weaving factory from another house, except the strips of coarse black canvas which hang over the doorway and paper windows, which are in this city protected by wooden grills. I will describe, the Japanese correspondent of an English journal says, visits paid to two small but celebrated factories at Kioto, the products of which gained the Grand Prix and gold medals at the Paris Exhibition—namely, those of Kawashimay and Takashimaya. Conducted by a member of the firm of Kawashimay Brothers, we pass first into the winding and skeining room, where, by means of the simplest apparatus of wheels and reels made of light bamboo the silk is being prepared for the weaver. The silk is reeled from the cocoon in another establishment. From three to fifteen (usually eight to thirteen) fibers are spun together. Difference of lustre is obtained by the threads being more or less closely twisted. From the simple reeling-room—close against which is the kitchen where the workpeople's meals are cooked and served—we pass to the weaving-shed, where I am at once struck by the strange apparition of draw boys sitting at the top of the looms and pulling towards them with great energy and vivacity of movement the innumerable threads of the harness of the looms. To see silk damask woven nowadays in draw-boy looms is worth almost a visit to Japan. The process appears at first to be intricate and to require unusual sagacity on the part of the workers, but the apparent difficulty which the draw-boy seems to have in selecting and seizing the right threads at the right moment is seen to be no difficulty as soon as the method of working the loom is understood. This is briefly thus:—The weighted harness threads, which hang down vertically and which are attached by eyelets to the horizontal warp ends are connected together in groups within horizontal loops of fine silk cord which run at right angles to the warp. These loops are knotted so as to contain varying numbers of harness threads, according to the draft of the design, the draft being worked out in the horizontal loops hanging on the harness, instead of being punched on the cards as in the jacquard loom.

The draw-boy working in concert with the weaver below, pulls towards him the harness threads contained in the loop to be handled next. Doing so obviously raises the warp threads attached, and at this moment the shuttle is thrown. This loop is then pushed down, and the next in order is taken in hand by the boy. When the design has been worked out, and it is wished to repeat it, the whole of the loops which have been pushed downwards are replaced in proper order at the top of the loom. All the most complicated designs are woven in draw-boy looms, and I was assured by Mr. Kawashimay that these looms give better results than the jacquard, both as to economy and the appearance of the fabric when finished. The shuttle is thrown with the hand. Real gold and silver threads are put in with small shuttles, and they are thrown through the warp only the length required by the design. The gold in most Japanese damask is, however, made of gold paper, and in such a case it is treated as a thread and is thrown in the ordinary way. The reeds are made of split bamboo. Those who are interested in silk-weaving, and who visited the Paris Exhibition of 1889 cannot fail to have been struck by a marvellous piece of damask-weaving in the Japanese section, which excited the wonder of the French, the inquiry being frequently heard, "How is it done?" The repeat of the design was about $1\frac{1}{4}$ yards long. It consisted of a groundwork of white chrysanthemums, thrown on a gold satin base. Scattered over this floral ground were seven open fans; on each fan was represented a separate design: in one cocks and hens strutted and displayed the varied hues of their feathers; in another the red maple tree spread its branches for birds to settle in; in a third storks were seen flying across a sunset sky; in a fourth ducks with iridescent plumage were sporting themselves on the water; in a fifth butterflies flitted across a golden background, and so forth. The complication of the design was extraordinary; the number of tints and colors introduced was enough to distract the most accomplished weaver and draughtsman, while the drawing of every detail was correct and full of life. In the repeat the design was given again in a new range of colors and tints. This wonderful piece of damask-weaving was quite justly awarded the Grand Prix. I was therefore more than delighted when I recognized it again in one of the looms in Mr. Kawashimay's factory, and he was equally pleased that I had borne away such a correct recollection of his masterpiece at the Paris Exhibition. It was being worked in a draw-boy loom, the harness and silken drafts of which were not the least remarkable part of the whole. It takes five months to weave ten yards of this gorgeous damask, and its price is \$75 (£12 10s.) a yard. A design of peonies, chrysanthemums, and roses was in another loom, the drawing and tinting of which were excellent. This piece was intended for the decoration of a pillar, and, 12 inches wide, cost 30s. a yard. The jacquard was introduced into Japan from France eighteen years ago, but it is still used. Most of the silk weaving is given out to be done in weavers' own rooms, only the most difficult and costly work is done under superintendence in weaving sheds. Of this kind is Suzuri weaving. Now and again specimens of this bizarre Japanese weaving find their way to England. The design—generally of figures—is laid in in plain colors, and every color and tint is separated from the rest by slits or gaps in the material, effecting what may be called a kind of a jour weaving. The finest pieces of Suzuri weaving are rarely seen in Europe, as these, like many other purely Japanese products, are made to suit Japanese tastes, and are kept at home. They are used chiefly for wall hangings. The design generally represents royal processions or pageants, court receptions, etc. In order to weave these tapestries the warp is passed over a long beam, which is sometimes 40 feet long, the workers sit close together on high stools leaning over the beam. The design to be worked is drawn pictorially and placed under the warp, and can be seen by the workers through the ends; it is wrought in the tapestry by means of a great number of tiny

shuttles, about the size of tatting shuttles, which hold the various colored silks used. They are passed to and fro through the warp threads only as far as is required to reproduce the design; the slits or gaps in the cloth, found always in Suzuri tapestries at the limit of a tint or color, are made by the return of the shuttle at this limit. At Kawashimay's factory, twelve girls and men were at work at a long piece of Suzuri tapestry representing a procession, in which a great number of horses and men figured. It will take two years to complete this elaborate piece of work, and it will cost from £1,000 to £1,500 to make.

And at what cost of wages, it will be asked, are these wonderful damasks and brocades produced? An air of gaiety and apparent good feeling between employer and men seemed to pervade the whole establishment, and it will, therefore, I dare say, much surprise Manchester readers to learn at what a low sum contentment and highly-skilled work can be purchased in Japan. A good weaver can earn £2 a month; the usual wages are 40 sen (1s. 4d.) a day. The draw-boys are apprentices, and they work for their board and clothes. The factory hours are from 7 to 12 a. m., and from 1 to 7.30 p. m., that is, $11\frac{1}{2}$ hours a day, or 80 hours a week, including Sundays. Two holidays are given a month. Endeavor and excellence in workmanship are stimulated in Mr. Kawashimay's factory by extra pay being given unasked for good work. The master constitutes himself the guide, pastor and teacher of his "hands," and twice a week they are gathered into the great empty room adjoining the weaving shed to listen to addresses on moral discipline and the unrighteousness of making unjust demands, and to this is attributed the fact that strikes are unknown.

IMPROVEMENTS IN WEAVING PILE FABRICS.

A recent English invention described in *Textile Industrie* has for its object the improvement of pile woven fabrics. By this invention the floating warp is dispensed with, and the ground warps and the weft threads are arranged so as to hold the pile securely, so that it can be cut cleanly, without being dragged out by the knife. The pile and warp thread are tied in as follows:

The two picks of weft, which are thrown simultaneously, immediately after the crossing of the warp threads in the top and bottom pieces, have not the pile threads passed around them, but the pile which had last been bound in the top piece is brought to the bottom of the top piece shed, and the pile which has last been bound in the bottom piece is brought to the top of the bottom piece shed, so that the top shuttle passes over and the bottom shuttle passes under both the pile threads. The next two picks of weft bind alternate threads of pile into the top and bottom pieces, one pile thread being bound around the top piece weft thread and the other or alternate pile thread being bound around the bottom piece weft thread, the warp threads remaining in the same position as before. The warp threads of both the top and bottom pieces are now crossed, and a pair of picks is thrown, around which the pile threads are not passed. The fourth pair of picks is now thrown, the warps remaining in the same position as for the preceding pair of picks, and the pile threads are passed around them, that pile thread which was last tied into the top piece being now tied into the bottom piece, and vice versa. This completes the cycle of picks, and the first pair is again thrown, and so on. The pile threads, where they are bound into each ground, are held by a single pick of weft, and bound, either by a single ground warp above and below the weft, or bound between two ground warps above and two below the weft.

In order to carry into effect this and the preceding weave described, the pile threads are raised and depressed by tappets, which impart to the pile threads three distinct lifts or

positions, one of those pile threads which are at the top of the top piece shed, both shuttles passing under: one for the threads which are between the two sheds, the top shuttle passing over and the bottom shuttle passing under; and one for the bottom position, both shuttles passing over

In a modification, the pile is passed around two picks of weft, and is held, where it emerges from the ground, between two picks of weft, which are thrown in the same warp shed. The first two picks of weft, which are thrown simultaneously immediately after the crossing of the warp threads, tie in one of the pile threads to the top piece, and tie in the alternate pile thread in the adjacent split to the bottom piece. The second pair of picks thrown in the same ground warp sheds as the preceding pair, tie in the opposite pile threads, in the top and bottom pieces, to those last tied in; that is, the pile threads are crossed over, and that which was tied into the top piece is now passed around the pick of weft in the bottom piece, and vice versa. The ground warps in both top and bottom pieces are crossed before throwing the third pair of picks, and the same pile threads which were passed around the second pair of picks also passes around the third pair. The fourth pair of picks, which are thrown in the same ground warp sheds as the preceding pair, tie in opposite pile threads, in the top and bottom pieces, to those last tied in, that is, the pile threads are crossed over, and the same pile threads, which were tied in to the top and bottom pieces by the first pair of picks, are again tied in by the fourth pair.

This completes the cycle of picks, and the first pair now follows and so on. It will be seen that the pile threads are passed around two picks of weft in both pieces, one pile thread being passed around the second and third picks of the top piece, while the opposite or alternate pile thread is passed around the second and third picks of the bottom piece. If desired, the pile threads may be all tied in over the same picks of weft, the pile threads in each split not being woven alternately, but both passed around, say, the second and third pick of the top piece and then around the fourth and first picks of the bottom piece. In these cases, the pile, where it emerges from the ground, is locked between the first and second picks, which are both thrown in the same warp sheds, and, as no warp threads cross between them, they are packed up close against each other, and so hold the pile fast, the other tuft of the pile, where it emerges from the ground, is held between the third and fourth picks, in the same way. There are, in each piece, two warp threads by preference to every pile thread, that is, each split or dent consists of one pile thread and two warp threads for the top piece, and two warp threads for the bottom piece, these warp threads being tied in the same in each split. By these improved methods of weaving, the cost of production is reduced, by throwing two shuttles simultaneously, and the pile is economized by being in over one or two picks only; at the same time, the pile is so firmly held that it can be cut cleanly, and a fine and even piece is produced.

PRINTING SILK FABRICS.

The China silks, which, in the past, have been so popular, were made with a printed warp, and at one time Lyons enjoyed practically a monopoly of their manufacture. Zurich and Crefeld, however, are now entering largely into the industry. The Leipziger Farber Zeitung describes the process used as follows: "After the usual preliminary treatment, the warp is stretched tightly on a table about twenty yards long and covered with a cloth. It is then printed by means of blocks, for which the colors are supplied from receptacles which slide in grooves along the entire length of the table. When the whole of the piece has been printed, it is subjected to the action of superheated steam for about three quarters

of an hour. This fixes the colors. The warp is then packed in a sack and worked backwards and forwards in water by two men, in order to wash out the thickening used in the printing, colors. The sack and its contents are then wrung centrifugally, the warp is then taken out of the sack and hung up to dry. It is then brushed in order to close up the threads. The discharge printing of figured silk with a dark dyed background, is of special interest. It has the advantage, as compared with the application of the background, by means of printing, that the pattern is clearer and sharper, while the background itself is of a better color, and, furthermore, that it saves time and therefore money. The background is dyed with such coal tar colors as can be discharged with zinc powder or tin salt and dyes are mixed with the discharge which are not affected thereby. In this manner green, red, yellow and other parti-colored effects can be got on a dark ground and afterwards steamed. Another and somewhat uncertain method is employed for silk pongees and foulards, which are woven from raw silk. On these light materials points and small figures are printed by the aid of a fatty and resinous body (mastic). The printed places are powdered over with fine pipe clay to prevent sucking, and the fabric is then hung up to dry. They are then dyed with the desired background, the mastic acting as a reserve and preventing the printed parts from taking the dye. When the dyeing is finished the mastic is dissolved away with benzole, leaving places having the original color of the silk. As a rule the background is dyed darker than the printed places, which are dyed of the desired color before the application of the mastic. Both hand and machine printing are resorted to, but while with the former as many as sixteen different colors can be obtained, only two are possible when employing the latter."

THE DYEING OF CHROME LEATHER.

Chrome leather seems to have gained more favor in America than on this side of the Atlantic. This is curious as 36 hours will tan leather as completely by the chrome process as nine months will in the ordinary way. Besides, chrome leather is more durable than any but the very highest qualities of ordinarily prepared leather, is soft and smooth to handling, and will do one thing that no other kind of leather will do, viz., stand heat. Ordinary leather begins to suffer at 40 deg. C., and higher temperatures ruin it altogether, while chrome leather will stand prolonged boiling in water without undergoing any injury. It might be imagined that this latter property facilitates the dyeing of chrome leather, but that is not so. Chrome leather cannot be dyed well and uniformly without being specially prepared beforehand. Many such processes have been devised, most of which depend upon a further tanning of the chrome leather which is then dyed in the same way as ordinary. Such is the process patented by Avellis and Huster, of Berlin. This consists of freeing the chrome leather from acid by means of lime, rinsing well, and then treating it in a tanning bath. After this the leather can be dyed at once, but clearer shades are got if it is subjected to a further preparation in a tartar emetic bath. A complicated process is described in No. 370 Kampfmeyer's Gerber Zeitung. This directs successive treatment of the chrome leather with alumina mordant, tin-salt, dichromate, and iron, all in presence of acids. The leather so prepared is said to be specially suitable for being dyed with alizarines for which it does not need a higher temperature than 60 deg. C.

The following sketch of a simple method, which, however, is not yet fully worked out, will be of interest to our readers. It is based upon the fact that chrome leather first soaked with

soda salts, and then treated with a chrome mordant shows a uniform affinity for acid dyes. Strong baths darken the natural color of the leather, but it can be lightened again by the addition of a little acid to the dyebath, so that mode shades can be got at pleasure. Without the addition of acid, the dyes take equally well and uniformly, but are darker and duller in shade. At the same time there is a saving in dye. The advantage of this method of preparing the leather consists in the possibility of employing dilute solutions for preparation which allow the leather to retain its original color, and make the production of clear shades possible.

The acid dyes exhaust fully on the chrome leather prepared as mentioned, whether free acid is added to the bath or not. In order to get a light yellowish brown on chrome leather prepared with strong solutions and on a dark ground, it is only necessary to use a pure yellow such as Azo Acid Yellow. Curcumin extra gives a somewhat redder shade in combination with the natural color of the leather. Reddish brown of different shades is obtained with Ponceau 4GB, Ponceau 3RB last Brown G. A full green, the coming color, is given by Guinea Green B which can be changed to olive by the addition of yellow or brown. Fast Blue 6B for wool answers well for navy blue, and Wool Black 4B furnishes a black equal to logwood black. If the leather, previous to the employment of the above dyes, has been prepared with dilute instead of strong solutions, the colors got will be much clearer and finer. All these dyeing processes can be carried out at temperatures not exceeding 50 deg. C. The skins should be entered in pairs, flesh-sides together. Singly they may be dyed by brushing on the dye. The drained skins are coated with linseed oil, and when that has been soaked in they are ironed on the grain side. They are then greased, and are ready for use, being smooth, with a velvet-like feel, and being almost untearable even when very thin.

CHARACTERISTICS OF ORIENTAL RUGS.

There is probably no branch of commerce in which experts are so rare as they are in the Oriental rug trade. The retail carpet dealer in this country may be well informed as regards all domestic or European goods handled by him, but so far as the rugs of the Orient are concerned he can claim little or no knowledge beyond the facts that certain sizes and certain classes of patterns are more salable than others. In the old days the differences between the rugs of the various weaving districts of the East were clearly marked, and a glance at the material, design or colorings of a rug would generally be sufficient to detect at once the country, and in most instances the very district or province, from which it had come. But at the present time such details as texture or pattern are of little use in tracing the origin of a rug of modern manufacture, because in most of the rug weaving districts of the Orient the goods are manufactured for the Western markets under the order and often under the supervision of a European buyer, who allows no native ideas to interfere with his own conception of a good and salable pattern. Such rugs generally possess all the desirable features of an Oriental make, without the defects often found in goods made by native weavers to suit themselves.

Of course these remarks do not apply to rugs which are really antique, or to some modern goods manufactured in districts in which the weavers are still exempt from the influence of western ideas, as for instance in the Caucasus or among the nomad tribes, says The Carpet and Upholstery Trade Review. Such people continue to make their rugs as their ancestors did back to time immemorial, and the rug buyers accept the goods as they come, because they are generally well worth the price, being, indeed, much cheaper than they would be if made to order. In the Orient these rugs represent the same kind of labor which produces the crazy quilt of the American farm-

house, made in the leisure hours of the farmer's wife or daughters. The crazy quilt is hideous, and it is but fair to admit that some Oriental rugs are not beautiful to the eye until time, wear and dirt have toned them down. But while it has been broadly intimated that it is rarely safe to be very positive as to the exact birthplace of an Oriental rug once landed in this country, it is still true that each rug making country in the Orient has its particular type of rug, the typical Turkish product, for example, being different from the Persian in both weave and pattern.

The Turkish rug is generally woven more coarsely than the Persian, the designs are usually somewhat larger, and consist of geometrical figures and such as are seen on mosque or prayer rugs. But there are also high grade Turkish rugs and carpets which are woven very finely. In Persian goods the patterns comprise birds, animals, flowers and fruits, as well as geometrical figures. Under the designation of Persians are classed such rugs as the Ferehan, Shiraz, Mossul, Cashmere, Savelan and others. The Ferehan goods are made in both rug and carpet sizes, in small chintz designs with dark blue grounds and reddish borders. They rank among the least expensive in the market, and are well suited for dining rooms or libraries. One noted hotel in New York city has Ferehan carpets in fifty of its rooms. Shiraz rugs are generally antiques. They come in small sizes only, are of closer weave than the Ferehan and more varied in colorings. Savelans resemble Ferehans, but are much finer, and are generally woven in large, bold designs in a wide variety of colorings. But as most of the weavers of Savelans are under the control of an English firm, any designs or colorings required can be supplied. Soumacs, or Cashmeres, are often classed with the makes of the Caucasus, and a Cashmere rug is also made in India. The Cashmere is woven without a wool and in large medallion designs. The ground is generally dark red, and there are usually three medallions in each rug or carpet. The antiques are an admirable specimen of soft rich colorings, but the modern goods are sometimes crude in this respect.

A characteristic feature of many Soumacs is a figure resembling an obelisk. Kurdistan rugs are somewhat subdued in colorings, closely woven, with a short velvety pile, and are high priced. Khorassans are fine in texture, and the designs are not so much conventionalized as is the case with most Oriental ornamentation. Flowers are much used in Khorassan rug and carpet patterns. Bogharas or Khivas are made of black goat's hair, woven very closely, and rank among the finest rugs manufactured. They come generally in two styles of design, one known as the round and the other as the temple. The ground is usually red in various tints. Persian carpets are oblong, coming in any other shape only when made to order. They are woven in almost every province in Persia, but the majority of those which are intended for floor coverings are made in the province of Irak, and chiefly in the city of Sultanabad and the districts of Sarra vend, Garrouste and Malahir. In Persia the earth floor is first covered with a matting made of split reeds, and over this rugs are laid.

In Turcoman rugs the prevailing color is red, and the designs do not vary much, but in other Persian goods there is an almost endless variety of design. Turcomans are classed among Persians because the district in which they are made was formerly subject to Persia.

A large proportion of Persian rugs, and especially the finer grades, should not be regarded as floor coverings, for they were intended to serve as draperies or portieres or to cover divans and tables. Ghilim rugs made in Kurdistan and Turkestan are peculiar in the texture, which suggests knitted rather than woven work. Being light, fine and flexible, with patterns on both sides, they are well adapted for portieres, sofas, etc. The Ghilims of Lauristan and Zarend are preferable for carpets, and those of Kirmanshah perhaps excel all others in the originality

and beauty of the patterns. In many Persian and Indian patterns a characteristic feature is star-like or flower-like ornaments, so placed as to form squares. By varying the colors, or simply the tints and hues, a remarkable and agreeable diversity of effect is obtained from the same design. Coiling tendrils work with indented leaves and palmetto-like blossoms is a characteristic of Persian rugs or carpets of the sixteenth and seventeenth centuries. In carpets this work is seen alone or in combination with animal figures or birds. From the thirteenth to the eighteenth century the Chinese exercised a strong influence on Persian art, and these animal figures, dragons, birds of paradise, etc., are all of Chinese origin.

THE LATE GEORGE YOUNG.

George Young, lately of Montreal, died at his residence, 35 Fernhead Road, London, England, July 11th. The late Mr. Young was well known as one of Montreal's most public-spirited and philanthropic citizens, who gave himself and his means to relieve the poor and the needy, counting himself the servant of all for the sake of the Master, whom he served so faithfully and so well. He was born in Bury, Lancashire, and came to Canada at the time of the great ship fever, in 1847. He was detained on the Grosse Isle in quarantine for six months, during which he suffered from the fever himself.

Mr. Young's relatives were wealthy cotton manufacturers, and he represented his uncle's firm for many years. Then he formed a partnership under the firm name of Young & Jefferies, with premises on Notre Dame street. When the firm was dissolved he entered the employ of Thompson, Claxton & Co., which firm was afterwards merged into that of T. J. Claxton & Co., when he became an active partner. Mr. Young afterwards became a partner in the wholesale department of S. Carsley & Co. In addition to these business interests he was for twenty-two years a member of the British American Dyeing Co. Mr. Young's charities were very numerous and his death is deplored by a wide circle of friends in all walks of life, who have felt his helping hands.

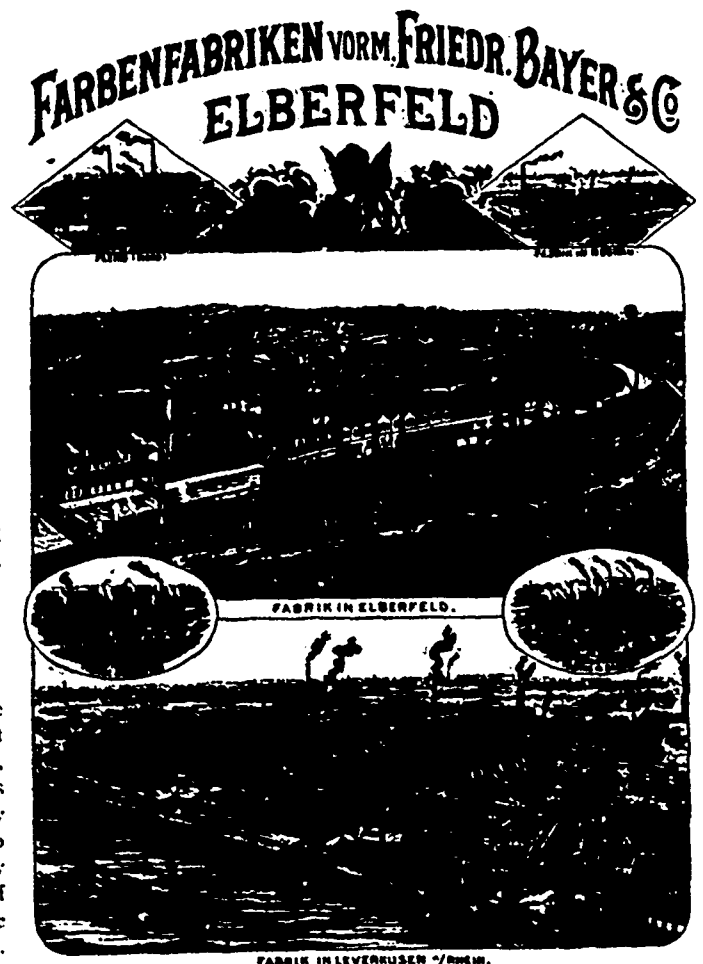
LONDON WOOL SALES.

The fourth series of the colonial wool sales opened June 28th with a full attendance of buyers from all sections except America, who were few in number. The bidding was spirited, with fine cross breeds selling firmly at the rates of the last series overruling somewhat in sellers' favor. Owing to the scarcity of merinos there was increased anxiety among operators to secure offerings at mostly an advance of 5 per cent. for specially scoured, which were keenly competed for, Yorkshire chief operators. The French buyers secured fair quantities and the German representatives bought a few to meet requirements. Cape of Good Hope scoured fleece showed an advance of ½d. and greasy a farthing higher. The number of bales offered on the first day was 11,942. The attendance throughout the series to date has been large, and competition keen. On July 15 13,076 bales were offered. A fair quantity of medium good scoured and fine greasy merinos sold quickly at high prices. Superfine Geelong greasy was in better demand, and sold at improved prices. The general tone of the sales was firm. Following are the sales in detail for the day: New South Wales, 1,900 bales; scoured, 8d. to 1s. 8½d.; greasy at 5¾d. to 10d. Queensland, 900 bales; scoured, 10d. to 1s. 5d.; greasy, 7d. to 8½d. Victoria, 2,900 bales; scoured, 7½d. to 1s. 6d.; greasy, 6½d. to 11¾d. South Australia, 1,000 bales; scoured, 1s. to 1s. 4d.; greasy, 4¾d. to 7¾d. West Australia, 100 bales, greasy at 5¼d. Tasmania, 800 bales; greasy, at 6d. to 1s. 1d. New Zealand, 5,400 bales; scoured, 6d. to 1s. 6d.; greasy, 5¼d. to 10½d. The series is scheduled to close July 19th.

WHERE ANILINE DYES ARE MADE.

The demand for coal tar colors has increased so rapidly of late years as to necessitate the enlargement of all the leading color manufactories of the world. England was the first aniline producing country; but Germany now takes the lead, although the larger amount of raw material is still shipped from England. Cheaper labor and chemical science appear to be the reason for this change.

Most notable among the largest concerns of Germany are the works of the *Farbenfabriken vorm. Friedr. Bayer & Co.*, Elberfeld, the present works, have been added to from year to year till they are now of enormous size, occupying over a mile in length of the west end of the town. These works at Elberfeld were originally sufficient to meet all the firm's demands;



but increased trade necessitated the building of several large factories at the town of Barmen, some three miles down the valley of the Wupper, for the manufacture of the methylene colors. Other important branches were then opened throughout Europe, the most recent of which are at Leverkusen on the Rhine, near Cologne, covering over 500 acres. This new works is devoted chiefly, at the present time, to the manufacture of alizarine products, diamond black, acids and pharmaceutical products. It is the intention of the directors to some day make Leverkusen their head office. An extensive railway has been built by the company connecting with the main line to Cologne and Elberfeld, which is a great convenience to the workmen. The new works at Leverkusen are fitted up with splendid lockers, baths and all conveniences for the workmen. A stroll through the works at Elberfeld will impress the visitors with their enormous extent. A railway running between the

numerous buildings is kept in constant use, conveying raw material in tank cars, to the various departments, and kegs of manufactured goods to the "Muster lager," to be numbered and labelled, ready for shipment to all parts of the world. At a central point in the works is stationed the fire department, consisting of an efficient staff of trained men and several reels, for in one branch of the works where the highly combustible ether compounds are manufactured, fires are of frequent occurrence, and valuable property is frequently saved by the timely assistance of the "Farbens Feuer Verein." Near here is to be found the works' restaurant, for the convenience of the employees, of which there are some three thousand, and here the working man can obtain suitable refreshment for a very small sum, the proceeds of which go towards maintaining a well equipped hospital and staff. A valuable scientific library is situated on an upper floor of one of the main buildings, which is at the disposal of the chemists and doctors who represent the heads of departments.

Analytical chemistry forms an important feature of the Farben's establishment, where in commodious laboratories, fitted with costly apparatus, over one hundred and twenty skilled chemists are kept constantly at research-work, investigating the intricacies of organic chemistry. In the pharmaceutical branch of the concern are to be seen the results of their laboratory work, where products such as phenacetine bayer, sulponal bayer, aristol, trional, somatose, etc., discovered and patented by the Farbenfabriken are manufactured in large quantities, and have now become necessities in the drug markets of the world. Returning through the spacious offices we see hundreds of clerks, transacting the business of this giant establishment, where up to the present, some eleven hundred colors have been discovered, belonging to the alizarine, azo, diazo, sulphon and other groups, and we easily understand that with such facilities and improved methods, and so competent a staff, this concern promises to occupy the position of the leading color concern of Europe, and now employ over 5,000 workmen and have agencies in all civilized parts of the globe.

The Diamond Dyewood & Chemical Co., Toronto, is sole agent for Canada of this vast business.

FELTS FOR WOOD PULP MILLS.

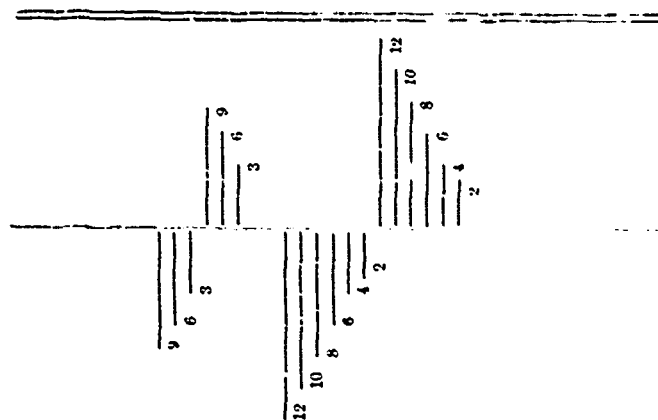
Following are directions for making felts that are used in wood pulp mills as given in a recent issue of *The American Wool and Cotton Reporter*:

First, secure a medium quantity of English wool, or some coarse grade of wool. It should be a wool that has good felting qualities. Have it properly cleansed and dried. See that the wool is properly prepared, as this is very essential. For a 72-inch felt (72 inches wide), 1,680 threads of warp; weight, 500 grains, draw in four harnesses, two threads in one eye or through two eyes, on one harness shed, reed to be six dents to the inch, two threads in dent, 140 inches in reed, warp not to be too hard twist. Have the warp twisted so that it will stretch and not break off like a pipe stem. Have the warp well steamed, so that it will not kink. The weave is to be plain. The filling should weigh 750 grains, 10½ picks. Filling can be made a little heavier or lighter; should the felt come a little heavy, make the filling a few grains lighter, and vice versa. A felt made in this way and fulling in a push mill, should be woven one foot longer from the loom than when finished. If fulling in a rotary, it can be made to take in more lengths. This part of the fulling is governed by the fulling qualities of the wool. See that the loom works with a positive take-up, and be particular with the friction, so that the cloth will be uniform.

Get the working of the loom all right. Weave a few inches, and then turn the warp forward, so as to leave the ends of the warp at least one foot long for closing. Then when the felt is woven the proper length, turn the warp forward again, so that

there are ends on both ends of the felt. See that the warp and filling is very uniform without any knots. Judgment must be used in regard to the twist, both warp and filling.

This part of making felt has to be done by practical knowledge, as some wools will take the twist quicker than others. After the felt is woven, have it well burlled. All knots should be taken out, and everything made right. See that the felt is properly put on to a closing board. Bring the two ends of the felt together and fasten properly. Now take a large needle, and join the list or edge of the felt, running the thread in the same as you would the heel of a stocking (closing). Take the first threads, one from each end of the felt. Tie with a weaver's knot, or some other good knot that will draw through easily. Then draw after this manner:



DRAWING IN DIAGRAM.

Draw the first six threads up, and then the next six down; then draw three up and then three down, drawing the threads the same distance or about the same as shown in the diagram. When this part of the work is completed, stretch the felt by taking hold of the upper and lower sides. Then take a whisk broom and smooth the threads out for trimming off. Leave the ends long enough to hook under, as it is called. When the threads have been trimmed, brush again with the broom, so as to take the twist out of the ends of the threads. Then with a hook made for the purpose, hook the thread under. This part of the work must be done so that it does not cockle or wrinkle. Now the felt is ready to be fulling. Spread the felt out smooth, and wet with a common sprinkler with some alkali, just strong enough to start the oil that has been put on in carding. Be sure to wet the felt uniformly. Then give it short runs at first, so that no part of it may knit together, and when partly fulling, it should be put on to a frame made for the purpose, called an overhauling frame, and stretched and fulling to its proper size, leaving it in width three inches over; that is a 72-inch should be left 75 inches. A felt 25x72 ought to weigh from loom 25½ pounds. A felt made in this way is for fast running machine. We will state here that the drawing in of the threads need not be so systematic as shown on diagram, as it would do no particular harm if they vary somewhat, only have them drawn from two to ten or twelve inches.

BELT DRIVING FOR ELECTRIC PLANTS.

Now that electricity is coming to the front so rapidly in textile manufacturing, great interest will be taken in the following statements taken from a pamphlet issued by the J. C. McLaren Belting Co., at the time of the convention of the Canadian Electrical Association in Montreal: It is very gratifying, for us to be able to say that we have handled the largest individual order for belting an electric plant that has so far been placed in Canada. Amongst other points of interest

in Montreal is the generating station of the Montreal Street Railway system, where there is belting transmitting the 7,000 horse-power.

The J. C. McLaren Belting Co's contract for this work covered the maintenance of these belts for two years from their starting up and the total expense to the firm in this connection did not amount to $1\frac{1}{2}$ per cent. of the total value of the purchase. These belts are all made from genuine English oak-tanned stock, a tannage that has properties especially adapted for the exacting work peculiar to electric plant. The total number of hides employed was 1,630; total weight of leather, 15,000 pounds.

MIXTURES.

In order to avoid speckled mixtures, lamb's wool has to be largely employed in carded wools, especially for the bright colors, for which its short fibers lend themselves to greater distribution. In some mixtures, such as clerical greys or dark Oxford mixtures, even lamb's wool is then too long for a satisfactory result, when resort has to be had to fine and short flannel flocks, says a writer in *The Textile Manufacturer*. Five per cent. of these will distribute themselves much more minutely than the same quantity of lamb's wool, and produce a clerical grey superior to any other material for neatness and tone. The same remark applies to the lighter shade of clerical grey named Cambridge mixture, which is made with 10 per cent. of superfine white flocks and 90 per cent. black wool. These clerical greys are those quiet unassuming shades usually worn by the clergy, and are formed of pure black and white, which gives an ashen grey, deficient in brilliancy and tone.

The commercial world and ordinary people prefer brighter and more lively greys, which are obtained by employing a blue black in place of dead black, and a white previously tinted a faint blue. Indigo should be the color used for tinting, as it is one of the most permanent blues, and fades least under light and exposure. The same remark applies more strongly still to the lighter shades of grey. Assuming that aniline or any other fugitive blue had been employed, a few days in the sun or a visit to the seaside would soon expose the mistake, and the wearer's coat become as cloudy as an English sky. Indigo, being the most expensive blue, is often discarded in favor of cheaper dyes, and the manufacturer's reputation sacrificed to his greed. In these cases, the half-worn garments are sometimes returned to him, with a claim for damages.

Ireland has been found to be one of the most trying climates to colors, although it is not troubled with a tropical sun. The cause lies in the strong saline atmosphere from the Atlantic, which is powerful enough to fade any but the fastest dyes. Common blacks and spurious blues fade like magic, and more delicate colors have a short and sorry-looking existence. Indigo blues and woaded blacks of genuine dyes, and capable of standing the Government tests and the service of Her Majesty's navy, are essential to the Irish climate, and the best firms insist upon those guarantees. Whether in mixtures or in solid colors, the best dyes are the cheapest, the best firms never risk their reputation with the inferior ones, and in consequence are seldom short of trade.

Either on the principle of the survival of the fittest, or from natural selection, different branches of the trade in manufactured wools have located themselves in different districts. Why they should have done so does not appear at the first glance, but something favorable to their development has evidently exerted its influence. Whether it be climate, water, the disposition of the people, or the price of labor, the distribution has occurred, and each district is now noted as the home of some special branch of the woolen industry. With this distribution, different systems and methods of treating the wool and ma-

terial in process have sprung up—each one being the outcome of experience and practice—as the most fitting and successful method of producing the respective goods. This shows that in practice the rigid lines of theory have had to give way, and that one process will not suit all branches of the woolen trade.

Perhaps it would be difficult to find another class of manufactures which requires so much elasticity, and lends itself so little to theory as this trade. Hard and fast lines in manipulation do not fit a staple article which never shows two crops alike, nor exhibits fibers of equal length. The mixed lengths of fibers, and the mixed blends containing staples of varying length, from $\frac{1}{4}$ to 3 inches (two blends seldom being exactly alike), require accommodating in practice by a system of give and take, which no theory has yet been made to fit.

This accommodating or humoring of mixed blends in the carding process can only be learnt in actual practice. It has often been called "rule of thumb," a statement very unfair to expert foremen, since the best authorities could never yet reduce the carding of wools to hard and fast lines. Ordinary clean wool will make its own weight in yarn under good workmanship, whilst mixed blends will waste in different degrees, according to their quality, the lowest class often wasting 25 per cent. between material and yarn. This amount of waste is often unavoidable, but its extent is largely dependent upon the skill and ability of the foreman carder. Some foremen make a minimum of waste, while others seem unable to prevent an excess, a feature which often represents the success or ruin of the manufacturer.

CANADIAN TEXTILE PATENTS.

The following Canadian patents of textile interest have been recently granted:

No. 59,221.—A carpet clamp for securing carpets to the floor by eyelets; Edward A. Coll, Pittsburg, Pa.

No. 59,222.—Improvement on knitting machine; John Barton-Paxton and Ellis Irwin O'Neill, Philadelphia, Pa.

No. 59,411.—Improved carpet sweeper; Bissell Carpet Sweeper Company, Grand Rapids, Mich.

No. 59,418.—Improvement on knitting machine; James Radford Kendrick, Philadelphia, Pa.

No. 59,419.—Improvement on knitting machine; James Radford Kendrick, Philadelphia, Pa.

No. 59,420.—Machine for cleaning carpets; Albert F. Gue, Patrick J. Bonner, Boston, Mass.

No. 59,423.—Threading machine; Morse Keefer Cycle Supply Company, Salisbury, Conn.

No. 59,438.—Settling and recovering apparatus for paper and pulp manufacture; Warren Curtis, Palmer, N. Y.

No. 59,468.—Method of waterproofing fabrics; Amos & Company, Frankfurton, Main, Empire of Germany

THE WOOL MARKET.

TORONTO.—The wool market is very quiet in the city and prices are almost nominal, as the dealers are not pushing trade as are the local wool buyers and mill owners. We quote Canadian fleece at 16 cents.

MONTREAL.—There is a little more movement in the market and prices are fully maintained, in accordance with advance in prices at recent London wool sales.

—Gold and silver were woven into fabrics by the Indians and Persians long before these metals were known to the Greek and Romans, and although Alexander and his generals employed cloths of gold and silver for clothing and tent furniture, it is probable that these materials were only used to a very limited extent, even at a considerably later period.

Foreign Textile Centres

MANCHESTER.—The home trade recently has been on the whole fairly satisfactory. Certain heavy houses appear to have done well, considering the season, and the advance of about $\frac{1}{2}$ d. a yard in certain standard home-trade cloths has not apparently affected retailers, who were, as a rule, well stocked, thanks to the warnings that, as is often usual in such cases, were given to their customers by the wholesale houses whose lists were advanced. It is understood that certain well-known long cloths were chiefly affected. Merchants themselves are not buying freely, owing to stocktaking. The general cloth position is adversely influenced by the unfavorable position of the Calcutta trade, which has fallen off seriously in volume. As shown by the returns regarding cotton goods shipments from the Mersey reported from time to time by The Record, there have been some heavy exports to Calcutta of late; but these, it should be remembered, represent orders placed some time ago. The cargo received by the Conference boats must soon show a very heavy shrinkage indeed. The estimated shipments of plain cotton goods to Calcutta this month are 70,000,000 yards, and to Bombay 28,000,000 yards, the total for both ports being contained in 36,300 packages, or an average of about 2,700 yards per package. Spot cotton has been dull owing to the quantity of stock in Liverpool held by spinners for forward delivery, and to the cautious attitude of manufacturers in Manchester in buying yarns. Both factors tell against spot cotton. In the lace section the demand for millinery descriptions continues to be affected by the unfavorable fashion in hats. Some makes of Vals. sell, and there is a demand for veilings. As far as the French trade is concerned the complaints made on this side as to the intensity of the competition between home manufacturers are also common in France, and Paris wholesale houses find that special goods ordered by them in Calais are copied by other firms and offered at 30 to 40 per cent. less. Muslins and certain classes of ornamented tulle have injured the lace trade. The agitation for more efficient Consular representation in the English lace centers still continues in France, and it is worth observing that the efforts made to stir up Calais feeling on the subject principally proceed from a gentleman who himself admits that he has, in Paris, personally refused the post of French Consular agent in Nottingham. Under the circumstances one feels curious to know why he so persistently advocates the strengthening of French Consular representation in the midlands. The position of the linen trade is rather more satisfactory, and it is hoped that the recent troubles will not be followed by others. Nothing is heard just now concerning the proposed flax spinning amalgamation, which may possibly be checked by the Hooley catastrophe. It is not suggested that Mr. Hooley had anything to do with the scheme, but his rocket-like descent from the heights of the financial firmament may for a time make the investing public shy of large flotations. There have been some heavy stocks of certain counts of tow yarns on the market lately, one firm who failed recently having 100,000 bundles of a single count, a circumstance, one imagines, almost unknown in the trade. Heavier stocks have of course, been known for the range of counts in case of failure, but for a single one the quantity mentioned appears to top the record.

OLDHAM.—The local reeling trade is in a poor condition. Spinners report that yarns produced from East Indian cotton are depressed.

LEEDS.—The cloth market during the latter part of June was dull, which was partly due to the fact that the summer purchases last week turned out to be larger than had been estimated. Merchants' stocks show that the season has so far been equal

to expectations. The production goes on of all kinds of winter fabrics in beavers, reversibles, naps, friezes, meltons (brown and black), unions, pilots, and medium cheviots. The greatest improvement is seen in the demand for best worsteds, and some foreign enquiry exists at hardening prices. Low worsteds and serges for late delivery are difficult to sell. Fair quantities of stout tweeds and cheviots are selling for immediate shipment to Canada.

BRADFORD.—As the result of favorable reports of the coming harvest, both in Europe and America, and the reduced price of breadstuffs, a certain amount of speculative buying was participated in last week, which affected nearly all classes of colonial wool; but as soon as holders began to advance their prices in sympathy, business was checked and operations are now confined to supplying immediate wants. The reports of the production of finer merino wools from Australia are all in the direction of a shorter supply, so that as soon as any real improvement in trade is assured, an upward movement in prices seems inevitable. Crossbred colonial wools will be in good supply at the coming sales, but the fact that there has been some small improvement both as to the quality of business done in these wools, and also in the prices of both wool and tops, gives a certain amount of tone to the trade, and encourages the belief that we have at last come to the end of receding prices, and have passed the worst. There is wonderfully little life in the English wool trade. Farmers are so dissatisfied with the offers they are getting from either the Bradford merchants or the local country dealers, that they are determined to keep their wool as long as possible, and are not bringing it to market a day before they are compelled to. The recent advance in the prices of raw alpaca and mohair, which is equal to perhaps 25 per cent., is fully sustained; but no further progress in an upward direction seems to be imminent. As mohair is at the present time entering so largely into the composition of the most fashionable fancy and plain dress fabrics, the present position of the market in regard to raw material is of distinct interest to all dress goods users. The total importation of raw mohair from both Turkey and the Cape, the sole sources of supply, will this year not exceed at present prices a value of one and a half million pounds sterling, and of this amount, after the waste in preparation and the hair not suitable for the production of dress goods has been deducted, there will not be left more than a third of the whole amount for manufacturing into Bradford fabrics. There is always a steady demand for mohair yarns of a good quality for linings for the American trade, and also for summer coats, which are principally worn in the southern countries of the Continent, and these demands have always kept mohair within some 4d. per lb. of its present price, even at times when plain mohair dress fabrics were not fashionable. If, therefore, this newly-introduced trade in fancy mohair crepons has come to stay, and this is considered practically assured, then this additional demand for mohair will probably keep the average price of the raw material at practically the present level. Another factor of the situation is that some of the shrewdest exporters of dress goods to the United States have already placed very considerable orders for plain alpacas and mohair glaces, in readiness for the next spring trade in that country, so that more than a normal trade may be looked for in plain bright fabrics. Although some considerable business has recently been done in mohair yarns, both on home and export account, there is very little improvement to be noted in the ordinary worsted yarn trade as yet.

KIDDERMINSTER.—The meridian of the year is passed. We take a brief retrospect of the carpet trade for the six months. There has been a growing demand for the best qualities of Wiltons and Brussels. It is one of the gratifying features of the trade; proving, as it does, that many of the buyers have

returned to a healthier condition. The demand for all classes of carpets has been well maintained. Axminster makers have been well employed, and, with their perfect combination, prices have been firmly maintained. The Brussels manufacturers have not been quite so fortunate. The consumption of the home market is greater than ever, and it is mainly here that manufacturers find the demand for goods. With America our trade relations are of the slenderest. It is only when specialties are required that the Yankees turn to England. The hold of our carpet houses upon the Continental markets has weakened. This has arisen not through any want of energy at home, but as a result of increased production abroad. Germany is now our keenest competitor. Not only do her carpet makers supply the needs of the foreigner, but they are now invading our home markets, and their goods are found in many of our London and country warehouses. The Continental tariff with the exception of the northern portions of Europe, is almost prohibitive to our makers. The Scandinavian trade continues fairly healthy and good. With Spain commercial relations have for the time practically ceased. What orders had been placed when the war with America broke out were either absolutely cancelled, or marked "held over" in such a way that they are virtually lost. A good trade is now anticipated with Canada. The tariff concessions, which were explained last week, will it is believed, enable English makers to successfully compete with the Yankees. Canada, however, is not developing in a commercial sense so rapidly as was at one time expected. She seems to be too close to her more pushful and boastful neighbors. Still there ought to be a good opening for our manufacturers, whose representatives are now actively moving among the buyers. Of course we are now entering the quiet season, but as far as can be seen the indications point to a fairly good and healthy trade in the autumn. The unsatisfactory feature of the past season's trade has been the system of short and urgent orders. Retailers have declined to keep stock, have thrown this burden and expense upon the producers, and when the time for cutting up has arrived they have sent down urgent demand for goods, causing great annoyance and unnecessary expense in order to meet these requirements. A little more prescience on the part of the dealers in anticipating their wants would avoid delays and prevent disappointments. It has often happened this season that a firm has been compelled to run overtime for the sake of one or two looms. Rug manufacturers have been busy during the greater part of the half-year, and the demand continues good. There is a growing taste in many quarters for rugs as well as for the small six-quarter squares. On the Continent the demand for this class of goods is rapidly increasing, and those who are catering for this market are doing well. The wool trade during the past six months has been one of quiet demand; the consumption much below the average, and the tendency of prices slightly downward. The exception has been the higher classes of merino wools, owing to the scarcity of supply and to immense losses among Australian flocks. Prices for these wools have advanced on the whole fully 10 per cent., if not as much as 15 per cent.; but other grades, both of English, Colonial and foreign wools have given way in values to the extent of from 5 to 7½ per cent. At the present time the English clip is being marketed at this reduction. The quality is an average one; but in many districts the fleeces are running rather lighter than usual in weight. There is a growing feeling that prices—which have not been so low since the year 1847—have now reached the bottom, if, indeed, that point has not been left; and there are indications that consumers would like to fill up at these quotations. At the same time there is very little speculation, and purchases up to the present have only been for immediate requirements. If a speculative spirit should be aroused, values would at once increase. The first half of the year has been by no means a good time for spinners. Very few have been re-

quired to run their machinery to its full capacity; in fact, the stopping of machinery and short time have been more or less the rule. A gradually falling market always tends to curtail business; but this has not been the cause of the present inactivity. There has been a total cessation of business operations with America. The frames which hitherto were kept employed to meet the requirements of that market have been brought into use for home consumption and the local competition intensified. Prices, in harmony with the values of raw material, have slightly given way all round; but it may be taken for granted that with the present position of things spinners find it impossible to make any further concessions. Stocks of yarn have generally been very much reduced, for spinners have preferred to stop machinery rather than be burdened with heavy stocks. The outlook just now is more encouraging than for the last two or three months, but it must not be forgotten that the months of August and September are usually very quiet, so that it is difficult to speculate with regard to the future. It is known that the stocks of manufactured goods in the hands of dealers are exceedingly light, and therefore there may, and we hope will, be a fair run of orders in the autumn. This is the season when the demands of the northern countries of Europe are made known, and if the orders are as good as in some previous years the local spindles will be well employed for at least a couple of months on Scandinavian requirements.

NOTTINGHAM.—Lace and curtain yarns have met with a dull enquiry recently. The market has been decidedly unfavorable to sellers; prices are weaker, but there has been no speculative business, and current rates have not been fairly tested. Hosiery yarns move slowly; moderate quantities of merino and fine cashmere yarns are selling, but the tone of the market is less favorable. Bobbin nets, light tulles, and spotted nets are unaltered in value. Business in the fancy lace warehouses is slow, though finishers of curtains, window blinds, and furniture lace are well employed.

LEICESTER.—The yarn market is in a more active and healthy condition, larger contracts are offering, and there is a gradual increase in the consumption, while rates are very firm all round. Stocks are low. The hosiery industry is still very partial, and the repeat orders for the home trade, although more numerous, are of small extent. The export trade shows a steady and healthy expansion. Elastic web specialties are in good demand.

SOUTH OF SCOTLAND.—Dull trade still prevails in the south of Scotland tweed trade. A few makers are busy, notably those engaged in the manufacture of cheviots and the better class goods. It is believed that the Spanish-American war is having an adverse effect on this important industry. There is still a good demand for worsteds, and this kind of cloth seems to be a general favorite. Prospects for next season are encouraging.

KIRKCALDY.—The Kirkcaldy linen trade is inactive, due in large measure to the recent suspensions in Aberdeen and Dundee. An improvement is expected as soon as the wholesale warehouses have finished stocktaking. Considerable activity prevails at the linoleum and floorcloth factories.

BELFAST.—There has not been much alteration in the general condition of this market. There is a steady hopeful tone throughout, with a moderate amount of fresh business. The weather has not been particularly favorable for the Ulster flax crop. There has been considerably more business in yarns, though at the moment the demand has subsided somewhat. Short time has been adopted pretty extensively by individual firms, while in other cases a number of the spindles have been stopped, so that current production is under the normal, and it is evidently the intention of spinners not to go into stock with

the prospect of some one breaking prices. Values are quite firm, and will probably continue so owing to the small stocks of yarn with spinners and merchants. Brown power and handloom goods in some quarters show an improving demand. Common goods appear to be more enquired for, and the turnover of the week would probably exceed that of previous one. Thirty-eight-inch power loom cloth for bleaching has sold fairly well, and producers continue well employed. Cambric and linen handkerchiefs are dragging somewhat, the demand showing very little strength from any quarter. Damasks and housekeeping linens, on the contrary, are going briskly into consumption at late full rates. Ballymenas are selling steadily, but not briskly; stocks are in easy control and prices quite steady. The production is about at its smallest and nothing much in the way of increase looked for until after harvest. The demand from the home markets for bleached and finished linens has undergone no appreciable change. Enquiries perhaps are a trifle more numerous, but it will be the turn of the month before any quotable recovery sets in. General export trade is keeping up fairly well, and shipments to the States are now going on regularly. On the whole there is not very much to complain about, and if the States were only normal and internal troubles in Italy at an end there would be practically nothing.

LYONS.—The Lyons market for silk goods has not materially changed during the week under review and continues in a languishing state. Buyers from Paris, London and America have been here, but their purchases were not large and were mainly in low-priced goods. There is no actual lack of work, but the looms are not near as well employed as they were a year ago. A certain nervousness, created by the fear that the demand may still further decrease, is manifesting itself. Concessions in price are therefore made with a view to securing work in advance, or to keep as many looms employed on orders as possible. This is particularly noticeable on the part of power-loom mills, which are trying to meet the changed conditions by reducing wages. In plain piece-dyed fabrics there is still plentiful work, but not sufficient to keep all the looms running, and of the looms especially mounted for faconnes an increasing number are standing idle. Jacquard looms have been particularly affected, there having been a marked falling off in the demand for all the low-priced grades, such as grege warps with cotton filling. Cheap all-silk damas in either black or glace on black warp, and even figured taffetas on plain or haitienne grounds, have also suffered. In mousseline, too, orders are constantly falling off, although these grades have not entirely ceased to be fashionable. Better grades of satins for special purposes, which generally keep a fair number of looms employed all the year round, have been ordered in small quantities and stocks are accumulating. Taffetas in plain, glace, stripes and checks are still being ordered in considerable quantities, and will continue to furnish work for a number of mills; but the orders are not arriving with the same regularity as previously. The English trade is reported as less satisfactory, not alone with regard to quantities which are sold, but especially with regard to prices, which have greatly suffered from the keener competition. Generally speaking, however, the sentiment remains good, and an active fall season is expected. The hesitancy on the part of the buyers is considered natural, considering the uncertainty of the political situation, but as the fashion continues to favor silk goods in an unusual degree, it is thought that an active demand will develop in the course of the season. The velvet trade shows a little more life. There was a fair demand for plain velvets in schappe pile goods, as well as in all-silk qualities. Striped and checked velvets were sought, especially by American buyers; velours faconnes were ordered in small quantities.

CREFELD.—Trade has been quiet here lately, partly because the period of between seasons has begun and partly on account of the unfavorable weather which interfered with an active development of the retail trade, and which left in the hands of retailers and wholesale houses larger stocks than are desirable. Large orders had been placed for spring in anticipation of an active demand, and a reserve is therefore natural after a season which did not yield all which it seemed to promise. But still the mills are in a favorable position; there is sufficient work for several months to come, and hand loom weavers for some grades of plain goods are again eagerly sought. Orders for fall are arriving in satisfactory numbers and great hopes are entertained, as fashion continues unmistakably to favor silks. The tendencies of fashion are, however, not clearly defined, and it will take a few more weeks before anything positive can be reported. Enough is known, however, to warrant the statement that the demand for moire effects will continue. Aside from these, stripes and checks are prominent, and a demand for novelties in damas is felt. With regard to styles in these it is observed that flowery effects are neglected and that the preference is given to small geometrical designs. As a consequence better grades are required; the present small figures do not cover so well and a richer ground is of more importance. Low grades are for this reason neglected. Warp prints are being taken up more freely, and are extensively sampled despite reluctance on the part of manufacturers. Experience with these fabrics has not always been satisfactory, but more confidence is shown, and it is thought that for next spring they will play an important role. A striking novelty has been produced in materials for sunshades, consisting of a texture which combines the outer material with the lining. In this case it is not produced like the old double-faced fabrics. The texture representing the lining is loosely connected with the covering silk, and is a plisse taffeta distinctly differing in design from the outer silk. The main weave is either satin de chine or some other kinds of satin, while the lining is plain, faconne or in stripes and checks. A good demand is anticipated for this new creation. Manufacturers of necktie silks are less busy, seemingly from the effect of overproduction during the last season. The prospects for the velvet trade are constantly improving. Fancy velvets are well sought and orders for plain millinery velvets are increasing. There are also indications that for dress trimmings and dry goods purposes a better demand will be experienced during the fall. Prices, however, are not very satisfactory. Manufacturers are discussing the necessity of forming a combination, as overproduction has led to deplorable results. It is pointed out that for the sake of keeping their looms employed numerous mills have accepted orders at prices which must be considered ruinous, and which will result in disaster not only for themselves but which will make it impossible for the entire velvet industry to work at a profit. The unsatisfactory state of the velvet trade during a number of years is put down to this cause. It is recognized that the formation of a combination will be attended with great difficulty, but it is pointed out that other trades have succeeded and that the velvet trade may do likewise.

CHEMNITZ.—Manufacturers are at present very busy making up sample lines. Orders have not been so plentiful during the last few weeks, but most importers want to see new samples for spring, as they anticipate a good season. In plain goods black will be again in the lead. Tans will most likely be in lessened demand, but blue shades have been taken up by a number of buyers. Lisle hose, with fancy drop stitches or Richelieu or Rembrandt ribs, will be desirable property, and as the production in these goods is limited it might be wise not to delay the orders too long. In fancy hose all imaginable styles will be shown, excepting, possibly, vertical stripes.

Other striped goods of all styles, embroidered and printed patterns, are shown in great variety. Some leading buyers have already placed such orders on especially good styles that manufacturers had to withdraw the samples from sale, as the production is sold up until the end of the year. In gloves everything points to a good season in buttons and clasps, and if it lasts long delays in deliveries will again result.

SIZING AND SLASHING.

At the meeting of the New England Cotton Manufacturers' Association, held at Boston, an interesting discussion took place on the above subject. So little is said or written on this important part of the economy of a mill that, although the opinions expressed need not necessarily be endorsed, there are one or two points worth noting.

Edward Atkinson said: I am told that the important point in dealing with the fibers either of cotton or of wool, but especially of wool, is to keep the heat applied down below a point at which the fibers become brittle. I believe that point in wool is about 120 deg. F., but what it is in cotton I do not think any one really knows. There is a point, we all know, at which yarn becomes brittle, but that point is not established. It is, however, a well ascertained fact that the colder you can get the substance which is to be dried the less the requirement of temperature to dry it. The lower the temperature the less injury to the fiber, and the more elastic may the yarn become. I believe those are fundamental principles. Some time ago I suggested that in winter mills on canals should lay up a stock of ice to be used as a cooler of the yarn as it emerges from the size box saturated with boiling size, to the end that before the drying operation should be applied the temperature of the yarn, with its water in it, should be reduced to the lowest possible point. And if you will look back in your old records you will find a record of the capacity of air to take up moisture in ratio to its temperature. Now, a new farce has lately been developed of which we have yet no knowledge—liquid air. Liquid air is produced by compression on condensation. The volume of air is reduced from 700 to 1, or thereabouts. How far that new development or new form of energy may go, none of us can yet imagine, but it brought instantly to my mind a suggestion which I made, and which I now put before you, for whatever it may be worth—pure theory. Compression may be readily applied in any mill to a large volume of air. When that volume of air is suddenly released, it reduces temperature very rapidly. If, therefore, you will compress air, pass your sizing directly from the size box, filled with water and hot size, through a chamber in which you can release compressed air, and thus reduce its temperature to a given point, just above freezing, a matter which will depend wholly upon the power required, a measurable quantity; you may then pass that yarn to your drying apparatus, and it would seem probable that you would immediately dry it with less expenditure of heat and at a much lower temperature and with much greater elasticity than you now get when you apply the drying process to yarn that is already at the boiling point.

Frank M. Messenger said: We undertook to do something with modern improvements in sizing compound, and tried one thing after another until we got so disgusted with the whole business that we almost resolved to set a guard at the door against sizing compound men. When we first started we found but little saving in cost and equally good results; but I do not know how it came about, that saving seemed to fade out until we woke up to the fact that it was costing us a little more than it did to use plain tallow. I suggested the matter to our overseer of weaving, who also has charge of the slashing, and I found that he would be very agreeable to using tallow again,

as we had formerly done, and as we were doing at the lower village on our heavier work, and we have gone back to the old-fashioned idea of using a little tallow with our sizing, using no compound whatever, and we have not found in the very many different kinds we have used the advantage of using compounds over using tallow. Perhaps there is one little advantage that we found with some of the best compounds. I think that the cylinders and coppers are a little cleaner than they are with the old method of using the clear starch with the tallow. But as to the uniformity of our warps in general, the smoothness of our yarn, the weaving qualities and everything, we find that we get as good results with the plain tallow, using a good quality of tallow, as we can get with any compound, and on the whole we like it better. I wanted to ask one question in regard to the weight of section beams. Now that is something we have changed a great deal in later years in most of the mills, and we are using larger section beams than we used to. In one mill where we were weaving plain sheeting, in remodelling the mill we undertook to save in the expense of warping and spooling, etc., and where we used eight beams of four hundred ends on a beam, No. 29 yarn, twenty-seven thousand yards in length, we reduced the ends to 320 and put on thirty-nine thousand yards, and ran ten section beams in the slashers. The result was that we had to increase our warp yarns about a half a number. From twenty-eight and a half we had to run down to twenty-eight yarn, and we had to make our filling a little heavier. That was the only change that was made that we could account for, the change we were obliged to make in the yarns to bring our cloth at the right weight. Now that immediately suggested that it was a very bad thing to do, if we were taking all the stretch out of the yarn. But with the southern mills staring us in the face and the little saving in the labor cost, we held our breath and worked along with it; and we do not perceive any disadvantage in the weave room, on the contrary, we are weaving more of these goods than we ever wove before, not owing to this but attributable to other causes. But we are getting larger production than ever, indicating that it does not seem to do any harm. I should think on fine work it would. It must necessarily be an injury to the yarn, and it would seem that it would be an injury even to yarns as coarse as No. 28 warp, but the facts in the weaving do not bear it out.

Woodbury K. Dana said: One of my customers wanted me to make him 30 yarn with about 900 ends on a beam, and I found when I started the slasher some of the ends would break, there were not enough of them to readily turn the slasher, and we had to work quite slowly in order not to have them break. Now we got over this by putting a shaft parallel with the side shaft, and even with the center of the slasher cylinder, and on the side shaft and this parallel shaft we had a pulley, on each of them we had a pulley, and these two pulleys were connected with a loose belt, but that belt had a band on it that we could readily tighten or loosen, and it was arranged so that by tightening it all of the strain is taken off the yarn, and the cylinders are turned by this belt, or the main cylinder is. On the end of the shaft, I should say, there was a pinion playing into a gear that was passing on the side of the shafting. This mode of turning the cylinder I have used some ten or twelve years, and it has never given us any trouble. Now this helps me in another way, and I will explain that in speaking of the second trouble that I have had with the slasher. A man wanted me to put 700 ends on to a 30-inch beam, and in contracting the yarn from a 50-inch or a 54-inch beam on to a 30-inch beam it was very hard to get the selvage uniform; and after studying it for some time, in place of running the slasher and trying to contract from a 50-inch beam down on to a 30-inch beam, we put two beams in front of the slasher. The second beam was turned by a shaft running in front of the other one. That second shaft was driven by gears, or by a chain gear, and we ran the two

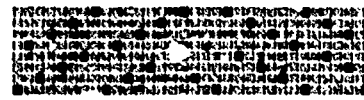
beams, putting on each of them 700 ends, and then of course they were very nearly as wide as the beams were behind, and we had very little trouble in contracting the selvages. We were enabled to run it faster than we would one beam, and got more than twice as much, for we were running it faster than we did before. I presume I only used the ordinary comb when I filled these two beams, dividing the yarns in the centre of the beams. Of course when we put in new beams we had a good deal of trouble in adjusting the new beams one way and another; they were not both the same width with the comb, and we could not widen or contract the comb to correspond with the width of the beams. So where we had one comb we put two combs, each of them, of course, only occupying half of the space of the slasher. Now with these we were enabled to fill two beams at the same time, and I think that I have saved the worth of one man, or one man did twice as much work as he did before that. Another thing in connection with it is that, if we do not want to get off much work, we can run the slasher slower. I think it is a great help in sizing yarn to run it slowly through your size. It gives the size time to penetrate it. We know that chain warp is a great deal better, that chain warp size is a great deal better than warp that comes from the slasher. I think it is because it has time, being sized in the chain, to have the yarn thoroughly penetrated with the size, and if you want to have this and run your slasher slower, get off more work than you do now, the yarns will weave better on account of having more size in the warp than they do where you run them so quickly through your size.

Roscius C. Newell said: In connection with what has been said perhaps a recent experience may be of interest. I have never been able to see why exhaust steam under a given pressure should not dry just as much yarn as live steam under the same pressure, and to every enquiry that I have made on the subject I have received the answer that there is more moisture in the exhaust steam than in the live steam; but I could not see what that had to do with it and when it became necessary for us to add another slasher to our equipment I made some experiments. I thought perhaps our piping was too small, so I arranged to have it changed, but before the work began I found that the weak point apparently was the slasher cylinder, as has been suggested, so I visited the Lowell machine shop with a view of ascertaining what could be done to enlarge the inlet. On my return home I had the holes reamed out, then made a box and put it at the end of the cylinder, so as to get the benefit of the full size of the cylinder. I found that in previous experiments which I made it required about two and one-half hours longer to do the same work with low pressure steam than it did with high pressure steam, but the result was we only consumed about 2 per cent. more steam with the low pressure than we did with the high pressure, while the time amounted to over 18 per cent., and it convinced me that the trouble was the want of inlet capacity. As soon as we had started the slasher, after the change was made, our slasher tender made complaint that that slasher took the steam away from all the others. That was one point that I wished to call your attention to in this connection. It seems too absurd, on the face of it, yet the size of the inlet of the large cylinders on all the slashers I had seen was just the same as the size of the inlet of the small cylinder. The wet yarn ordinarily strikes the large cylinder first with several times the area and there is a large amount of condensation, and still the inlets of both cylinders have been just the same. In our new slasher which we have just had built we have had it changed, and increased the size of the inlet to suit our requirements.

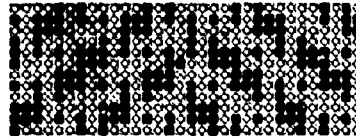
E. A. Heney & Co., Montreal, have put in a new 60-inch carding machine in connection with their carriage rug factory.

Textile Design

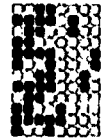
Worsted Trousering.—7,650 ends in warp, 120 ends per inch; 155 reed; 8 in a reed, 56 ends worsted per inch, 28 ends woolen per inch, 84 ends per inch, 64 inches in reed, 56 inches wide when finished. Weight 22 ounces.



DRAFT.



DESIGN.



PICKING PLAN.

Warp: 295 worsted.

2 slate,		2 black,	
2 twist,		2 slate,	
2 slate,		2 black,	
2 black,		6 slate,	} 3
6 slate,	} 4	2 black,	
2 black,			2 slate,
2 slate,		2 black,	
2 twist,		2 slate,	
2 slate,		2 black,	
2 black,		6 slate,	} 3
6 slate,	} 3	2 black,	
2 black,			
2 slate,		136 ends in pattern.	

Warp: 2 picks black, 2-42s; 1 pick black, 15 skeins woolen.—B J. of C.

SPINNING IN SHETLAND.

Shetland women of all ages, ranks, and classes spin for profit or for pastime, and there seems to be a fascination about the pursuit incomprehensible to the male understanding, says a writer in the *Textile Recorder*. Regarded from the outside, it seems a dreary occupation to sit hour after hour feeding the wheel with interminable rollers of wool. But no woman who has once learned to spin ever voluntarily abandons the occupation. Some twenty years ago, when there was a great exodus of Shetlanders to the colonies, the women regretted nothing more than leaving their wool-cards and spinning-wheels. Many of them actually took these possessions with them and put them to use. In other cases the men folk, after they had settled in their new houses, set to work and turned out these implements by their own handicraft to gratify the women.

Spinning-wheels differ in form and size according to the kind of spinning for which they are designed. The present generation of women are not such connoisseurs in spinning wheels as were their mothers, because their knitting is almost all of one quality—shawls and underwear for sale. Their mothers had to spin waft and yarn to be woven into claith and blankets; sock yarn, jumper yarn, and frock yarn; rug grounds and rug-tats. These were all of varying thickness, and could not be spun on the same spinning-wheel. Wheels with a large circumference twist the wool best, and are adapted for fine spinning. Smaller wheels make a thicker thread. There are other points which affect the quality of the thread. As the fineness or thickness of the finished thread depends not on the number but on the size of the strands, of which there are seldom more than two in the thread, individual judgment must be exercised as to the particular wheel to be used. Those acquainted with spinning-wheels maintain that they have as much individuality as the women who use them. The same wheels often remain in families for generations, and their qualities get to be thoroughly known.

The use of the spindle has entirely disappeared. Old people remember having seen it used occasionally by old women when all the wheels of the household were already in occupation. A later form of spindle which is very simple, is a short stick nicked at the top, which is stuck into a potato or round piece of peat. The ends of the horse-

hair are tied to the top of the stick, which is then twirled till the hairs are sufficiently twisted. The hairs are then doubled and twirled in the opposite direction. The implement is now called a tammy-toddy or patie-toddy. The huge wheel on the wall is now seldom seen. It was chiefly used when a large quantity of wool had to be spun, as it could spin up a good deal without a change of the pirns which hold the thread as it is being spun, and the thread was thus kept unbroken. For the same reason it was used for spinning very thick thread, which rapidly filled the pirns of the smaller wheels. The wall wheel had to be kept in motion by the band. The person using it paced backwards and forwards before the wheel, moving backwards to draw out the thread from the wood, and then advancing to run it into the "e'e" of the wheel, at the same time giving the slackening rim a fillip with the disengaged hand. It was a graceful occupation, and well calculated to show off a fine figure, but it must have been much more tiring than the foot spinning-wheel.

The whole apparatus now used for spinning are the sweery, the spinning-wheel, and the reel. The sweery is a frame with a movable wire fixed in it, on which are run all the pirns—empty and full—not in use on the wheel. When the pirn on the wheel is full it is taken off the "flee," placed in the sweery, and an empty one taken off and placed on the "flee" again. When this is also full it is put back in the sweery, and the contents of both pirns are then twisted together on a third pirn which has been placed in the "flee," the rim of the wheel being turned in the direction contrary to that by which the strands—which are variously called "phills" or "cords"—are spun. This twisting together of the strands, called "twining," is the most wearisome part of the spinning. When it is finished the yarn is wound off the pirn on to the reel—usually an ell-long stick with a cross at each end. The yarn is now ready to be washed before knitting. The same process is gone through with a fresh lot of wool till enough is spun for the purpose required. A good spinner will spin a cut of fine yarn in about three hours. Thicker yarn takes shorter time. Carding the wool was formerly done by kames, and there are old women who still maintain the superiority of kaming. It separated the long wool of the fleece from the shorter parts, which could then be rejected. But it was a much slower process, and is not likely ever to be revived.

Carding is hard work, and is usually done by calling together eight or ten women of the neighborhood and getting all the carding of the household done at a time. But spinnings or "rockings," once common enough in Scotland, have never been known in Shetland. One reason would probably be that there is not room round the fires for more than three or four spinning wheels. But the chief reason is that no two women spin exactly alike, and a web spun by a dozen or so different hands would be full of inequalities. When the wool for a web was carded it was patiently spun by the women of the house, each taking a section, which she finished.

NEW DYESTUFFS.

New Patent Blue B, and New Patent Blue 4 B are two recent additions to the ever growing list of level dyeing wool colors. The shade of the B brand lies between a green and a blue and (as may be seen by pattern card No. 678), closely resembles the well-known color Fast Green extra bluish, but is considerably brighter in shade. The 4 B brand dyes a very clear and pronounced blue. Both dyestuffs are homogeneous products and are equally as fast to light as the fast greens, also fast to alkalis and sufficiently so to acids. Their fastness to washing and milling is satisfactory for goods not heavily milled, when dyed on a chrome mordant their fastness to milling is increased. They also stand stoving well. On account of their level dyeing properties, they are very suitable for dyeing ladies' dress goods, and fine yarns, as well as billiard cloths, etc. Bright navy blue shades are obtainable by mixing New Patent Blue with Azo Fuchsine or Fast Acid Magenta B. These colors can further be used to advantage in dyeing silk, leather, feathers, paper, and for the manufacture of ink. Directions for dyeing on wool. Dye one hour, boiling with the addition of 20 Glauber salt, 2 per cent. sulphuric acid. Samples and pattern cards will be mailed gratis on application to the Dominion Dyewood & Chemical Co., Toronto, sole agents in Canada for the Farbenfabriken, vorm Friedr. Bayer & Co., Elberfeld, Germany.

Alizarine Sapphirole B.—The Farbenfabriken, of Elberfeld, have just prepared a neat pattern card of this new product in conjunction with Indigo Carmine, and so conveniently arranged for exposure to light by customers who will then be convinced of the high degree of fastness to light of Alizarine Sapphirole B, as compared to Indigo Carmine. The latter has served up to the present as the standard of blue level dyeing colors. When exposing this card to sunlight it is advisable to examine it every few days to determine correctly to what extent the sun has acted upon the dyed patterns. It will be noticed that Indigo Carmine has faded long before any change is found in the Alizarine Sapphirole.

TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the sterling values of the textile imports into Canada from Great Britain for May and the five months to May, 1897-1898:

	Month of May.		Five months to May.	
	1897.	1898.	1897.	1898.
Wool	£ 190	£ 1,396	£ 8,114	£ 21,112
Cotton piece-goods	20,309	21,668	182,421	212,230
Jute piece-goods.....	6,478	10,025	39,760	54,979
Linen piece-goods.....	6,173	7,125	49,342	58,805
Silk, lace	252	255	2,645	3,949
" articles partly of	506	1,574	7,647	9,754
Woolen fabrics	6,783	8,172	86,548	91,208
Worsted fabrics.....	23,547	17,275	228,192	251,622
Carpets	5,136	6,184	77,388	92,326
Apparel and slops.....	17,608	17,140	118,081	138,608
Haberdashery	6,456	4,014	71,137	73,323

LITERARY NOTES.

The July Century opens with a story of the times, "By Order of the Admiral," by Winston Churchill, author of "The Celebrity." This deals with a filibustering expedition and is full of romance. It is illustrated by B. West Clinedinst. There are two articles on "Confederate Commerce-Destroyers." Colonel John Taylor Wood, commander of the vessel, tells of "The Tallahassee's Dash into New York Waters," while G. Terry Sinclair describes "The Eventful Cruise of the 'Florida.'" Stephen Bonsal, late of the American Legation at Madrid, writes of "Holy Week in Seville," with illustrations by Joseph Pennel. Cornelia Dearth, in "An Artistic Treasure from Spain," describes the recovery of a fine antique bust at Elche, a photographic reproduction of which accompanies the article. Poultney Bigelow gives a resume of "Ten Years of Kaiser Wilhelm," writing from intimate personal knowledge of the aspirations of the Emperor and his realizations of them. A drawing by the Emperor accompanies the article. Henry Eckford briefly considers "Wilhelm II. as Art Patron," and a photograph shows the Emperor in a costume of the time of Frederick the Great with the artist Menzel. Mrs. Mabel Loomis Todd, who went to Northern Japan in 1896 with the Amherst eclipse party, contributes a paper entitled "In Aino-Land," in which she describes a wild, hairy race almost unknown to the Western world. In the series of "Heroes of Peace," Herbert D. Ward writes sympathetically of "Heroes of the Deep," with "The Author of 'Quo Vadis?'" whose works are known to American readers through Mr. Curtin's translations. James Fryce is represented by a highly important essay, in which he analyzes the conception of "Equality" and examines how far it can be realized politically, socially, and economically. "Modern Dutch Painters" are appreciatively criticized by Mrs. Elizabeth W. Champney, and there are reproductions of many noted pictures. A story of Japan, full of warmth and color, is "Purple-Eyes," by John Luther Long, whose "Mme. Butterfly" was widely talked about. Timothy Cole's engravings from Old English Masters this month are from Romney, the frontispiece, "Lady Derby," being one of the most beautiful of all Cole's engravings.

Morton, Phillip & Co., the well known manufacturing stationers of Montreal, have just issued a new edition of the Canadian Customs' Tariff, revised to the 23rd June. This excellent work of reference gives

not only every detail of the tariff and excise duties in such a manner as to interpret many points not generally understood, but it embraces a list of the warehousing ports of the Dominion, and gives table of sterling exchange, the franc, German rix-mark and other foreign currencies, with the harbor dues, etc., and the text of the new Franco-Canadian treaty. It is invaluable to the merchant, importer and manufacturer, and is one of those handy books that will save ten times its cost in time.

FABRIC ITEMS.

A. H. Melville & Co. have purchased the stock and business of Mills Bros., hatters and furriers, Peterborough, Ont.

Z. Paquet, the well-known St. Roch's dry goods and fur dealer, is about to erect a straw hat factory at Hare Point, Que.

M. Brennan, dry goods dealer of North Bay, Ont. has assigned to F. J. Henderson, with liabilities of about \$7,000. Assets are placed at \$8,000.

Z. Paquet, the well-known manufacturer of hats and furs, and merchant, of St. Roch, Que., has been appointed a Senator in the place of the late Hon. Peter de Blois.

H. S. Crumley, drowned on the steamer "Bourgogne," was a brother of Edward and Henry Crumley, dry goods merchants, Kingston, Ont. He was European buyer for the Rochester, N.Y., firm Sibley, Lindsay & Carr.

Garnet Liddell, the eighteen-year old son of M. Liddell, of the firm of Liddell, L'esperance & Co., wholesale dry goods merchants, Montreal, was drowned on July 10th in Lake Lachigan, north of St. Jerome, where the family are spending the summer.

Mr. Wymann, one of the lost passengers of "La Bourgogne," who was mentioned as a transient German traveler, turns out to be a well-known Montrealeur and head of the firm of Wymann & Fyon, fur dressers, Fortification lane. He was going to visit his native land, Alsace, with his wife and child.

The Montreal fire department has opened tenders for winter clothing, consisting of overcoats, trousers, caps, rubber coats and boots. Marc Brodeur will make the overcoats at \$11.65 each. About ninety will be required. J. A. Hebert will provide one hundred and eighty-five pairs of trousers at \$4.45. J. E. Deslauriers will make the caps, men's, seal, at \$2.25; officers' lamb, at \$7.90; one engineer's, at \$10; one chief's, at \$15; and four sub chief's, at \$12.50. J. Martin & Son supply the rubber goods.

The old-established house of Thibaudeau Bros. & Co. Montreal, is going to give up business. Already the staff has been reduced and other preparations made for a discontinuance of business. It will, of course, take a considerable time to have affairs cleared up. The business was begun in 1811 under the name of Robertson & Co., and is one of the oldest houses in business in Canada. The firm was originally composed of Scotchmen and Frenchmen, but in later years it has been an entirely French firm. It took the present firm name in 1879. The parent house is in Quebec, but the Montreal branch has been the head of the business for some years. Hon. Alfred A. Thibaudeau is the head of the firm. He was made a Senator two years ago. The Quebec house will continue business as before.

CANADA GARNETTING COMPANY.

Owing to the steady increase in its business the works of the Canada Garnett Co., of Montreal, have been removed from Bannockburn st. to a larger factory on the canal bank. This factory, of which Robt. S. Fraser is proprietor, now occupies the whole of the old Montreal Saw Co.'s buildings, just west of the Seigneurs st. bridge, the works being three times the size of the Bannockburn st. place. The main building, about 60 x 40 feet, contains three stories and basement. The ground floor is chiefly used as a rag stock room and the upper stories are devoted to the work of sorting and blending. From the top flat, where each class of rags is separated into different blends, the stock is injected into the mouth of a tubular chute which conveys it direct into the picker room. This room, which is about 50 x 40 feet, is

completely shut off from the rest of the works by brick walls and fire-proof doors, and contains two 18 inch pickers and a duster of the latest type, capable of cleaning about three times the quantity of rags that the old style machine could handle in a given time. The carding and garnetting room occupies the whole of the basement. There are three Garnetts—two 60-inch, two cylinder Garnett machines for medium and coarse stock, and a 60-inch two-cylinder card machine, fitted with self-operating Barnwell feed for merino stock. Of the garnetting machines, one which weighs ten tons, is a three-cylinder machine of the latest type for fine stock, and turns out excellent work. Water is the motive power, the wheel being supplied from the canal. While water-power is used for driving the machinery and operating the hoist, etc., the establishment is provided with a 40-h.p. boiler for heating the building and providing steam for the carbonizing and drying rooms. These operations are carried on in a separate building which contains the dye vats and tanks for neutralizing and washing the rags, the hydro-extractor—a fine 55-inch machine, made by the well-known firm of Broadbent & Sons, Huddersfield, England—and last, but most important, the carbonizing chamber and gas-retort. Mr. Fraser has constructed a new type of carbonizer which he confidently believes will treat a greater quantity of rags and do it with more uniformity than any carbonizer hitherto invented. As this new apparatus is the subject of a patent now pending, no details of it can be given at present, but in a future issue we hope to be able to describe its operations and report upon the quality of its work. The establishment is lighted throughout by electricity, and Mr. Fraser is justly proud of the progress his establishment has made. While his manufacturing department has thus developed, Mr. Fraser's mill supply business has also grown till larger premises have been found necessary. He has therefore moved from 3 St. Helen st. to 17 Lemoine st., where he occupies three large flats and a loft. Stocks of wool, cotton and textile supplies are here kept. Mr. Fraser is the only direct importer of Peruvian cotton in Canada. Mr. Fraser is also having sent from England a machine for re-covering metallic brests, burr cylinders and Garnett machines. Messrs. Garnett supply the patent wire for this purpose, and Mr. Fraser will shortly be able to take orders for re-covering all metallic rollers. Formerly these were done in the United States or sent to England.

—European countries are wakening up to the advantages resulting from water power. Engineering, London, sums up recent progress thus: The utilization of water power, which has been left comparatively unnoticed and unexploited for thousands of years, is now progressing by leaps and bounds. Not only have private initiative and private capital been extensively interested in this movement but in various countries the Governments have more or less directly stepped in. This has hardly been done in a more rational manner anywhere than in France, where the Minister of Public Works has framed regulations for the most advantageous exploitation of water power. It is proposed that the Government shall grant concessions for the use of water power to private individuals or to companies, as the case may be. The authorities hope that it will be possible, by properly utilizing the water power of the country, to materially reduce the imports of coal, which, for the last 10 years represent an annual average of some £6,000,000. The aggregate water power of France is estimated at a very high figure, of which at present only about one-twelfth has been exploited. Most of the important waterfalls are located high in the mountains, and have hitherto had a merely local, if any, importance. There are, however, several good-sized waterfalls more favorably situated, although the distance has ceased to be a moment of great importance. In the neighborhood of Lyons there is a Rhone fall estimated at 12,000 horse power, the Loire is thought capable of yielding some 1,000 horse-power, easily available, etc. Apart from the merely financial advantages, a rational utilization of the immense water power is also likely to prove a social benefactor, inasmuch as it is likely to decentralize numerous industries, calling forth industrial life in new

places, and, it is hoped, give an impetus to many home industries which have nearly vanished, but for which the easily distributable electric power is so admirably adapted. Also, the Swedish Government is keenly alive to the question of electric transmission of water power, and one or two schemes of this nature have already been brought forward. The most recent is the utilization of the large Eekkarleby waterfall, owned by the Swedish State, and situated some 55 miles from Stockholm. The water power of the fall is calculated at no less than 100,000 horse-power, but the present project only deals with one-fifth of this large total, which it is proposed to transmit to Stockholm, where, with a loss of 25 per cent, 15,000 horse-power would be made available. The power transmission installation is calculated to cost some £231,000, the power station, with machinery, about £178,000, and buildings, etc., in Stockholm, £28,000, altogether, some £440,000. The rent for a horse-power per annum in Stockholm is estimated at about £2 4s., or altogether some £33,000 per annum, which must be considered very satisfactory. Both in Sweden and Norway considerable amounts of water power have been applied to the manufacture of calcium carbide; in the latter country the erection of a large new factory is under consideration.

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 Canning, Ont., woolen mills are offered for sale.

Lazier Bros' woolen mill, Lonsdale, Ont., has closed down for a time.

The Berlin Brush Co. was burned out July 11th. The loss was about \$3,000.

W. C. Caldwell, Aberdeen Woolen Mills, Lanark, Ont., is putting in some wide looms.

Whitby, Ont., has voted a bonus of \$10,000 to the King Tanning Company of that town.

Jackson Bros., Clinton, Ont., clothiers, have a contract for the manufacture of G. T. R. uniforms.

Owing to the brisk demand M. B. Perme & Co., Doon, Ont., are making binder twine from flax.

The Guelph, Ont., Linseed Oil Co., is preparing its plant to manufacture oil during the coming season.

Herman Zapfe, foreman of the Berlin, Ont., Felt Boot Co.'s tannery, died recent of cancer in the stomach.

Winnifred McPherson, Berlin, Ont., has taken a lucrative position with the Eagle Knitting Co., Hamilton, Ont.

There was a small fire in Donogay & Hughton's mill, Arnprior, Ont., June 18th. The fire started in the picker room.

The Dundee Woolen Mills property has been sold to L. Schweitzer of Bridgeport, Ont., Mr. Schweitzer will operate the mills.

The Moorehouse Manufacturing Co., Guelph, Ont., has received an order for a quantity of waterproof goods for the Klondike.

Mrs. Ephraim Reid, of Ferguslea, Ont., died last month. Mrs. Reid was the mother of Geo. Reid, mill supplies, Duke street, Toronto.

We understand that Geo. Pattinson, half owner of the Preston, Ont., Woolen mills, has bought the interest of the Ferguson estate.—Galt Reporter.

A. Morrison, late of the Hawthorne Woolen Co.'s mill, Carleton Place, Ont., has been appointed as the new manager of the Cobourg woolen mills.

Grace & Rathwell, Killaloe, Ont., have built a mill 30x45 feet. and three stories high, which has been equipped as a one set mill by Geo. Reid, of Toronto.

The Rosamond. Woolen Company, Almonte, Ont., has recently thrown out the last of its narrow looms, and is now fully equipped with broad looms.

A young man named Chas. Robideau had three fingers of his left hand completely severed in the picking room of the Canada Cotton Mill, Cornwall, Ont., recently.

Geo. Reid, mill supplies, Duke street, Toronto, has recently received a large consignment of card clothing supplied by Samuel Law & Co., the well known English firm.

The Gale Manufacturing Co., manufacturers of white-wear, etc., Toronto, lost its premises by fire recently. The loss was total, but was covered by insurance amounting to \$46,500.

Ker & Harcourt, manufacturers of bobbins and spools, Walkerton, Ont., are building a new factory at Parry Sound, Ont., to which they will move their business about Sept. 1st.

F. A. Clarry, of the Maple Leaf Woolen mills, Markham, is putting a new boiler into the mill, which has been generally overhauled and improved since he came into the management.

A boy named Victor Desbien, employed at the Paton Manufacturing Company's mill, Sherbrooke, Que., fell down the elevator recently, sustaining severe but not dangerous bruises.

Henry Gray, night watchman in the Almonte Knitting Co.'s mill, Almonte, Ont., was shot and killed by burglars early on the morning of June 29th. No trace of the murderer has been found.

The Odessa woolen mills have been purchased by Mrs. L. Booth, mother of N. E. Booth, former proprietor, and are now being run by her under the firm name of the Booth Woolen Mill Company.

Work on the new felt factory, New Hamburg, Ont., is almost completed. A new high speed engine and boiler have been put in, the machinery set in order, and everything will be in running order shortly.

The R. Forbes Co., of Hespeler, Ont., is putting in a new electric light plant for the worsted and knitting mills. The old machinery has been discarded and a new lighting plant of high efficiency is being installed.

Among the new industries of Ottawa is a clothing factory, of which R. J. Smith & Co., are proprietors. The office and works being at 268 Sparks street. Mr. Smith, of this firm, is the inventor of a new system of cutting operated very successfully in Ottawa known as the "Rapid Delineator Pattern Co.," and this system has been introduced into the clothing factory. The new firm manufactures men's and boys' clothing.

Wool Washers

Dryers and Carbonizers

KITSON - - -

MACHINE CO.

LOWELL, MASS.

Dick, Ridout & Co., Toronto, have bought the Cobourg, Ont., Woolen mills and will operate the mill with Arch. Morrison as superintendent. The bag manufacturing plant of the firm now running in Toronto, where about 60 hands are employed, will be moved to Cobourg, where probably an additional building will be put up; though this matter is still under consideration.

The Dominion Brussels Carpet Co., of Elora, Ont., wishes it to be understood that the statement made in the issue of The Canadian Journal of Fabrics for June was incorrect, and that instead of stopping the mill as asserted and not intending to start up again in Elora, they are running at full time on fall orders, and that they have just completed a fine line of Brussels carpet samples.

Recently an accident occurred at the Paton Manufacturing Co.'s mills, Sherbrooke, Que., when P. Roy was seriously injured. So far as can be learned no one can tell exactly how the accident occurred, but it is supposed that the unfortunate lad was struck by a pulley, as the marks on his face would indicate. He was found on the floor unconscious, with blood flowing from a wound on the right temple.

Wm. Sommerville, manager of Cornwall, Ont., Manufacturing Company's woolen mill, died July 14th, after a short illness. Deceased was born at Cobourg 46 years ago. He was connected with the woolen industry in Peterborough, and afterwards in Montreal, where he was manager of the Globe mills previous to coming to Cornwall. He leaves a widow and three sons. The deceased's brother from the Western States is acting superintendent of the mill.

Chas. Riordan, St. Catherines, Ont., has about completed arrangements with the town of Hawkesbury, Ont., to build a \$200,000 pulp and paper mill in that municipality, promising that he will begin with not less than 100 hands. The town gives several valuable concessions, such as freedom from taxation, a large area of land, etc., and work will be begun immediately. Mr. Riordan has purchased extensive timber limits in the vicinity from Mr. J. K. Ward, Montreal.

Wm. McMoran, St. Hyacinthe, Que., has made a proposition to the town of Edmonton, N. W. T., to erect and operate in town a woolen mill at a first cost of \$15,000 or \$20,000, provided a suitable free site could be secured and exemption from taxation allowed for twenty years. The council decided to submit a by-law to the ratepayers on this basis, provided Messrs. McMoran would refund the amount expended re the by-law in case the work was not carried out by them as agreed.

W. Meiklejohn has been appointed superintendent of the Excelsior woolen mill (late Globe Woolen Mills), of Montreal. Mr. Meiklejohn was born at Tillicoultry, Scotland, and has been brought up to the woolen manufacturing business from a

boy. He was 12 years at the famous mills of Bliss & Co., Chipping Norton, Eng., and on coming to Canada was some years superintendent at the Paton mills, Sherbrooke, and afterwards a short time at the Granite mills, St. Hyacinthe

A local joint stock company with James Russell, president; F. Montcastle, vice-president; John Sinclair, treasurer, has been formed to operate a woolen mill at Dundalk, Ont. The mill building is of brick, and steam power will be used. W. H. Peterson is secretary and manager. Geo. Reid, mill supplies, Duke street, Toronto, has equipped the mill with machinery, which is first-class in every respect. It is a one set mill and will do custom work chiefly, running on course tweeds, etc.

Frank E. McKyes & Co., the new proprietor of the Dominion Button Works, 440 Visitation street, Montreal, are greatly improving the quality of their goods, more especially cloth-covered buttons for underwear. They expect soon to announce an entirely new plant of improved machinery. Stanley L. Macbean, B.A.Sc., a young inventor of much skill, is in charge, and will remain with the firm. We hope in another issue to refer to the new automatic button making machines designed by Mr. Macbean.

J. Y. Wilson, of the firm of Wilson & Co., wool merchants, Toronto, has just returned from a business trip to England. Mr. Wilson was present at the wool sales in London and reports a general advance in prices. This advance is equal to 7½ per cent. over those of last sales, or 1d. to 1½d. on grades most in demand for the Canadian market. Among the passengers on the steamer Mr. Wilson came out upon was Sir Richard Tangyes, of the great engineering firm of Tangyes, Limited, Birmingham. Sir Richard is a great traveler, having circled the globe six times.

The Sherbrooke, Que., Yarn and Woolen mills were destroyed by fire, June 15th. The alarm was sent in about twenty minutes to eleven, but the fire had gained considerable headway before the brigade arrived. The inflammable nature of the building made a stubborn fire to fight, but fortunately the firemen succeeded in confining the fire to the main building of the factory. The three top stories were completely gutted, and the loss in machinery and stock will amount to several thousand dollars. The building and stock were only insured for about \$14,000. The Whitney Electric Co. also lost considerably by water.

Geo. Morrison, boss carder in the Hawthorne Woolen Mills, Carleton Place, Ont., severed his connection with that factory, June 15th, and has returned to Montreal. Before leaving his comrades made him the recipient of a present and an address. The souvenir took the form of a handsomely engraved gold locket.

The Royal Electric Co. MONTREAL TORONTO

CANADIAN MANUFACTURERS OF THE

S. K. C. TWO-PHASE APPARATUS

Alternating Current Generators

Alternating Current Motors

Alternating Current Arc Lamps

Served from the same circuit

S. K. C. TRANSFORMERS

Correspondence solicited for all kinds of Electric Installations.

—In the time of Homer the manufacture of flax, if not unknown to the Greeks, was practised on a small scale, for the use of linen cloth was rare amongst them, indeed, the only part of Greece where flax is recorded to have been grown was Elis.

—The Chinese were weavers nearly 5,000 years ago. Joseph's famous coat was made of camel's hair. Under the old Mosaic law the Hebrews were not allowed to wear garments of mixed linen or wool. It is said the American Indians made cotton garments before the coming of Europeans. Calico came originally from Calcutta, India. Broadcloth originally got its name from its width. There are more than 32,000 varieties of woollen goods known. Persons with incomes less than \$500 a year were forbidden to wear furs in England in the fourteenth century. An American society organized for the encouragement of wool production in 1765 forbade the eating of mutton or lamb.

SITUATION WANTED

Wanted situation as manager or superintendent of woollen mill by a man who has had a large and most successful experience on shoddy goods. Married; 39 yrs. of age. Address J. E. C. L., care Canadian Journal of Fabrics.

SITUATION WANTED

Experienced long chain dyer and yarn printer desires situation. Fast colors. Economical. Nine years with leading gingham, shirting, and fancy cotton, woollen and silk dress goods mill in New England. Age 39. Married. Address "M," care of Canadian Journal of Fabrics.

Wanted

By experienced Cotton Bleacher and Finisher, situation in Canadian mill. Best of references covering a long period of years. Age forty. Married. Apply "WEST POINT," Care Canadian Journal of Fabrics.

Situation Wanted.

WANTED, situation by an ENGLISH DYER; an all round hand; used to all the new colors and latest improvements. Willing to come to Canada to fill a permanent position. Address,

"J. D.,"

Care of CANADIAN JOURNAL OF FABRICS.

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ESTABLISHED 1859 THE C. TURNBULL CO., OF GALT, Limited.

MANUFACTURERS OF Full Fashioned Lamb's Wool Underclothing, Hosiery and Knitting Yarns, Perfect Fitting Ladies' Ribbed Vests, Sweaters, Jerseys, Knickers.

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MANUFACTURERS.

Walkerton, Ont.

Orders by Mail will receive prompt attention.

FINISHER—who is an expert fuller, is open for a change; has family of workers. A very valuable man for medium sized mill, or would accept second hand in first-class mill. Address "D," care of Canadian Journal of Fabrics.

FOR SALE

A FELT MANUFACTURING PLANT

Picker, Cards, Felter, Fulling Mill, Cloth Press.

All in good order—will be sold en bloc or singly.

Lancaster Machine Works, 113 Oak Street, Lancaster, Ont.

CHEMICALS AND DYESTUFFS.

A good steady demand exists for all kinds of dyestuffs and chemicals, with few changes in price to note. Sulphurs are easier for forward delivery, being scarce and firmly held on spot. Castor oil is slightly weaker. Chlorate of potash is higher owing to the rumor of a proposed combination of makers to control the output. The following are current quotations in Montreal:—

Bleaching powder	\$ 2 00	to \$ 2 10
Bicarb. soda	2 05	" 2 10
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 50	" 3 00
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	55 00	" 60 00
Soda ash, 48° to 58°	1 25	" 1 50
Chip logwood	1 90	" 2 00
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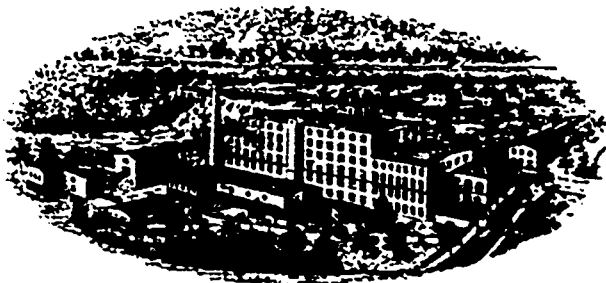
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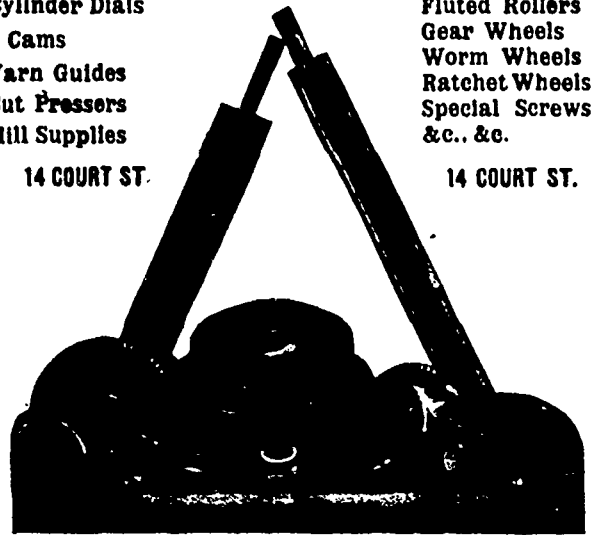
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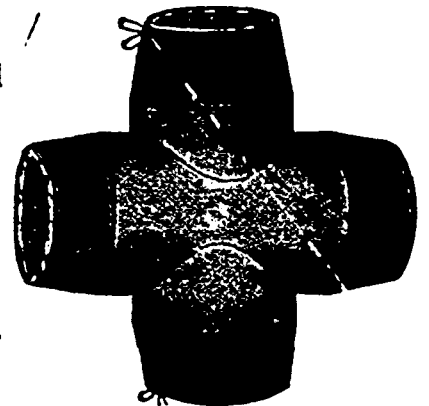
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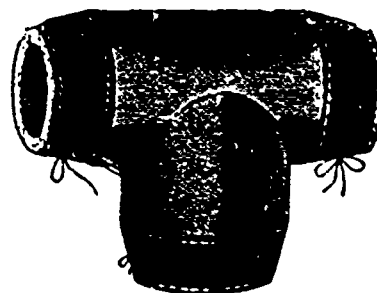
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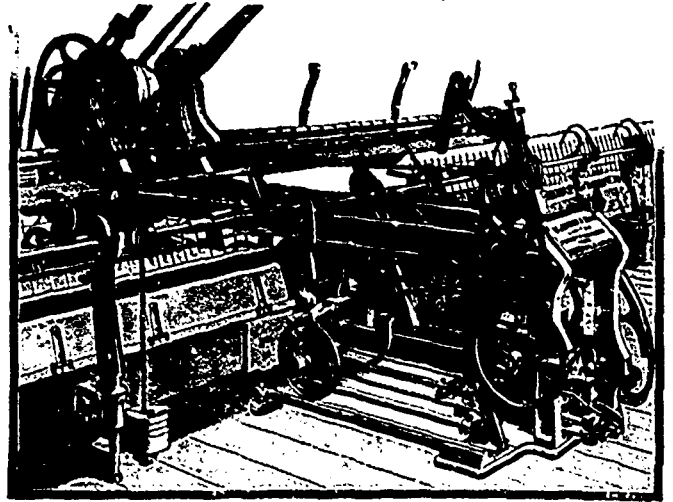
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Carding or Fulling Mills: Name; address; capacity; date established; and whether steam, water or electric power.

Cordage and Twine, Jute and Flax Mills: Name; address; date established; capacity; steam, water or electric power; kind of goods made and material used (whether cotton, hemp, flax, etc.); selling agents, if any.

Sail, Tent and Awning Factories; Upholstery, Wall Paper and Window Shade Factories; Rubber, Oil Clothing, Felt, and Miscellaneous Factories in Textile Fabrics: Name; address; date established; steam, water or electric power; description of goods made; and selling agents, if any.

Clothing, Glove and Mitt, Collar and Cuff, Suspender and other Factories in Men's Furnishings; Button Factories; Corset and Ladies' Wear Factories: The same as in preceding list, adding, whether selling through agents, or to the trade direct; or whether manufacturing for custom work only.

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Paper and Pulp Mills: Name; address; Officers, if a stock company; capacity, in tons per 24 hours; date established; steam, water or electric power; number and capacity of engines and cylinders; kind of paper manufactured; selling agents, if any.

Manufacturers' Agents or Commission Merchants: Name and address, and in what branch of the Textile trade (whether Woolens, Cottons, Hats, Furs, Carpets, etc.

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The Charles Turnbull Co., of Galt, Ont., has purchased the ground on which stood the Mackay woolen mill, recently burnt, and are now building an addition to the present large knitting mill. The new wing, which is now in the course of erection, is 133 feet long and three stories high.

The Northrop Loom Co., of Canada, notice of the incorporation of which appeared in last issue, have started the building of their factory at Valleyfield, Que., and expect to be ready for operations early in September. The new company will manufacture the Northrop loom as a specialty, but will probably manufacture other lines of weaving and spinning machinery for both cotton and woolen goods. The works will be operated by electric power derived from the Montreal Cotton Co.'s electric plant described in a former issue. The Northrop loom, which is designed especially for plain and twill cottons, has some remarkable features, and is destined to give the Canadian mills who adopt it a great advantage in manufacturing.

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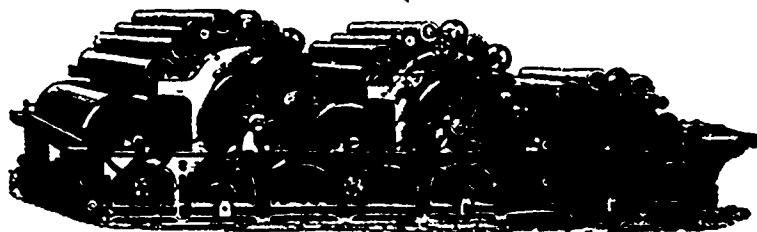
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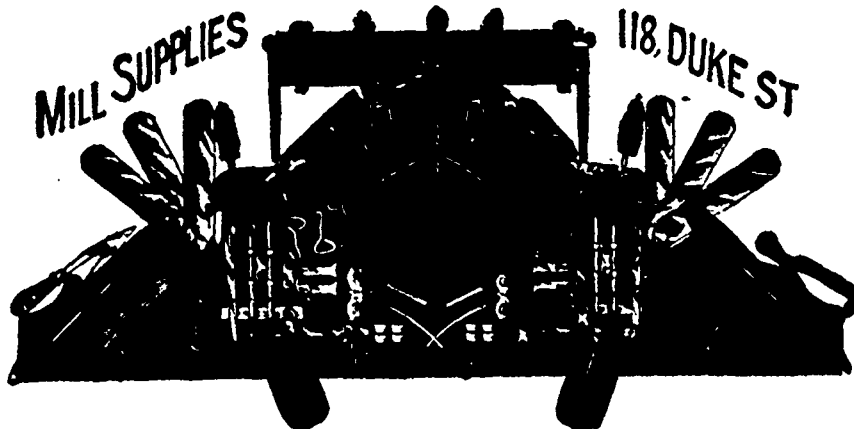
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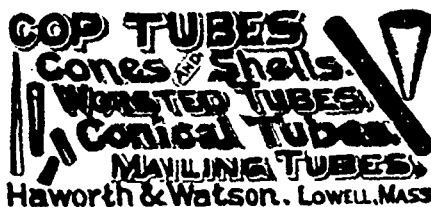
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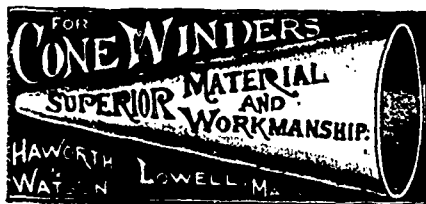
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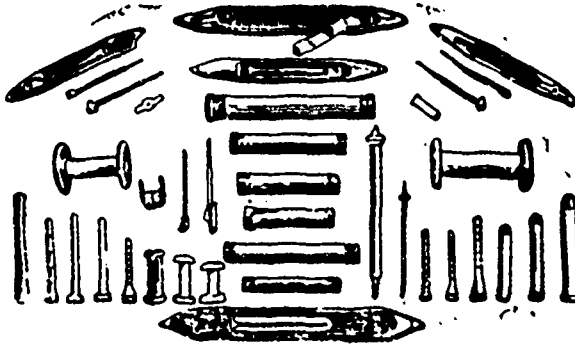
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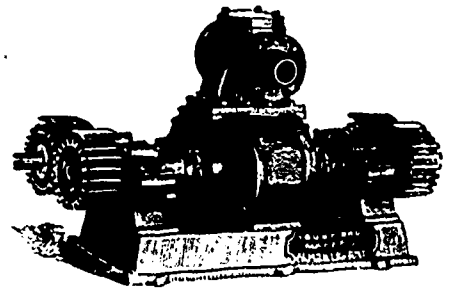
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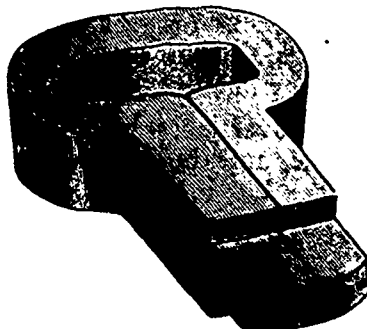
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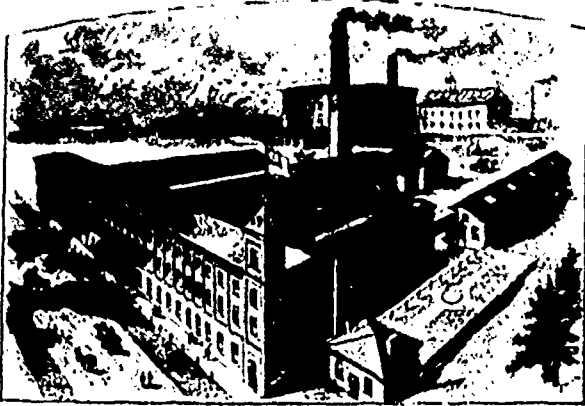


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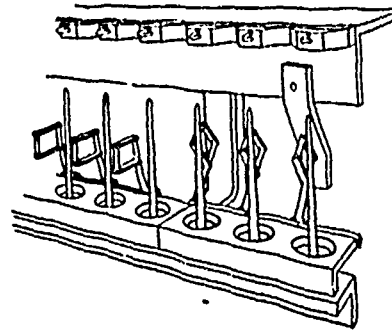
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Taking it all round, there is no work published containing the amount and variety of information on the textile and allied trades that will be found in the **Canadian Textile Directory**; and the number of copies ordered from abroad for purposes of reference is continually increasing, the last edition having been exhausted some time since by such calls.

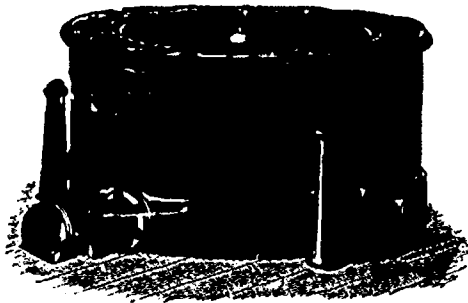
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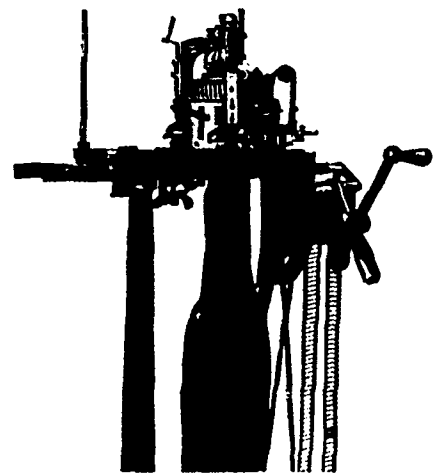
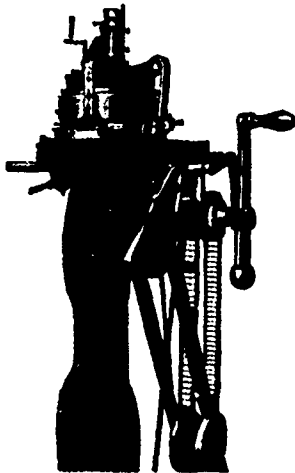
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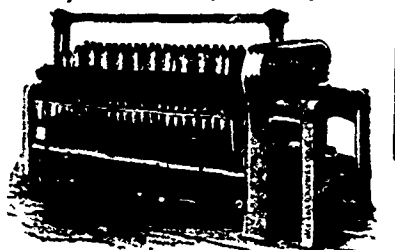
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" 2, June "	2,000	" 5, Sept, "	3,975
" 3 July "	2,100	" 6, Oct., "	3,745
" 4, Aug. "	2,200	" 7, Nov. "	3,800
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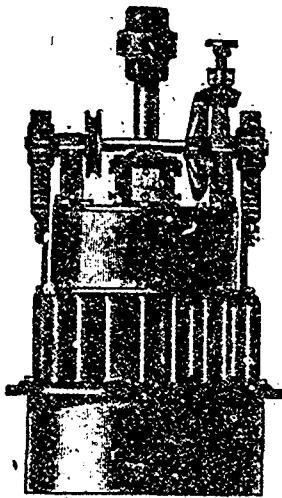
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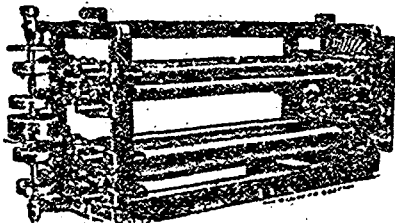
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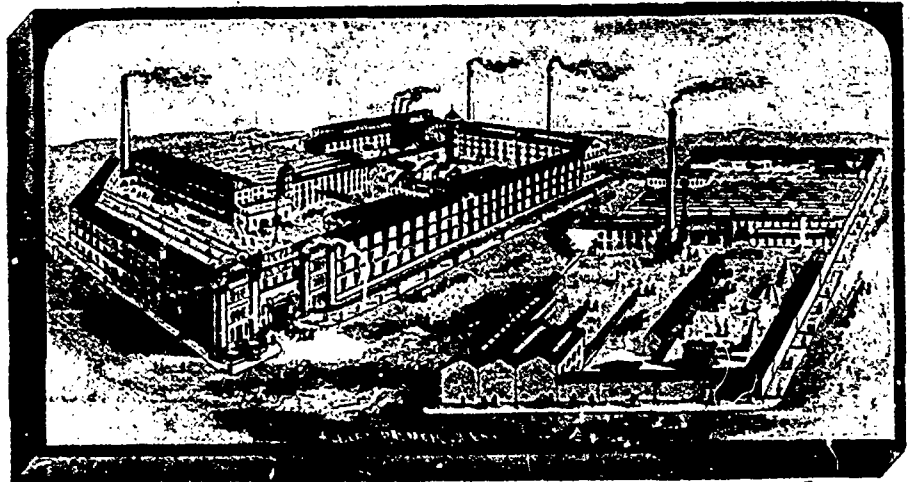
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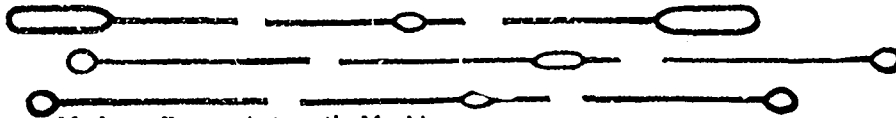
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