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THE JOURNAL OF THE Textile Trades of Canada.

Vol. XXI. TORONTO AND MONTREAL, APRIL, 1904. No. 4.

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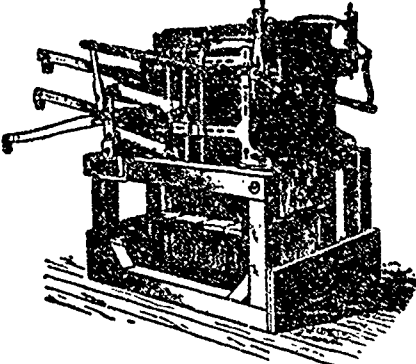
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Vol. XXI.

TORONTO AND MONTREAL, APRIL, 1904.

No. 4.

## Canadian Journal of Fabrics

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### THE CANADIAN TEXTILE DIRECTORY

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—A party of fifty textile manufacturers of Berlin and other cities in Germany are now on their way to the St. Louis Exhibition. Besides visiting the show they will go to New York, Chicago, Baltimore and other dry goods centres to pick up pointers on trade. We may be sure they will keep their eyes and ears open, and will make good use of such features of United States methods as they can apply to their own conditions. If they take in Montreal and Toronto, they will gather some useful knowledge on the commercial independence of Canada and the success of surtaxes as a means of promoting international trade.

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—Our U.S. trade contemporaries look for a rise in all grades of ingrain carpets this season, owing to the advance in yarns. The same indications mark the

Canadian trade and that of Great Britain in almost all classes of carpets. In Kidderminster the makers of art carpets have already advanced prices from 1d. to 3d. per yard, and further increases are inevitable; while Brussels and tapestry carpets have risen from 2d. to 4d. per yard. The war in the East will affect carpet wools, for already Russian consumers are trying to buy back wools recently sold to United States and other foreign customers. If the war continues long, Russia will need for her army all the wool she has hitherto grown for export.

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—At the recent annual meeting of the Silk Association of Great Britain the chairman alluded to the distress among the silk weavers of Macclesfield, and mentioned that over 2,000 of these people were unemployed at the present time. One cause of this condition of the silk trade of England apparently is that the scale of wages is considerably higher than in the silk centres of France, Switzerland and Germany. From this cause almost all grades of silks can be produced about 10 per cent. cheaper on the Continent, and the association is anxiously considering the possibilities of the trade under a Chamberlain tariff. Some members of the association are of the opinion that a duty of over 10 per cent. would at least enable the British manufacturer to hold his own, if not revive the old prosperity of the trade, and they think the foreigner would at least pay part of the duty in future shipments to Great Britain.

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—A deputation of woolen manufacturers has submitted to the Dominion Government a document setting forth eight chief reasons why they are entitled to relief from the present tariff situation. These representations are nothing new; they have been made in various shapes for the past three years, but the protests and pleadings of the woolen manufacturers and the closing down of mills from time to time were put down as so much bluff. Now, however, the Government must see—unless it has determined to shut its eyes altogether to what is passing—that the present preferential tariff, while a delightfully easy burden to some industries, presses with unfair severity upon others, notably the tweed, worsted and other branches of the woolen industry; and it must now realize that in paralyzing

the woolen industries of the country it will bring down other trades related to them. In view of the present state of affairs the announcement of the next budget is being awaited with anxiety. Since the above was written the announcement is made of the sale of the Canada Woolen Mills, Limited, owing to the state of things brought about by the tariff. This is the largest woolen manufacturing company in Canada, and the sale of the business for the cause assigned tells its own story in terms that no one can fail to understand.

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—The flax supply of Russia, the world's chief source of the raw material for the linen trade, has fallen so far short of normal needs as to give great concern to the manufacturers of these fabrics. It is noteworthy that at this crisis four linen mills should be projected in Canada, though in each case the promoters had started to organize before any disturbance of the foreign market had become manifest. As our readers are already aware, one of these projects is at Edmonton, N.W.T., one at St. Joseph, Ont., another at Orillia, Ont., the fourth at Bracebridge, Ont. The last named enterprise, which is expected to be in operation early in the coming summer, will not attempt to spin flax from Canadian-grown fibre, but for the present, at all events, will import its yarns from Belfast, and will confine its operations to weaving and bleaching, producing damasks of medium and fine grades. The other three will operate upon Canadian-grown fibre. Their efforts will open up some interesting questions in regard to the future of a new Canadian industry, which we hope to discuss in the next and succeeding issues.

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—The failure of D. J. Sully & Co., the cotton operators, for \$3,000,000 has led to fresh philosophizing on the cotton situation and the possible remedies for gambling in that commodity. The Textile Manufacturers' Journal regards Sully as a cold, selfish and remarkably egotistical man who was bound to bring calamity to the cotton trade in proportion to the extent of his operations and whom the trade is well rid of, even at the high cost of the misery he has brought upon hundreds of manufacturers and tens of thousands of factory hands. "The pity is," says the Journal, "that a man such as we describe is given the opportunity to inflict suffering upon others; were it possible for him to engage in his wild and ill-steered schemes, bringing disaster only to himself, the world would have no particular interest in him, but the sorrowful part is that the world has suffered in consequence of the opportunities which lax rules of the Cotton Exchange have made possible. Had gambling in cotton been prohibited, Sully would not have been able to have blocked the wheels of the cotton industry and to have shaken the industry from its foundation." Happily the market has already begun to steady itself after the first shock, and manufacturers will now understand the actual situation better. The coming crop in the Southern States will

probably be a large one, the acreage this year being the greatest ever planted; but it is not certain that the crop will be as large as that of 1899, when 11,256,000 bales were marketed. The migration of negroes from the cotton States has brought the cotton growers face to face with a new problem, and unless other labor can be imported the increased acreage this year may not mean a proportionate crop harvested. Low prices this year may not be looked for.

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—Enthusiasm in the subject of cotton growing within the British Empire is still maintained in the Old Country and in many of the colonies, and many associations and institutions not directly connected with the trade have shown their sympathy by contributing funds to help on the experiments. Many individual subscriptions have also come in anonymously. At the recent meeting of the British Cotton Growing Association the experiments of Germany in Togoland described some time ago in *The Canadian Journal of Fabrics*, were referred to in terms which show that not only is the German Government persevering in like experiments, but it is in sympathy with the efforts of British experimenters. The report in question states: "Adjoining the Gold Coast is the German colony of Togoland, which, although not altogether within the scope of my subject, is most interesting as the place where the first modern attempt has been made to establish cotton cultivation on a scientific basis in West Africa. The German Agricultural Committee commenced operations in 1901, and, like everything done by that intelligent nation, started their work on a sound and scientific basis. An immense amount of educational work has been done, and all sorts of experiments have been carried out, such as hybridizing, sterilizing the seed, experiments with fertilizers, inoculation against the Tsetse fly, and so on. They have been most generous in giving us the benefit of their experience, not only in West Africa, but in East Africa and elsewhere, and I am glad to say that the most cordial relations exist between this important body and the British Cotton Growing Association, and it is fully recognized on both sides that in the present troubled waters England and Germany are in the same boat and must help one another." This work will require patience, and there are, of course, those who predict failure. Edward Atkinson, the statistician, of Boston, thinks the present schemes will be no more successful than those started by the Cotton Supply Association of Manchester during and after the Civil War. He thinks 115,000 square miles more could be put into cotton in Texas, Oklahoma and Indian Territory, and that with improved cultivation the total yield in the United States could be increased from 25 to 50 per cent. He appears to think the interests of the United States and Great Britain are mutual in this trade, and concludes: "It, therefore, follows whether, willingly or not, the United Kingdom and the United States are interdependent, and as fast as that economic fact becomes apparent to

intelligent persons in both countries, the efforts to keep them apart by retaliatory duties and taxes will become as unpopular as they are imbecile." These facts have been apparent in Great Britain for many years, but are they now more apparent in the United States than they have been? Moreover, will British consumers be less at the mercy of a manipulator like Sully, or, if cotton manufacturing develops in the States in the next twenty years as it has in the past twenty years, will the interests of the two countries be so mutual?

### THE METRIC SYSTEM IN TEXTILES.

In view of the change which we believe will soon be adopted by the Governments of Great Britain and Canada, and soon thereafter by the United States, the reader will be much interested in a letter in this issue from Samuel S. Dale, editor Textile World-Record, Boston. Mr. Dale's letter is valuable not only because he has made extensive and varied investigations into the subject of yarn counts as prevailing in European countries, but because it is apparent from the facts he presents that the transition from the English to the metric system of weights and measures will not be a question of a day or a year, but possibly of decades. It is well, therefore, that those who believe with us that the change is coming should be under no illusion regarding the difficulties to be overcome or the time it will take for the change. Since the discussion in these columns in the last two months we have been reminded by a reader that it is less than three years since he received payment of a bill from a Nova Scotia customer, who remitted in pounds of the old Halifax currency. The old Canadian currency of pounds, shillings and pence was done away with officially in the Upper Provinces as long ago as 1858, and yet a few people have stuck to it down to the beginning of this new century. This shows a great tenacity for old customs, but should we deduce from this that the decimal system of coinage is not more convenient and simpler than the old pounds, shillings and pence, or that because the decimal system of coinage is not actually in exclusive use it is, therefore, a failure? There are many Canadians still living who remember the period of pounds, shillings and pence. In the light of their practical experience how many of these would go back to the old system? About as many in every hundred as would be found to vote for a return from the electric car to the old horse car. Now, the metric system of weights and measures is a decimal system; and its adoption in weights and measures would give us the same advantage in simplicity over our present clumsy and irregular weights and measures as we have already achieved in our monetary system. These aspects of the case are dealt with in an article in the Canadian Engineer for April reviewing the new book, "The Metric Fallacy," published by Messrs. Halsey and Dale, and from this article we make the following quotation:

"The authors must have credit for arraying against the metric system nearly all that can be brought for-

ward. The chief purpose of the book is to show that, while the metric system has been officially adopted in so many countries during the last hundred years, it has not completely displaced the local measures and those pertaining to particular trades, and that, therefore, it has been a failure and a fallacy. This is not a logical deduction. We must admit that the authors have proved clearly the persistence of local weights and measures in certain districts and in certain trades in metric countries; but this only shows the persistence of local customs and the extreme conservatism of artisans in particular trades, where the old guild idea still prevails, in the midst of changes that have affected the general trade and manufacturing interests of the country. It only shows that many people prefer to go on in the ruts their fathers made for them rather than take the trouble to learn a new way. Let us apply Messrs. Halsey and Dale's reasoning to other questions—Christianity, for instance. The Christian life was first fully explained and exemplified by Jesus Christ 1900 years ago. His doctrines have been nominally accepted by peoples speaking over 400 different languages and dialects; and advocates of Christianity claim that these principles form the best rule of life for all those people, and that such principles will be ultimately accepted by the whole world as the ideal system of social and political government. But as a matter of fact we find that after nineteen centuries the doctrines of Christianity have been rejected by thousands of individuals in each one of the so-called Christian countries, and that whole communities have continued from generation to generation in undisguised disregard of the fundamental laws of Christianity; therefore Christianity is a failure and a fallacy.

This appears to be the line of argument brought against the metric system; but, as we are sure that the authors of the "Metric Fallacy" would not make such sweeping deductions against Christianity because a majority of the citizens of Christian countries do not apply those doctrines to their own lives, so we are sure the average reader will not condemn the metric system just because certain trades stick to their local customs and do not appreciate the advantages of the newer system. Although the metric system was proclaimed in 1793, it was not till 1840 that it was made compulsory in France; and even now, after more than 100 years there are industries such as those of silk manufacturing in which old terms are still used in the factories. When we remember that this is the case in the land which originated the metric system, we need not be surprised to learn that local customs still persist in Germany, Turkey and other countries whose Governments have adopted metric measures. The reasons we have faith in the metric system are, among others, that since it was adopted in France it has so commended itself to other nations that forty-four of them have, of their own accord, adopted it, and that as time goes on it is being used by a greater number of the people of those countries, to the gradual disuse of the local measures referred to; that it is already all but universal in the scientific world and in some special industries,

such as the chemical industry, and that educationists as a body commend it for its greater simplicity and for the time that would be saved if it were universally adopted. As we have before said, the reason why the English-speaking people have not adopted the system before now is that heretofore they have held such a predominance in manufacturing, especially in the textile and engineering trades, that their measures have not only been understood by almost all the world, but have governed the system of measures even in metric countries. But the Anglo-Saxon peoples no longer hold a monopoly of manufacturing, and this fact is becoming thoroughly appreciated in Great Britain if not in the United States. It will be appreciated in the latter country as soon as its foreign trade reaches nearly the proportions of that of Great Britain."

Returning to Mr. Dale's letter, we must accept his correction regarding the status of the British representations at the International Congress on counts of yarn. We believe it to be a fact nevertheless that the majority of those engaged in textile manufactures in Great Britain—especially those engaged in foreign trade—are in sympathy with the recommendations of that congress. The following is a report of the conclusions of the congress as published in the preface of a pamphlet containing the proposed tables, compiled by McLennan, Blair & Co., yarn merchants, of Glasgow:

All the varied systems of counts of yarn have evidently been created by the spinners and reelers for their own convenience, and are adapted to the special materials and thickness of yarn with which they are intended to deal. Very few of them are decimal. Little regard has been paid to the convenience of manufacturers, particularly to those who produce goods where several classes of yarn are used in the same fabric. For facility of export to foreign countries, no consideration has been given at all. This confused state of counts is productive of much unnecessary labor. The urgent need of the trade, is a system of counts which will embrace all classes of yarns, be convenient for the spinner and reeler, and also for the manufacturer, and which will be understood in all countries. Count being the relationship of length to weight, it is obvious that such a system could not be attained unless there were one uniform system of weights and measures. The "Metric" system of weights and measures is so perfect, and has been adopted so widely, that it forms the most suitable basis for a uniform system of counts of yarns. Several conferences have been held on this subject, the most recent being that of Paris, in 1900, where it was agreed, that the best system was that of a fixed weight, and a variable count length. The unit was fixed at 1 metre, equal to 1 gram. Number 1 would mean that a length of 1 metre would weigh 1 gram; number 100 would be 100 metres per gram, etc. Exception was allowed for raw and thrown silks, to enable the count to show the degree of variation and irregularity incident to this class of material. The system agreed upon in that case was, on the contrary, that of a fixed length and a variable count weight. The length of skein adopted was 450 metres, and the unit of weight the  $\frac{1}{2}$  décigram; thus the count of a silk is expressed by the number of  $\frac{1}{2}$  décigrams which a length of 450 metres weighs. The count in International Metric System was also to be indicated on the bulletin. As the old systems of counts have some technical conveniences, they will no doubt in many cases for

some time be retained. A principal object of the present series of tables is to enable spinners and reelers, with ease to mark on their packages and invoices, in addition to the local count, the equivalent in the International Metric System. This would facilitate the export trade, and be convenient for all calculations made in metres and grams. For single yarns the Metric System requires no explanation. For folded yarns the Congress decided, that the number should indicate the completed thread, no matter of how many strands it may be formed, or what may be the counts of these different elements.

The very confusion in yarn counts, so well set forth by Mr. Dale, is the best argument that can possibly be used for a universal count based on the metric system. If it were adopted by Great Britain and the United States, the largest textile manufacturing nations in the world, it would in a comparatively short time become practically universal. No such universality can be hoped for while the British and American people have in their own trades so many different systems. At the worst it would only add one more system to the hundred already in use in various countries; at the best it would merge them into one rational system, understood by the whole world, and from which calculations can be more easily made than by any other system.

As for British textile opinion, we would call Mr. Dale's attention to the fact that at the annual meeting of the British Silk Association, just held, the following resolution was adopted by a unanimous vote:

"That this meeting of the Silk Association desires to re-affirm that as one uniform international standard of weights and measures would be of great assistance to the silk industry, the Association desires to urge the necessity for H.M. Government promoting legislation providing for the compulsory adoption of the metric system of weights and measures."

As for British opinion in other departments of the textile trades, we quote the following from an article in the *Textile Mercury*, written as a comment on the book published by Messrs. Halsey and Dale:

"From the tone of the book we question whether the authors have grasped the metric system thoroughly, or whether they have yet ever purchased articles in countries where it is practised. If they had, certain statements would probably not have been made—for instance, that the retail buyer purchasing cloth would ask for  $\frac{5}{10}$ ths of a yard instead of a half, and so on. As a matter of fact such cumbersome fractions are no more used where the metric system prevails than they are in England or America; people buying in shops ask for a "half metre" of cloth, or "quarter kilo" of tea, as would be the case if the system came into use here. Further, the authors are not quite fair in contrasting the divisions of English with those of the metric system, for, while they give the latter in full they do not give those of the former. We wonder, for instance, whether they have heard of the foot, or the hundred-weight. In the textile trades the yard and the inch are mostly used, the former for indicating the length of the pieces, and the latter for the width of a piece, while the metre in practical use is the measure of length, and the centimetre the measure of width, the centimetre being equally as good a measure of the number of picks in a cloth as an inch. The authors

also speak of the cumbersome nature of the divisions of the system—kilogram, centimetre, millimetre, etc., contrasting them with inch, pound, grain, and so on. In actual use one does not find these names so cumbersome; it is just as easy to ask for a "metre of ribbon" as a "yard of ribbon," or for a "kilo. of sugar" as for a "pound of sugar," for a "litre of milk" as for a "pint of milk"; and when a mechanic wants a screw it is certainly not more difficult to inquire for a "millimetre screw" than for a "thirty-second of an inch screw." It is apparent that the writers have simply an abstract knowledge, gleaned from tables of the measures, rather than a practical knowledge of the working of the metric system. We should say that a person comparing the table of weights on the metric system with those on the avoirdupois system could not fail to be struck with the simplicity of the former compared with the latter, and the greater ease with which calculations can be made; say, for instance, a person weighing one hundred bales of cotton in cwt., qrs., lbs., on the one system, and in kilos. on the other, and obtaining the total weight of the parcel by the process of addition. Many people seem to think that when the metric system is adopted they will have to change the yard into the metre, and the pound into the kilo. in all transactions, but this is not so; in place of the yard and the pound we shall have the metre and the kilo. It would be far better to discard the old terms at once and adopt new names with new standards."

## Foreign Textile Centres

**Manchester.**—In the Manchester cotton market the Sully failure in New York caused a temporary panic, but the market recovered in a few days, and Egyptian and Brazilian cottons came up again also after some fluctuations. The yarn market appears uncertain. The Textile Mercury says spinners report that things are dragging, and there seems to be at present no relief in sight. Even the lessened output of the machinery is not being cleared, some instances of stocks of twist being mentioned. Irregularity in quotations is noted according to the varying conditions obtaining. Medium and fine wefts are holding their own fairly well, but in these also demand is hampered by the harassing condition of the raw material. Inquiry for piece-goods is reported fairly abundant, but the offers in most cases are found to be low. Indian buyers appear to have few instructions to place new business at the moment, and, excepting for isolated small transactions, it has been an altogether disappointing week. Shirtings have shown no improvement, and the small trade done has been effected only after the greatest difficulty in negotiation. China buyers have done a little in specialties, but shirtings and heavy goods are reported still of sale. In odd quarters rather more has been done for the South American markets, but the Continental outlets are not very active at the moment. Egyptian advices are rather unsatisfactory. The cattle plague is seriously interfering with inquiry from Alexandria. Printers of fine-reed kinds are fairly well engaged, and a moderate trade in a quiet way continues to be put through; but in the common Burnley makes there is a somewhat depressed tone at the moment. T-cloths and mexicans can only be sold at extremely low prices, and, notwithstanding short time, there are stocks to be met with.

**Huddersfield.**—Operations are limited, and caution is observed by merchants with respect to the winter trade, and orders are sent forward slowly. The Continental trade is still confined to the most expensive grades of worsteds, and only choice designs are looked at. Nearly all kinds of cloth were bought for Canada and Australia, but South Africa remained a slow market. Cheap woollen manufacturers are well employed, and some makers of good worsteds have since last week put their hands on full time. This, however, is exceptional.

**Bradford.**—It is thought by many that the war in the east will stimulate trade here as it did during the South African war, especially in goods made from crossbred wools. Maritime trade is quiet. Argentine wools are being more extensively used throughout Yorkshire than formerly. There has been a large increase in the consumption of such wools in Bradford in the past year. Men to-day see that if the Continent can use River Plate wools to advantage, then there is no reason why Bradford cannot do likewise. According to reports there seems to be more doing in mohair in the United States than in Bradford. Here things are quieter than they have been for years back, and hardly anything but a few low Capes and Turkey yellows are being sold. Cape firsts have sold relatively better than Turkey average, and one can buy even the former at a shilling per pound. There seems to be a little call for Cape mohair, but Turkey best qualities are altogether neglected because there is no dress trade doing.

**Dewsbury.**—Canada is again buying after a period of slackness the usual qualities in merinos extracted and unseamed, in darks, lights, grays, etc. Coarse whites for the hosiery trades are taken freely again. Worsteds in the carded state and steel grays, if fine, are asked for; black stock to a certain extent is taken freely, and a few other lines that are not produced in the Dominion are asked for.

**Kidderminster.**—The Shuttle reports that all the carpet and spinning mills are busy and employment is good. Special orders are being received, and requests are made for immediate delivery. The wool market remains very firm, and spinners have been obliged to advance their prices for carpet yarns.

**Kirkcaldy.**—A large amount of business is passing the linoleum trade, which continues steadily active. With regard to the linen industry, there is practically no change in yarn prices, which remain quite firm. The home trade is buying little cloth, but the Americans are free buyers, and some pretty large orders have been placed recently, while others are in course of negotiation.

**Belfast.**—Market conditions show a rather improving tendency. Prices were very firm and a shade harder. The spinning branch is steady. Delay in deliveries is still a matter of complaint. The manufacturing end of the market rather more than maintained the position; the demand is broadening out, and business placed showed a slight improvement. White goods were in fairly strong request, particularly for the United States, buying being well up to an average, and there was more doing in the Colonies and South America.

**Dundee.**—Following an increased list for linen goods by one of the large firms, a general rise of 5 to 7½ per cent. on prices is anticipated. Raw materials and yarns have crept up for some months, but manufactured goods have not till now followed at the same ratio. Flax is quite firm. For good quality the top quotation must be paid. Bejetsky



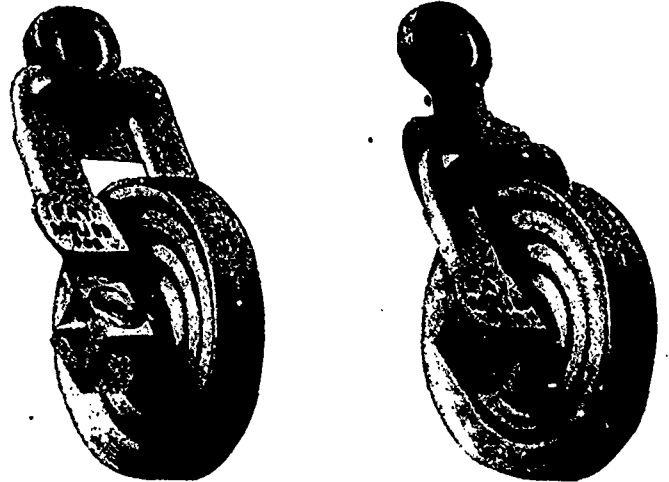
stands at £44; best Livonian C £32 10s. for K, £42 10s. for ZK, and Hoffs at £28. Tows of fine quality are firm, though some business is said to have gone through in buyers' favor. Ordinary tows are easy, but are unreliable in quality, and spinners act with caution. Yarns are firm and the demand fair for heavier sizes of flax. Tow warps fully maintain their value and move off in some quantity, 5 lb. tow being done at 2s. 4½d. to 2s. 6d., according to spin. Tow wefts are not any better, and bleachers offer below spinners' rates. The present quotation for 4-lb. tow weft is 1s. 10½d. to 1s. 11d., and other sizes in proportion. Jute during the past week has remained stationary. Spinners are holding off and are looking for lower values. Yarns show no improvement, and the short-time movement has not yet told on the market. Common 8-lb. cops are said to have been done largely at 1s. 4d., and it is with difficulty spinners can get 1s. 4¼d.; 8-lb. jute warps are sold freely at 1s. 5d. for spools. Heavies are in fair demand, and there are many inquiries for twists—which is an important growing feature of the local trade. The demand for jute cloth is better, but there is no change in prices.

Chemnitz.—Great difficulty has been experienced by the manufacturers in getting yarns. Many of the yarn contracts, it is claimed, have not been delivered and the spinners are refusing to make new ones except at prices which the buyers consider prohibitive. There is no doubt that the foreign spinners have had difficulty in getting cotton, yet they have made all there was to make out of what they could get. In the matter of prices there is still a good deal of uncertainty over just what the level is, as there are cuts to be seen here and advances there that make it difficult for the American buyer to properly gauge the market. In the business that is being done the fancy half-hose have the leading position, and some fairly good sales have been made on these. One of the best sellers for spring has been the plaid stripe and these and the gray, with black and white designs, have been the features. Efforts are being made to bring the lace half-hose to the fore again, and reports that they are gaining in favor are heard among the importers. One does not have to seek far to trace these reports to their source, however, and there is no doubt that the manufacturers are more responsible for them than the demand itself. There are many of the German machines that are only adapted to lace goods, and for this reason there has been a production which has not yet been absorbed. In addition, the lace lines at this time would prove most profitable on account of the smaller amount of raw material used. Foreign manufacturers will have trouble in forcing the market for low-grade laces, even at reduced prices. It is peculiar of the hosiery market that when a style dies it dies very dead, indeed, and it would take almost superhuman efforts to revive it. In the higher grade ladies' hose, however, the demand is fairly strong and both the all-over and ankle patterns have sold well. Some business has been done of late in the high-grade gauze effects, both in women's and men's goods. From all indications these lines will be among the strongest for spring re-orders.

### IMPROVED TENSION PULLEY.

Ever since the adoption by Prince, Smith & Son, Keighley, England, of the tension pulley system of driving for worsted machinery spindles, there have been numerous appliances suggested with a view of perfecting the method. Some of them have been quite ingenious, but in most cases

sight has been lost of the chief requirements, viz.: Simplicity combined with effectiveness. Prince, Smith & Son have found in their wide experience, which covers the whole world where worsted yarns are spun, that a light and absolutely true pulley running in simple, open, box-wood bearings gives the best results. They find that ball bearings, as well as numerous styles of closed-in bearings, although good in theory, serve as a trap for the "fly" in ordinary practice and much difficulty has been experienced on this account. There has arisen lately in the United States some demand



for a closed-in bearing, and recognizing that the opinions of their mill friends require our best attention, the firm have designed a tension pulley bracket which will accommodate either the open or closed wooden journal, and which in addition, is fitted with a sliding lid which covers the two bearings. This lid has neither springs, hinges, nor pins to get out of order or to cause any inconvenience to the machine attendant. The action of sliding the lid off and removing the pulley may be accomplished with one simple movement. After the pulley is replaced the lid will slide over the bearing automatically by means of its own weight. Wooden bearings, which are made from a variety of hard woods, are designed in such a manner that the "fly" will have a natural tendency to clear itself rather than collect and cause friction on the bearing surface. A hole for lubricant has been provided on the top of the closed wooden bearing, in which grease, semi-solid wax, graphite sticks, or other suitable lubricant may be placed, although they have been run for a long time without any applied lubricant whatever. As an additional precaution the wooden bearings may be soaked in oil, boiling wax or grease, and this method alone will produce a sufficient lubrication for a long period.

The arrangement has already met with much success where it has been tried, and Stoddard, Haserick, Richards & Company, 152 Congress St., Boston, the agents for the United States and Canada, will be pleased to submit a sample fixing.



In the jury trial before Judge Trenholme, Montreal, in the case of J. H. Smith et al., vs. J. A. Jacobs, an action by which the British and German Import Company claimed \$2,000 damages from the Canadian Underwear Company on account of a demand of assignment made by defendant upon plaintiff, the jury returned a verdict in favor of the defendant. The jury thought the defendant acted with reasonable and just cause, and that plaintiff suffered no damage.

## THE CANADA WOOLEN MILLS, LIMITED.

The crisis in the affairs of the Canada Woolen Mills, Ltd., which has been approaching for some time, developed at a meeting of shareholders and creditors in Toronto, on the 13th inst. Messrs. Brock, Long, Benson, Eaton, Randall and Millichamp, directors and shareholders, agreed to a plan for selling the mills owned by the company, no other arrangement being acceptable to the Dominion Bank, which is largely concerned. The statement submitted showed that for three years the company's four mills—the Hawthorne and Gillies mills, at Carleton Place, the Hespeler mill, and the Waterloo, Ont., mill—have been losing money under tariff conditions. The mill at Lambton, which was burnt a couple of years ago was never rebuilt, but the real estate there is still held by the company. About a million dollars was invested in the five mills, but the directors state that there should be sufficient assets to satisfy all claims, though the shareholders will lose their investments. The mills employ 700 hands, and it is the intention to continue running short time till a sale is effected.

## 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 Monarch Knitting Co., Dunnville, expects to have its new mill running next month.

Charles Ferrill, Carleton Place, has gone to Streetsville to take a place in the woolen mill there.

The Anchor Knitting Co., Almonte, is building a fire-proof structure for its picker department to take the place of the building destroyed by fire.

The William Firth Co., 67 Equitable Building, Boston, have received an order from the Canadian Colored Cotton Mill Co., of Cornwall, Ont., for mules.

The New England Cotton Manufacturers' Association will hold its next convention in the Massachusetts Institute of Technology, Boston, April 27th and 28th.

Alex. Gibson, head of the Gibson Cotton Mills, Marysville, N.B., broke his collar bone last month as the result of a fall down stairs. Mr. Gibson is 82 years of age.

Peter Campbell, J. G. Forgie, and James Coxford have leased the Rosebank woolen mill, Blakeney, which has been standing for some time, and will manufacture blankets and flannel.

The case of the Chambly Manufacturing Co. vs. Willett is now before the Supreme Court, Ottawa. Mr. Willett owns lands and three mill sites on the west side of the Richelieu river, at Chambly Canton, and brought an action against the company for \$22,000 damages, and to force them to demolish a dam and breakwater, which interfered with plaintiff's mill privileges and lands, or alternate to making protective works to avoid injury to riparian rights by the dams and other constructions at the company's power house on the east side of the river. The judgment of the Court of King's Bench, at Montreal, now appealed from, condemned the company to pay \$9,250 for damages and to construct the necessary protective works.

John Childerhose & Son have added some new machinery to their woolen mill, at Eganville, Ont.

The Eagle Knitting Co., Hamilton, is looking for a site for a new mill, if ground cannot be got for an extension to the present mill on Main street.

The Walkerton Binder Lwne Co. will not manufacture for this season's trade, but will sell off their surplus stock, and be ready in the fall to manufacture for 1905.

The Divisional Court, Toronto, has dismissed the appeal of Queson, an employee of the Hamilton Cotton Company, against the judgment of the trial judge refusing him damages for injuries received in the company's cotton mills.

The bursting of a steam cylinder in the Guelph Carpet Mill, on the 31st ult., blew out the windows of the starching department. One man was slightly hurt on the head, but fortunately no other damage was done.

A fire, causing a loss of \$75,000, broke out in St Helen street, Montreal, on the 1st inst. Among those burnt out were the well known dyestuff and chemical firm of Watson Jack & Co., whose loss was estimated at \$20,000, covered by insurance. A fireproof vault saved the books and records, and the firm are fortunately able to carry on business without interruption in temporary premises at 16 St. Sacrament street. The fire apparently originated in the top flat of the building in the rooms of the Radway Medicine Co. Among other firms that suffered more or less were: Gault Bros., S. Pitt, woolens and trimmings; Thos. Samuel & Son, R. Ross & Co. the Imperial Neckwear Company, and the Atlas Shirt Company.

Sherbrooke, Que., has adopted the by-law providing for the withdrawal of the city's action against the Dominion Carpet Co., and for the granting of exemptions to Henry A. Moore, of Worcester, who proposes to take hold of the factory, as mentioned last month. The following report—which appears to be correct, except for its statement of the duties on carpets—is from the Worcester, Mass., Telegram: Worcester, Boston and New York capital will be interested to the extent of \$150,000 in the company now being formed by Henry A. Moore, who has just acquired the ownership of a carpet factory at Sherbrooke, Que. The plant will be operated under a special charter granted by the Government of the province of Quebec, and several members of the board of directors will be Canadians. Mr. Moore went to New York to close the deal with the manufacturers interested in the enterprise, and it is likely the company will be organized this week. The capital stock is placed at \$150,000, but this, it is understood, will be increased by \$100,000 as soon as the legislation necessary can be obtained in the Provincial Parliament at Quebec. The factory at Sherbrooke is a three-story brick structure, 80 by 180 feet in size, on the Magog river, and has adequate transportation facilities, being on the lines of the Quebec Central, the Grand Trunk, the Canadian Pacific, and the Boston and Maine railroads. The plant is fully equipped. Mr. Moore paid \$60,000 for the site and building, on which it is expected to make extensive improvements. New machinery will be installed, and it is the intention of the company to manufacture Winton and Brussels carpets. The company will be in a position to quote prices under American and English manufacturers, from the fact that there is a duty of 45 per cent. in Canada on carpets manufactured in the United States, and an import duty of 25 per cent. on the English products. Henry A. Moore, the moving spirit in the venture to manufacture carpets in Canada, was several years connected in various capacities with the Hogg Mfg. Co., at Auburn.

Conrad Becker has purchased the flax mill property at Wellesley, Ont., and intends to convert it into a sash and door factory.

Thos. Chambers, who was for many years in the employ of the Rosamond Woolen Co., is leaving Almonte for Toronto, to reside with his son, David Chambers.

The report that the Dominion Cotton Mills Company's building in Brantford had been leased by the Penman Mfg Co., of Paris, is denied.

H. H. Lang, of Ottawa, is negotiating for the establishment of a knitting mill and glove factory at Morrisburg, in the Miller foundry building. Rumors of a carpet factory in the same town are also rife.

Lucien Marcan's Successors, Bradford, Eng., have taken over for Canada the agency of Ira Ickringill & Co., Limited, of Keighley and Bradford, one of the largest spinning concerns in the world. T. A. Wood, of Lucien Marcan's Successors is now visiting Canada in the interests of his company.

James Riley, a young man, met his death in the Stormont cotton mill, Cornwall, last month, while putting on a belt to start one of the machines. No one saw the accident, but it appears he must have fallen on the rope pulleys running the rope drive gear and was carried to the big pulley in which his body was mangled and his face smashed beyond recognition.

On the 15th ult., a fire broke out in the spinning department of the Canada Cotton Mill, Cornwall, the supposed cause being friction in one of the mules. The fire brigade belonging to the mill was quickly at work, and with the assistance of the hook and ladder company of the town brigade, succeeded in extinguishing the flames. The fire and flooding of the lower stories caused damage to machinery and stock of over \$20,000, which is covered by insurance.

Last month a deputation from the Live Stock Association waited upon Hon. Sydney Fisher, at Ottawa. According to press reports "C. W. Peterson brought forward the subject of the woolen trade. He read a memorandum showing that shoddy was very largely taking the place of wool in the manufacture of textile fabrics, and, in consequence, the demand for wool had fallen off and prices were very low. In British Columbia the price was five cents a pound and in the Territories five to ten cents. A regulation was asked for which would require the manufacturers and dealers to state whether textile fabrics were wholly of wool or not. It was also requested that the sale of substitutes for wool as 'all wool' should be made an indictable offence."

The affairs of the Empire Carpet Co., formerly of St. Catharines, and latterly of Dundas, Ont., are in a bad mix-up. The business was to have been sold on the 21st March, but the sale did not come off. There was a chattel mortgage nominally for \$10,000 against the plant, and as little fresh capital was put in when the concern was moved to Dundas, it could not fulfil the conditions on which the bonus was granted by the town. Affairs came to a climax very soon after the factory got running, and then it was discovered that there were other chattel mortgages, and each creditor claimed to be a preferred creditor. Action in winding up the estate is now deferred, in the hope that some competent man will turn up to take hold and form a new company.

It has been a long time since there was a serious woolen mill strike in Massachusetts, and a prolongation of the present strike at the Arlington mills, Lawrence, would be unfortunate, and probably of more injury than benefit to the strikers. The Arlington has been a remarkably successful corporation and has maintained a high schedule of wages.

While there is evidently no lack of prosperity now, the lines of competition have drawn closer and closer each year, and to a corporation employing as many persons as the Arlington mills, the payment of five per cent. higher wages than other manufacturers pay, represents a sum that it is hard to make up under present conditions of the trade. The question for these 500 strikers to decide for themselves is whether or not the risk of losing their positions, besides the loss of pay, is warranted by the possible outcome of the strike.—Wade's Fibre and Fabric.

\* \* \*

## Fabric Items

Ten carloads of silk passed over the C.P.R. a few days ago for New York from Japan.

Alx. Maclean, who is going to Japan as Canadian trade commissioner, states that there will be a good market in that country for Canadian cotton and woolen goods.

A corset factory of Toronto, employing 40 hands, has approached the council of Cornwall, Ont., with a view to moving to that town, in consideration of a loan of several thousand dollars, secured by a mortgage on the plant.

The large retail dry goods business of John Murphy & Co., Montreal, has been turned into a limited company, called the John Murphy Co., with a capital of \$452,000. The incorporators are: John Murphy, Hugh Henry, Duncan Devine, and Louise Isabel Murphy, of Montreal, and Samuel Gamble, of Ottawa.

H. A. Hagen, who has been connected with the Berlin Shirt & Collar Co. for years, has disposed of his stock to J. Wiegand and Aaron Erb. It is Mr. Hagen's intention to start a shirt and collar establishment in the second and third flats of the new Pearl Steam Laundry rearing completion. He expects to commence operations in May.—Waterloo Chronicle.

V. de V. Dowker, of the Crescent Manufacturing Co.; Charles B. Gordon, of the Standard Shirt Manufacturing Co.; Ben Tooke, of Tooke Bros., Limited; and F. Skelton, of Skelton Bros. & Co., all of Montreal, went to Ottawa last month to make representations in behalf of the shirt and collar industry, which it is claimed was promised tariff changes about three years ago by Sir Wilfrid Laurier.

The various departments in the new clothing factory of I. W. Peck & Co., Montreal, will be operated by electricity from motors of different powers distributed around the building. The electric current, however, will be generated by steam, it having been demonstrated that current can be more cheaply generated by steam than to obtain it from the Montreal Light, Heat and Power Co., under the present high rates, which are nearly double those charged in Toronto. This is the result of the watering of stock in the amalgamation of the different power and light companies.

The case of Wm. A. McDougall, London, Ont., charged with obtaining goods by false pretences from Herman H. Wolff & Co., dry goods importers of Montreal, has been concluded. McDougall had submitted a statement of his position showing a credit balance of \$10,686, and on the strength of this obtained goods to the amount of \$600. Shortly after this, he assigned with liabilities of \$16,000 and assets of 80 cents, after paying expenses of winding up. It appeared from a petition, signed by the prosecutors and other creditors, that the defendant was "not as bright as he might have been," and was very ignorant of business methods. Hence he was liberated on suspended sentence on giving a bond of \$300 for good behavior.

## ENGLISH VS. METRIC.

Editor of the Canadian Journal of Fabrics:—

Sir,—In your editorial, entitled "The Coming System of Weights and Measures," you tacitly assume that the metric is the "coming" system. This assertion is frequently made, but so far I have failed to find any evidence to support the assumption. Because a few autocratic governments in Europe have in the past hundred years forced their subjects to use the Metric System in the stores and market places, it by no means follows that this system is to become the world's standard.

In many industries, notably textile manufacturing, the attempt to drive out the old and drive in the metric standards has failed miserably, even in France. This is true not only in the silk, but also in the cotton, woolen, worsted, linen, hemp and jute industries. I do not ask you to accept this on my authority. You can find the proof in every Continental textile book and journal and in the proceedings of the Paris Metric Yarn Congress of 1900, where the members pictured the present Continental chaos in unmistakable terms.

You refer to this congress as follows:

At the recent International Congress, at Paris, held to promote a universal standard of yarn counts, it was agreed by the British representatives that such a universal system should be in metric terms and no other.

The fact is that the two English representatives were sent to the congress with instructions not to participate in the proceedings nor to commit the English Government in any way, but merely to listen, observe and report.

Further on you say:

Considering the conservatism of British manufacturers, the report of the Yarn Congress, referred to, is a striking testimony in favor of the Metric System.

That statement is rather amusing. That congress, with the exception of these two English representatives, was composed almost entirely of members from the Continent. The congress did not represent nor profess to represent British opinion in the slightest degree.

The thirty questions you refer to were proposed by the American Chamber of Commerce, at Paris, which is strongly pro-metric, and answered by the Societe des Ingenieurs Civils de France, which is still more strongly pro-metric. I ask you to publish both questions and answers to show your readers the damaging admissions they contain regarding the fallacy of the metric contention.

I ask you to note carefully the following statements from metric sources as to the present conditions of textile weights and measures on the Continent of Europe, more than a century after the Metric System was founded:

M. Lamoitier, l'Industrie Textile, Paris, October, 1902: Ah! These Americans are not considerate of our feelings and they are right. We are as much in the anarchy of weights and measures for the textile industry as at the time of the Revolution, for we have the denier of Montpellier and of Milan for silk, with the aune as a unit of length.

M. Lamoitier, l'Industrie Textile, Paris, October, 1902: It (a new metric law), would put a stop to the chaos which the Americans ridicule. \* \* \* In short (this for the Chauvinists and consequently for all of us), they would not ridicule us any more. It is not pleasant to be thus continually ridiculed by foreigners, especially when they have reason for doing so.

M. Lamoitier, l'Industrie Textile, Paris, October, 1902: And what do we find here? The yarn count in the north of France is a length and in the centre a weight. What is more, it is a weight for organzine and a length for organzine waste! I will take my oath that the manufacturer of Rouen, if he has not studied each section separately, has no idea what is the standard of Reims or the denier of Lyons or Milan. And on the other hand the manufacturers of Reims and Lyons are likewise puzzled in making comparisons of the diverse numberings of the diverse materials.

M. Desire Ledville, Paris Metric Yarn Congress, 1900: We hope no new burdens will be imposed on the industry (woolen), but if we look the facts in the face we will find that notwithstanding the decree of 1810, and in spite of the serious efforts put forth by the industrial societies by many districts, we still have the ancient units of weights and measures, and we scarcely comprehend each other when we talk of spinning at Reims, Roubaix, Elbeuf, Sedan or Vienne, where the skein still measures 1,420, 710, 3,600, or 1,500 metres.

M. Lamoitier, l'Industrie Textile, Paris, October, 1902: After having established the Metric System is it not truly ridiculous that more than 110 years later we should be still using the English yard, the old or French pound, the denier of Montpellier or of Milan, the ancient aune, the many different skeins, etc.?

M. Lamoitier, l'Industrie Textile, Paris, October, 1902: And this is the reason why they are right in mocking us when they say we do not use the Metric System for numbering yarn and for weaving calculations. Nothing is more arbitrary than to reckon the yarn by the thousand metres and the width of the cloth and the picks of the filling by the inch. It is nonsense and a derision: Note also that while I speak here only of France, I could say as much of all Europe.

M. Boucher-Feyerick, Paris Metric Yarn Congress, 1900: We Belgians export enormous quantities of linen yarn to England, Asia and Egypt, and we cannot adopt the Metric System without risking the loss of this trade. Our customers in the countries named are familiar with the English system of numbering, and if we do not give it to them our competitors will, and we will lose the market. I speak not alone of myself, but of all Belgian spinners. We cannot change.

Baron Cantoni, Paris Metric Yarn Congress, 1900: It is necessary to remember that nearly all the exports of cotton yarn are from England, and we can do nothing if that country does not adopt the system we favor \* \* \* The difficulty will always be in exporting to uncivilized lands, where the people have been accustomed for a hundred years to English measures and numbers, and where articles of cotton are frequently used as currency.

M. Louis Guerin, Paris Metric Yarn Congress, 1900: It is practically impossible for us (the French), to sell linen by any other than the English standard. \* \* \* If the law of 1810, providing for the metric standard, is enforced, we shall be the first to complain of that which we have asked for.

In the face of such admissions as these, it is useless to deny that the attempt to force the Metric System on Continental Europe has been a failure. The partial success attained has resulted only in confusion. The truth about the

Metric System in the textile industry is easily learned. I refer you to the following books, which show the chaos of weights and measures in France, Germany, Austria, Italy and Spain; Lamoitier, *Traite de Tissage*; Riera, *Guia Practic pera la Filatura del Coto*; Giudici, *Tessuti di Lana e di Cotone*; Frowein, *Kalkulator fuer Textilbranche*; Oelsner, *Die Deutsche Webschule*; Sameli, *Das Metrische Schnellrechnen in der Textil-Industrie*. The chaos of standards there described beggars description.

The rulers of France, Germany, Austria, Italy and Spain have been able at the point of the bayonet to force the Metric System partially into the stores and market places, but they have been powerless to make the people work by it. The result is that textile manufacturers buy and sell by the Metric System products that are manufactured by the English and old Continental standards. The confusion is illustrated by the following statement of the operations made by a German manufacturer in estimating the cost of a cotton tape:

Frowein, *Kalkulator fuer Textilbranche*: The reed is gauged by the number of dents per French line. The yarn counts in both warp and filling are English, based on the 840-yard standard. The picks of filling are given as so many per French line. The weight of the warp yarn is calculated in metric grams from the English counts, and extended at a price in marks per English pound. The length of the filling yarn is calculated per 100 meters of cloth from the picks per French inch and the width in French lines. The weight of filling in grams is then calculated from the English yarn count and the length in meters. The weight in grams is then extended at a price in marks per English pound.

Let the British Empire and the United States profit by the experience of Continental Europe. As surely as night follows day, chaos will follow the general introduction of the Metric System into either of these, the greatest nations on earth.

The textile industry supplies one of the three primary necessities of man, which are food, clothing, and shelter. If the Metric System cannot be made the world's textile standard, it is certain that it cannot become the world's single standard of weights and measures.

I ask you to weigh carefully the objections to a disturbance of the Anglo-American system of weights and measures, which with a common law and a common language binds the two greatest nations of the earth indissolubly together.

SAMUEL S. DALE.

Boston, Mass., March 22nd, 1904.



### TEXTILE SCHOOLS IN GERMANY.

Time was when the German textile schools taught practically every branch of the industry in one department. Spinning, weaving, dyeing, finishing, embroidery, etc., all came in for their share of instruction, probably under one teacher and in one room. Those were the good old days of home-spun clothes, when the science of the making was the science of the home. New conditions call for new methods. The hand loom was replaced by the machine loom. The little dye tubs gave way to palatial structures with immense vats. Especially within the last decades have the rapid advances in the textile industry, the numerous inventions, the new processes of manufacture rapidly crowding upon one another, created such complexity and intricacy in all branches of the

textile industry that no school can hope to successfully teach the textile trade in a few courses. It is necessary to learn one thing, and learn it well. Specialization is the keynote of effort. In harmony with this demand, German textile schools are rapidly specializing their courses and greatly adding to the efficiency of their instruction. Some schools have not completed the change. Others are models of the day. To such a modern institution we shall now turn for a closer look at its detailed curriculum of instruction. We have picked out for this purpose the Higher School for Textile Industry at Aix-la-Chapelle.

#### HIGHER TEXTILE SCHOOLS OF AIX-LA-CHAPELLE.

The Higher Textile School of Aix-la-Chapelle is divided into four departments—spinning, weaving, dyeing, and finishing, and has three affiliated courses in: Master studies, burling and darning. Each department has its own curriculum and its own methods of study. The courses in spinning, weaving, and finishing can be completed in one half-year; while the course in dyeing occupies a full year. The instructional force consists of ten regular teachers and five masters. The theoretical instruction of the class-room is supplemented by thorough practical work in the large workshops or actual textile factories connected with the institution. A 100-h.p. engine supplies power for the operations of the factory, in which run all machines appropriate to the four branches of the textile industry taught in the school. Here students are at work passing the raw materials through the successive stages of manufacture. The products are placed upon the market. There are generally 40 to 50 hands busy in the workshop. Local manufacturers, as a rule, contract for the output.

#### ENTRANCE REQUIREMENTS.

For entrance into any of the four departments of the school, proof must be adduced of an education equivalent to that acquired in the common schools. In lack of such proof an examination is necessary in arithmetic and German. Foreigners must show sufficient familiarity with the German language to be able to follow the instruction with understanding. All students must have attained the age of sixteen years. Previous practical employment in a textile factory, which is quite a common requirement in textile schools, is not required for admission into the Aix-la-Chapelle school, though it is strongly recommended. Those who desire such practical experience prior to taking a course are privileged to enter the workshop associated with the institution.

#### CLASSES OF STUDENTS.

Three classes of students are distinguished: Full scholars (*Vollschueler*), who participate in all lectures, and in all practical exercises of their respective courses; practicians (*Praktikanten*), who are engaged in practical employment in the workshop only; and "Hospitanten," or visitors, who attend lectures and other exercises by choice.

#### TIME OF INSTRUCTION.

The courses occupy six months, with the exception of the dyeing course, which, as has already been said, takes one year. The half-yearly courses begin the middle of March and the beginning of October. The yearly course begins in March. Practicians may enter at any time. The curriculums cover twenty-one weeks of forty-four hours each in the half-yearly courses. Daily lectures come between 8 and 12 and 2 and 6 o'clock in the summer course, and between 8, 1-2 and 12, 1-4 and 2 and 6 o'clock in the winter course. Saturday afternoons are free. There are Christmas, spring and fall

examinations, of about two weeks each. Those who desire to take examinations on completing the course may do so, though this is not required, and are supplied with special diplomas showing their rank. Those who take no examinations are merely supplied with certificates of attendance at the school.

**TUITION FEES.**

The tuition fees are as follows: Full scholars (Vollschuler), of Germans, pay 100 marks for every one-half year; foreigners pay 500 marks for the same period. Foreigners are not admitted to the course in designing, nor are they admitted as practicians; German practicians pay 50 marks per month as tuition fee. Visitors, or "Hospitanten," pay 15 marks for every hour per week for the half-year, if German, if foreign, they pay 50 marks instead of 15 marks. In addition to the above fees, foreigners are required to pay 60 marks as admission fees. Tuition fees must be paid at the beginning of a course. Needy students may be relieved in whole, or part, of the payment of tuition fees. Only one course may be attended and paid for at one and the same time.

We are now ready to turn to the four departments of the school and take a closer look at their organization and work.

**THE DEPARTMENT FOR SPINNING.**

This department concerns itself mainly with the spinning of wool. Cotton and silk spinning are studied only as far as they are incidental to wool spinning.

The branches and hours of instruction in the department for spinning are as follows:

Subject.	Hours per week.
Spinning .....	8
Raw materials .....	1
Bookkeeping and professional arithmetic .....	2
Weaving .....	2
Chemistry and dyeing .....	4
Textile engineering .....	2
Drawing and sketching .....	4
Textile legislation .....	2
Practical work in workshop .....	19
—	
Total hours per week .....	44

**SPINNING.**

The eight hours per week devoted to spinning proper include: (a) Willowing, on the various systems, mixing of qualities and colors in threads; (b) oiling (Fetten), purpose and kinds of oils, influence of same on spinning and finishing processes; (c) carding and combing (see illustration of carding room), method of operation, carding machines, difficulties, two and three carding systems; (d) fine spinning (see illustration), process and machines employed; (e) yarn twisting, degrees, directions, spools, machinery for thread-making, worsted yarns, utilization of waste products; (f) utilization of yarns, what kinds for what materials.

**RAW MATERIALS.**

The one hour per week for the half-year devoted to the study of raw materials includes. (a) Kinds of textile fibres, properties of same with special reference to the various kinds of wool, and the best utilization of same; (b) important wool-growing regions of the world; (c) properties and

peculiarities of wools grown in the different sections; (d) trade usage in their distinction and identification; (e) sorting of wool; (f) washing of wool, machines, and processes; (g) drying of wool, systems; (h) shoddy, manufacture of, kinds of, properties, identification and use in trade.

**BOOKKEEPING AND PROFESSIONAL ARITHMETIC.**

The two hours per week for a period of six months devoted to bookkeeping and professional arithmetic cover the following ground. (a) Books most practical in keeping accounts in textile concerns, and arrangement of same; (b) computations on raw materials, quantities required; (c) calculations on oils; (d) calculations on method of producing materials of given weight; (e) determination of weights in yarns, and reduction of yarn numbers from one system to another; (f) calculations on threads; (g) market prices; requirements, production.

**WEAVING.**

The two hours per week for a period of six months devoted to the subject of weaving include the following. (a) Definition of woven goods; (b) classification of same; (c) work preparatory to weaving, spooling, cutting, glueing, building of chains; (d) weaving proper, hand and machine looms, jacquard machines, description of numerous kinds of goods on basis of materials used, colors, closeness of chains, etc.; (e) flaws in weaving, determination of firmness of goods, main localities for manufacture of woven goods.

**CHEMISTRY AND DYEING.**

The four hours per week for the period of six months devoted to chemistry and dyeing include: (a) Fundamental conceptions of chemistry, elements and their combinations; (b) alkalies, acids, salts; (c) study of water, fuels, soaps, cleansing materials, oils, fats, finishing, melting, glueing, and smoothing substances; (d) chemistry of textile fibres; (e) chemical methods for the enhancement of textile fibres; mercerization, artificial silk, silk-wool; (f) carbonization, production of waterproof goods; (g) kinds of bleaching and dyeing methods; (h) production, purity, properties, and application of different colors; (i) influence of washing and finishing materials on colors and on cloth fibres; (j) determination of the properties of cotton and wool in mixtures; (k) study of the most important dyeing and printing machines from the chemical point of view.

**TEXTILE ENGINEERING.**

The two hours per week for the period of six months in textile engineering cover: (a) Most practical power plant for the textile manufacturer, and its most economical operation in the utilization of power; (b) boilers in general, different systems and methods of heating, boiler armatures, supervision, and testing, methods for economy in consumption of coal; (c) motor power, steam engines and turbines; water power, wheels and turbines; electrical and gas motors, determination of their strength and endurance, comparative study of value and application of these different motory agents; (d) factory buildings, different systems of construction; shed and story buildings, their advantages and disadvantages; (e) discussion and comparison of the various factory heating, ventilating, and lighting systems.

**DESIGNING AND SKETCHING.**

The four hours per week for the period of six months devoted to the study of designing and sketching cover the following: (a) Drawing of machines and parts of machines used in the textile industry; (b) drawing of factory grounds and

buildings for textile establishments. When the intricacy and diversity of textile machinery are considered, the four hours per week will by no means be found a liberal allowance.

TEXTILE LEGISLATION.

The two hours per week for the period of six months, devoted to the study of textile legislation, cover: (a) Study of most important laws governing the German industry in general; (b) laws bearing particularly upon the textile industry; (c) relations of employer and employee, Sunday labor; (d) industrial supervision, industrial courts; invalid, accident, and age insurance; (e) regulations governing the erection of boilers and other machinery, the employment of safety devices; (f) laws for the protection of workmen.

SHOPWORK.

The nineteen hours per week for the period of six months devoted to shopwork cover: (a) The erection and cleaning of textile machinery; (b) removal and grinding of carders; (c) methods of mixing, willowing, and oiling of fibres; (d) practical work on running machinery; (e) work in chemical laboratory, study and analysis of materials used in textile industry, oils, melting and gluing substances, water, dyes, soaps, etc.

THE DEPARTMENT FOR WEAVING.

This department of the school concerns itself mainly with the weaving of woolen fabrics, the study of cottons and silks being but incidental to the former. The course in weaving offers a complete and independent study of the subject, but as a special feature of the organization of this department, two other half-yearly courses are associated with the course in weaving proper, namely, the manufacturing and finishing course, and the designing course. These are added for special advanced work for weavers, and must not be confounded with the regular department for finishing, as the curriculum of the two courses in finishing are entirely independent. Moreover, any of the three associated courses in the department for weaving may be taken independently of the other courses. But since the logical order of the courses is: (a) Weaving proper; (b) manufacturing and finishing; (c) designing, the regulations of the schools require those who desire to enter Course 2 or 3 to produce evidence of scholarship qualifications equivalent to the completion of the preceding course or courses.

CURRICULUM IN WEAVING DEPARTMENT.

The subject and hours of study in the weaving course are as follows:

Subject.	Hours per week.
Bindungslehre (Kompositionslehre) .....	} 24
Theory of plain and pattern weaving .....	
Musterausnehmen (Dekompositionslehre) .....	} 12
Study of looms and practical work .....	
Raw materials and spinning .....	2
Professional arithmetic .....	4
Textile legislation .....	2
—	
Total hours per week .....	44

With the aid of the detailed exposition of the various subjects of instruction made in treating the department for spinning it will be unnecessary to explain the scope of any of the subjects given above, as they can readily be interpreted as they stand. The thoroughness and scope of treatment are quite the same in the three other departments as in the case of the spinning course. The class in professional arithmetic,

for example, instead of concerning itself with computations involved in the spinning industry, devotes itself to calculations incidental to the weaving industry. The fundamentals of the various branches are obviously identical for all of the four departments. These being taught, the specialized studies begin.

ASSOCIATED COURSE IN MANUFACTURE AND FINISHING.

As appears from this title, this course supplements the general course in weaving in affording an opportunity for the acquisition of more detailed knowledge of weaving machinery and of the process of cloth manufacture. The following is the curriculum for the course:

Subject.	Hours per week.
General and special engineering .....	8
Calculation and manufacture of samples .....	6
Chemistry and dyeing .....	4
Finishing (very thorough course) .....	8
Practical work in weaving, dyeing, finishing .....	18
—	
Total hours per week .....	44

ASSOCIATED COURSE IN DESIGNING.

This is the second associated course for more advanced study for weavers, and, like the preceding course, occupies six months. Its curriculum is as follows:

Subject.	Hours per week.
Draughting and execution of samples .....	} 38
Development of patterns .....	
Theory and application of patterning .....	
Bookkeeping and arithmetic .....	4
Study of dyes .....	2
—	
Total hours per week .....	44

—Textile Recorder.



WEST OF ENGLAND WOOL TRADE.

J. MACKIE, IN TEXTILE RECORDER.

The past year has been an exceptionally trying one to West of England woolen manufacturers; in fact, to makers of the finer classes of goods throughout the country. It is said by many whose opinions should carry weight with them, that it has been the worst year in the history of the West of England trade. Certainly manufacturers have had more than ordinary obstacles to face in their endeavors to carry on their businesses at a profit; in fact, it has been quite a difficult matter to keep going at all, even at prices which are a fraction below cost.

A good many manufacturers would, no doubt, be glad to feel that they had only held their own during this period of depression just past, for it is safe to say that very few have been able even to do this, and many have experienced the disappointment of a loss on the year's trading, after having worked exceedingly hard, and, perhaps, worried harder, to keep their looms running and their staffs employed. It is enough to dishearten any business man to find at the end of the year that he has neither been remunerated for his efforts, nor for the capital he has employed in his business. This, however, has been no exception among West of England manufacturers during 1903.

The year 1902 was not a good year, and the past year was undoubtedly handicapped to a great extent in following

it. To this drawback must be added the general depression which has prevailed in all trades all over the country, and in other countries in addition. This cause has made competition more than keen, and in order to do any business at all prices have had to be cut down to the lowest possible limit; in fact, they have been lower than ever before, in spite of the fact that wools and yarns have been continually advancing in price. The public favor has also turned away from fine goods, such as West of England makers produce, and tweeds made from cheviots and crossbred wools have been in universal wear, to the disadvantage of the finer goods. West of England machinery is not adapted to the manufacture of the coarser kinds of wool, though one or two manufacturers have laid down new machinery in order to cope with the demand for these goods. Merchants, however, do not care to buy from one district what is the speciality of another centre, and they will go to Ireland for Donegal tweeds, and to Scotland for cheviots. Of course, every kind of specialty is copied in cheap fabrics by manufacturers in certain districts in Yorkshire, and these firms seem to have been the only ones who have been well employed during the year, as the cry has been for low-priced goods.

The weather, too, has had a deterring effect on the woolen trade all through the year, both directly and indirectly, for many who have had the money to spend on garments, would have done so had there been dry, decent weather to encourage people to put on new clothes; but the inducement has been to put on the oldest garments one possesses to paddle about in mud and mire.

The West of England trade depends more on what is cast aside in garments than what is worn out, for the class of individual who usually buys clothes made of the finest material does not like to be seen too many times in the same suit of clothes, nor in the same overcoat. Consequently, the finer the weather, the more the garments are displayed before the public, and the sooner are they cast aside for fresh ones of different pattern.

Novelty has been the demand of the merchant throughout the year when he has been disposed to favor the West of England manufacturer, and he (the merchant), has not been slow to take advantage of the prevailing slackness of trade to grind the manufacturer down to the lowest farthing in arranging prices. Those manufacturers who have depended on the plain trade have been very badly off, for blacks and blues and other plain goods have had a very dull time. Fancy overcoatings and riding tweeds have been the best selling goods the West has produced, but flannels have not been nearly so successful as formerly, partly owing to the weather; and partly because the tweed suit has largely taken the place of the flannel suit, which soon gets to look raggy and untidy. There have been a few West of England tweeds selling for suitings, but merino wools do not lend themselves to such bright colorings as do Scotch wools and crossbreds, for the excessive milling they have to undergo robs them of their lustre to some extent.

The West of England manufacturers have shown themselves ready and capable in dealing with such a crisis as the trade has undergone, for never before have such efforts been made to get orders. No amount of trouble and expense has been spared in making new ranges and in bringing them to the notice of the buyers. The depression has, at least, had the effect of rousing manufacturers up a little, and has taught them a lesson on the necessity of energy and resource in critical times which will not be forgotten when trade gets better again, as it is hoped it will do very soon. The prospect is

certainly brighter, for goods made from fine wools are coming rapidly back into favor.

### STORING WOOL.

In a special report of the United States Department of Trade and Commerce on the "Warehousing Industry," some interesting information is given on wool storage in the United States, and in Australia.

Marketing wools at the producing end of the trade does not require much provision for storage in the United States, especially in the Territories. In Miles City, Mont., where the woolgrowers and merchants had built a large frame warehouse for storing wool, a fire occurred, in which the establishment was destroyed. In its place a large brick warehouse was erected the following spring and operated for two years, after which it was sold to the Northern Pacific Railroad Company. Prior to this sale free storage was given during the wool season, and when the woolgrower had sold and the purchaser wished to ship his wool it was compressed for him, and the baled wool was loaded into cars ready for billing over the only road running into the city. Charges for baling and loading were 10 cents per hundred pounds, paid by the owner or the woolgrower insuring his own wool.

Under the management of the railroad company the baling charges have been reduced to 5 cents per hundred pounds and the limit of free storage is reduced to ninety days. Here the storage is of course made the means of accumulating the stocks for freighting over the railroad, which affords such facilities for reaching market. As a rule, however, very little wool is stored in Montana. The buyers are eager to take it as soon after shearing as is practicable. At Great Falls and Billings wool is brought in from the shearing places, and buyers from the East bid on it. It is baled and made ready for shipment in order to save freight.

In North Dakota the State decrees two or three points where sale days are announced. To these places sheep men bring their wool, and buyers come and bid for it. In Wyoming the largest wool-selling point is Casper, and the buyers gather here about the time the wool is sheared and purchase as fast as it can be had. It is thus apparent that only a short time can elapse between the bringing of the wool upon the market and its shipment to outside points. Shipments are usually made to consignees or dealers who sell to manufacturers. Scouring mills have been started at several points in the West, but as a rule, have not been a great success, the railroad companies preferring to handle unscoured wool, owing, presumably, to the shrinkage in weight of scoured wool from 50 to 75 per cent.

In the United States comparatively little wool is graded and classified before marketing; the sheep owner, having several grades of wool in his flock, dumps it all into bags and markets it in that condition. Wherever it is shipped it has to be opened and the different grades taken out and put by themselves in large piles; that is, assorted into grades representing perhaps twenty to thirty different clips. In this way each kind of wool loses its identity, and subsequent sorting adds to the expense in the preparation of it for the manufacturer.

In Australia a very different process is followed. Most of the wool is graded and put into proper shape so that the buyer can see at a glance what it is worth. The fleeces are skirted by taking off lower grades and the rough ends of the wool, leaving it free, so that its main quality can be



recognized without further assorting or grading. The difference in the two methods accounts for a great difference in the collateral value of the two kinds of wool when it comes to lending for wools in store.

The general practice in wool storage, from the producers' standpoint especially, is set forth in the following communication from the American Sheep Breeding Company, under date of May 1st, 1903:

As to storing the wool, in some of the States at the large shipping points there are warehouses where wool is stored, and the sheep men get the banks to make advances on it; but there is not so very much of this done, for when the sheep man wants to await a higher market he generally ships to a commission merchant and orders the wool held until he thinks he can secure the money. The commission man generally advances up to about 60 or 70 per cent. of the value of the wool, charging him the current rate of interest on the advance. Some commission men will advance up to 90 per cent., which virtually means that the wool has been sold. Sometimes they make such large advances on the wool, in order to secure it, that when the wool is actually sold they do not get as much as the advance. If the sheep man is responsible, they try to get what is known as a "drawback" and have him make up the difference, but some of them do not ask for it, preferring to pocket their loss. Sometimes when the sheep men want to hold their wool over they keep it right on their ranches, simply putting it in bags and housing it if they have buildings for it. Some of them leave it out in the open, putting tarpaulins over it to shed the rain. Of course, wool ought to be housed and kept moderately dry when in storage. There is danger, however, of the wool getting too dry and moths working into it, especially in warehouses where there are a good many clips of wool. On the other hand, it should not be too damp. In the average wool warehouse in the cities there is a certain temperature kept up. A little moisture is necessary to keep the wool in good shape. It is not a very safe proposition to keep wool more than two years in an ordinary warehouse in the city, for the moths begin to work about that time.

The statistical position of this commodity in the markets of the United States at the beginning of each year since 1899 is given herewith, from figures prepared by the American Wool Manufacturers' Association, of Boston, the chief centre of wool storage.

#### STOCKS OF WOOL ON HAND IN THE UNITED STATES, JANUARY 1.

KINDS.	1899	1900	1901	1902
	Pounds	Pounds	Pounds.	Pounds.
Domestic wool	225,037,363	123,348,500	204,345,500	139,519,718
Foreign wool	66,131,327	25,265,000	29,483,500	13,619,600
In bond	57,924,367	44,958,660	54,163,204	31,064,222
<b>Total</b>	<b>349,093,057</b>	<b>193,572,160</b>	<b>287,992,204</b>	<b>184,203,540</b>
Available supplies	667,109,028	578,084,304	650,054,842	610,402,949
Per cent. of supplies on hand	52.33	33.48	44.30	30.17

Stocks of wool in the world's chief points of supply outside of Europe are reported for twelve years, 1896-1902.

#### STOCKS OF EXTRA-EUROPEAN WOOLS ON DECEMBER 31, FOR ELEVEN YEARS, IN THOUSANDS OF BALES.

[From annual report of Helmuth, Schwartz & Co., London].

STOCKS	1902	1901	1900	1899	1898	1897
Australasian	59	124	256	75	85	92
Cape	11	14	37	19	12	11
River Plata	11	26	19	21	8	10
Other sorts	36	83	105	70	120	100
<b>Total</b>	<b>117</b>	<b>247</b>	<b>417</b>	<b>185</b>	<b>225</b>	<b>213</b>
STOCKS.	1896	1895	1894	1893	1892	1891
Australasian	88	65	103	67	60	84
Cape	18	20	33	19	16	21
River Plata	20	29	27	33	16	11
Other sorts	92	78	96	86	64	75
<b>Total</b>	<b>218</b>	<b>192</b>	<b>259</b>	<b>205</b>	<b>156</b>	<b>191</b>

Extra-European wools include chiefly what is known as the colonial supply, coming primarily from Australasia, the Cape of Good Hope, the River Plata region, and various other sources. For all of these varieties London is the chief distributing centre, though nearly all of the leading northern European ports handle this commodity in large quantities. On this account the stocks of wool imports at the end of each year may be taken to represent the major portion of the quantity in storage in Europe, as stated in the accompanying table.

#### FIXING DOBBIES.

I propose in this discussion to take up the fixing of dobbies. This is a subject that has not been written much about, therefore I will make the same as plain and as concise as I possibly can, and at the same time try and cover the ground thoroughly.

Dobby Head Fixing.—The greatest cause of trouble with a dobbie is mispicks; that is to say, through some part of the dobbie not working as free and as well as it ought to work, mispicks are often made in the cloth. This is generally the greatest fault that can be found with dobbie cloths. The writer could relate instances where cloth has been rejected because of these mispicks, but this is not the purpose of this discussion since we know that these conditions do exist, but rather to pay our attention to the causes of these mispicks and their remedies. For those that have not had anything to do with dobbies, I will explain what we mean by mispicks. There are many kinds of mispicks, or rather many bad places in the cloth called mispicks. If one harness shaft should not raise when it ought to, or if a harness shaft should raise when it ought not to, these will cause mispicks. From these two definitions of a mispick any one connected with the weaving will understand what is meant by this term.

Mispicks result from various causes, a number of which will be enumerated and the remedy for same will follow.

Pegs in Chain Bar Not Being Set in Bar Straight.—On double action or double index dobbies, there is a finger for each jack hook. These fingers are somewhere about  $\frac{1}{8}$  of an inch wide. There is a groove under each of these fingers where the peg passes under. This is so that the-peg will not slip from under the finger and not get in between the fingers, but if the pegs are not put in the chain straight at first the end of the peg will get in between the fingers. The result of this will readily be seen. The finger that should

raised will not be raised, and a mispick will result through the harness shaft not being raised. To prevent this the chain should be put on the barrel and every bar examined, and where pegs are not straight, these can easily be straightened. Prevention is better than cure.

As stated at beginning, this has reference to the double dobbie. The single index dobbie has a wider and heavier finger, the finger being at least  $\frac{1}{4}$  of an inch thick.

**Chain Barrel Set too High.**—The chain barrel should be set just high enough so that when the pegs in the chain raise the fingers in the dobbie, the catch on the hooks will be over the knife sufficient for the knife in its outward movement to catch them and so raise the harness. When a chain barrel is set too high, it will cause the fingers to jump and this often causes mispicks. The remedy is obvious. Lower the chain barrel. Many fixers, to prevent the fingers from jumping, hang a weight on the fingers. This should not be done, as in the majority of cases it is caused by the chain barrel being set too high.

**Chain Barrel Set Too Low.**—If the chain barrel is set too low, the result will be that the hooks do not get low enough to get fully on the knife. As the knife moves forward the hooks not being fully on, knife will slip off. Remedy: Raise the chain barrel.

**Chain Barrel Not Set on Time.**—The chain barrel must be set so that the pegs in chain bar will be directly under the fingers just before the knife comes in contact with the catches on end of jack hooks. The reason for this is clear. The fingers must be changed and the hooks in their right positions for the next pick before the knife comes out to raise the harness required. A safe rule to follow in ordinary cases is to have the knife about  $\frac{1}{4}$  of an inch from the catch on hook with the pegs on top. If, for any cause the knife should be set more than  $\frac{1}{4}$  of an inch from the catch on hook, the chain barrel will have to be set to correspond.

There are two methods in general use for driving the chain barrel. One is with a pawl on rocking arm in front of dobbie, the other through a worm and gear on back end of chain barrel shaft. In the first method the timing can be regulated by the ratchet on front of chain barrel. The pawl engages this ratchet and turns over chain barrel. Let it be understood by this that the writer means the actual turning over of the chain barrel to get it over on time and not after having been turned over.

In the second method great care is required to set the chain barrel on time. The worm that drives the worm-gear on back end of chain barrel shaft must be set so as to give the chain barrel its lowest movement when the pegs are passing under the fingers. This will give the fingers and hooks time to change and get to their right positions for the next pick. It will readily be seen what would be the result if the barrel was driven at its quickest time when the pegs are directly under the fingers. The hooks would not be in their right positions when the knife comes forward, consequently a mispick would result, or rather, mispicks would result.

**Check on Wrong Time.**—This check which can be called a star wheel, is fixed either on the back or front end of the chain barrel shaft. A small roller is held against the wheel by a spring which holds the chain barrel in position after it has been turned over by pawl. From this it will be seen that the chain barrel can be set in any position after being turned over by the pawl.

The right position to set the barrel it will be remembered, is to have the pegs in chain bar directly under the

fingers just before the knife comes in contact with the catches on hooks. When the check does not hold the chain barrel in its correct position as described, some of the hooks do not catch on the knife and the result is a mispick. The remedy for this is to have the chain barrel set so that the pegs will be on top and directly under the fingers; then set the check to hold chain barrel in this position.

**Weak Clutch Spring on Chain Barrel.**—When a worm and gear is used to drive the chain barrel a spring clutch is used. If the spring is weak the chain barrel is not held in its correct position, consequently when barrel has been changed a mispick often results. The remedy for this is to move the collar that holds spring on shaft nearer to the barrel and this will strengthen the spring.

**Worm Knife.**—If the knife is worn the hooks will catch, but will often slip off before the knife gets full out. On some dobbies the knife is made so that it can be turned when worn on one side. This will have to be done if the hooks slip off as mentioned. In other cases the knife can often be ground down. This will have to be done the full length of the knife, and not only just where the knife is worn. The knife would then have to be set again in the right position. This dropping of the harness shafts after having been part raised, often causes the shuttle to fly out; also yarn on that harness shaft to be broken out.

**Too Much Play of Knife.**—If the knife hole is worn this will cause too much play and mispicks will result occasionally. The only remedy is to replace with a new knife.

**Knife Hook Worn.**—This will give practically the same result as the preceding. The remedy would be to replace with a new knife hook.

**Harness Levers Too Tight.**—If the harness levers are too tight, the harness shafts will not get to their right positions on time; the result is a mispick. The harness levers should be just tight enough to drop of their own weight before the harness is connected to them. When starting up a new dobbie, the harness levers will be apt to rub against each other so that the first thing that is requisite is to oil the dobbie, taking care to oil the harness levers. If after this the harness levers are too tight and do not drop of their own weight, loosen the set-screws on each side of the frame of the dobbie. Try the levers by hand, and if found to work all right after loosening up the set-screws, fix them in this position by the nut on set-screw. Do not have the harness levers too loose.

**Jack Hooks Binding.**—If the jack hook is too tight on the jack where the hook is connected, it will cause the hook to bind. To ascertain whether this is the cause or not, raise the hook up and let it drop of its own weight. It will at once be seen whether it is binding or not. If it is binding, the remedy is to open out the end with a screw-driver, then again try it to see if it will drop of its own weight.

Care is required in opening out the end with the screw-driver, for if opened out too much the end will catch on the next jack, with what result can readily be seen.

**Pin in Pin Board out of Place.**—In double action dobbies there is a pin between each finger to keep the fingers straight. If the pin is out of place, that is, not exactly between the fingers, the fingers will rub against them and bind. The remedy is to fix the pins so that they will come exactly between the fingers.

**Chain Bar Too Short.**—Occasionally a chain bar is a little shorter than it ought to be. This allows the bar to slip about a little on the barrel, and sometimes causes a

peg to get between the fingers. This will, of course, make a mispick. The remedy is to take out and replace with one of right size.

**Barrel Not Turned Over Far Enough by Pawl.**—If the pawl is not set on the rocking arm in its right position to turn cham barrel over far enough, the pegs in chain will not be in their right position for the next pick, the result is a mispick. Remedy, add a little more leverage to pawl. By watching the cham barrel when being turned over it will readily be seen if this is the cause of the mispick. Often the chain barrel is not turned over far enough, but the check forces it to its right position, but if the check should fail to do this a mispick results.

**Chain Stuck.**—If the chain should get stuck from any cause, the chain barrel will not turn, and mispicks will result. Sometimes from this cloth will be woven, but it will be readily seen that the cloth will bear no resemblance to the original cloth, and the cloth at that part will be spoiled. Of course the same will have to be picked out. One of the principal causes of this is a chain bar that fits tight in the chain barrel and instead of dropping from the barrel is taken around with it and the chain gets stuck. To prevent any breakages, on some of the dobbies there is a chain in the pawl which will expand when this happens.

When called to a loom for a mispick it is advisable to ascertain, if possible, which of the harness shafts it is that is not working correctly. This can often be done. For example, suppose a warp sateen strip is being made on a plain ground and a mispick was taking place occasionally. It will readily be seen which of the harness shafts are weaving sateen. The question will then be, which of these harness shafts is making the mispick. By examining the strip the thread that is not working right can be picked out and the harness shaft will then be found. If the mispick happens only occasionally, it may be difficult to find out right immediately what is the cause of it. If the fixer has any reason to suppose that it is in hook, it is advisable to take a piece of chalk and mark the end of the hook, start up the loom and watch the hook work. The reason for putting chalk on the end of hook is because if this is not done it is a difficult matter to watch the hook, the chalk simplifies this considerably.

Another common cause of mispicks or broken picks is poor filling. Often the filling will break at the beginning of a pick and catch again, this shows a broken pick in the cloth. The cloth will be all right at both sides, but in the middle the broken pick will be clearly seen. This is often the case in very fine work where the filling is tender, and causes a great amount of trouble.—“A. M. C.”, in Southern and Western Textile Excelsior.



### SPINNING AND WEAVING ASBESTOS.

Asbestos is one of the most remarkable substances found in nature, and is classified by geologists as a peculiar species of the hornblende family of minerals. Its composition is chiefly silica, magnesia, alumina, and ferrous oxide, and it is consequently unconsumable; hence its name. The fibres formed by the chemical combination above given are perfectly smooth, and in this respect are different from all other known fibres. Paradoxically, it is the link which completes the chain between the vegetable and mineral kingdom, and is, in fact, a mineralogical vegetable possessing the curious properties found in both, for it is at once fibrous and crystalline, elastic and brittle, heavy as a rock in its

crude state, yet as light as thistledown when treated mechanically. Added to this, its fibres, soft, white and delicate, have, by their inherent quality of indestructibility, withstood the action of the elements since the world began; and through all the countless ages, during which the hardest rocks surrounding it have been reduced, this mineralogical mystery has remained intact, having successfully resisted the assaults of fire, acids, and time. Asbestos is found widely distributed throughout the world, although the principal supply of asbestos, suitable for manufacture, is found in Canada, about 75 miles from Quebec.

The Italian mineral has a fine, silk-like fibre, but is lacking in the essential characteristic of strength. The product obtained from South Carolina has a soft, woody, yellowish fibre, which quickly powders under pressure. The South African asbestos, as one might naturally infer, is of a dark slate or black color, with exceptionally long, strong fibres, but owing to its stiff and horny texture it cannot be manufactured into a fine fabric; hence the superiority of the Canadian asbestos. The mining of asbestos differs radically from the mining of other minerals, since no shafts are sunk, but excavations are made in the open, somewhat after the manner of a stone quarry. Canadian asbestos, however, is found in narrow veins or seams about an inch and a quarter in thickness, and embedded in rock, which is easily severed from it. The strata of asbestos, which may be vertical or horizontal, are found in practically detached deposits, are as elusive as those of zinc-bearing ore, and can only be determined by exploring for them. The rock to which the mineral is attached shows on fresh fracture a serpentine mineral of a green shade, containing finely-divided particles of chromic and magnetic iron. The asbestos on cleavage presents a brilliant, dark-green surface by reflected light, but the fibres after they are detached are perfectly white. The act of separating the mineral from its matrix of rock is termed “hand cobbing,” and after this process the mineral is shipped to the various factories where it is to be worked up.

The process of manufacture begins by placing the asbestos mineral in a chaser mill, a machine comprising a rotating edge wheel revolving at the end of a radial arm in a trough, which crushes the mineral, dividing the fibres without destroying them. The result is a snowy mass of mineral wool ready for winnowing, a treatment for removing the minute particles of rock still clinging to the fibres very much like the winnowing of grain. This is done by means of a blast of air, which separates and blows away the foreign matter, leaving the fibres in a refined state and in proper condition for the third stage of manufacture. This is termed air fibre raising, and, as the name implies, the fibres are raised by a current of air produced by a blower of large dimensions through a vertical pipe inclined at a small angle. The object of this procedure will be obvious when it is stated that the air blows across the fibres causing those of coarse texture to be deposited in a compartment near the bottom of the pipe. The medium fibres will be projected a little higher, and these will fall into a second department. The finer fibres will be blown to a higher point, and there collected, while the dust will be carried to the top and deposited. The fibres are in this way sorted into different lots according to their texture, and are then ready to be made into the articles for which they are best adapted. The stuff now goes to the carding room, just as though it were genuine wool sheared from a sheep, or pure cotton fresh from the plant on which it grows, instead of a mineral substance that in its original state was mined like a lump of anthracite coal.

A carding machine, similar to that employed in preparing wool, cotton, or flax fibres before spinning, has been adopted by asbestos manufacturers. The problem of mechanically combing these fibres was no small one, and the carding takes place in a machine having a large central rotating cylinder covered with card clothing—that is, strips of leather set with projecting wires termed teeth. Around the main cylinder there are a number of smaller cylinders, also provided with card clothing which engage teeth of the central cylinder rotating in the reverse direction. This machine straightens out the fibres and lays them parallel. After passing through the first breaker, they are fed into a second carding engine or breaker, which is set to a finer gauge than the preceding. A third and last carding process takes place in a machine called a finisher or condenser, when all the irregularities are eliminated, and the fibres are stripped from the final cylinder by means of a fly-comb. At this stage they are delivered on a travelling apron or endless band, and gathered into rows by reciprocating scrapers. They are then condensed, and the process is continued in the coiling cans.

In spinning the yarn the rovings are delivered to spindles on a carriage something like a mule, but the fibres are only twisted. The frames do not draw the yarn, and no strain is placed on it until after it is twisted. This brings the manufacture of the fire-proof material to a point where it is to be woven into cloth, packing, or other forms; for asbestos is used for diverse purposes. While adulterated asbestos may be used in some of the mechanical arts, for theatrical hangings its purity should be 100 per cent.; it then forms one of the safest barriers against the calamity of fire. As a matter of fact, much of that which is termed commercially pure asbestos cloth contains 5 to 20 per cent. of combustible matter, but absolutely pure cloth may be obtained where price is not a primary consideration. Not only is purity essential in asbestos cloth where used for protection against fire, but strength as well; and after asbestos is subjected to a high temperature it has a tendency to powder when, owing to its weight, it may break through and its utility be impaired.

One of the leading manufacturers has made an improvement in weaving asbestos cloth for theatre curtains; it consists of two strands of asbestos spun around a strand of high-temperature-melting brass wire, so that the wire is completely embedded and concealed. These asbestos metallic strands form the warp, so that the threads run the long way of the cloth when finished. The weft is made of plain, pure asbestos. Such a curtain will stand well under a severe high-temperature test without breaking.—Southern and Western Textile Excelsior.



### SOUTH AFRICA AS A TEXTILE MARKET.

The "Report on the Textile and Soft Goods Trades of South Africa," by S. W. Whitam, special commissioner for the National Industrial Association of England, has been published. He visited Capetown, Johannesburg, Pretoria, Bloemfontein, Pietermaritzburg, Durban, East London, King William's Town and Port Elizabeth, and had little reason to complain of his reception by the chambers of commerce and individual mercantile houses. With few exceptions, they were in full sympathy with the objects of his mission, namely, the promotion of the British export trade with South Africa and the recapture of that part of the textile trade which has gone to Continental manufacturers. The principal commodities comprised in the scope

of his inquiries were Yorkshire goods (wool, woolen and worsted), carpets and rugs, printed cottons, flannelette, cotton blankets, hosiery and underwear, felt hats and caps, and the various articles for native consumption known generally as "Kafir truck." The impression left by his narrative and by his summarized conclusions is that, in spite of very alert and persistent competition from the Continent of Europe, British manufacturers are, on the whole, fairly holding their own in the South Africa colonies. In the better sort of men's and women's clothing, Yorkshire, the west of England and the south of Scotland hold the field; in corduroys and "moleskins," and in domestic cottons Lancashire is unbeaten, and, with three important exceptions, foreign manufacturers have the advantage only in such "lines" as may be fairly accounted for by the distribution of industry or other special reasons. The three important exceptions noted are (a) printed cottons, (b) cotton blankets and rugs and heavy flannelettes generally, and (c) workmen's cotton clothing, such as blue jeans and denims and cottonades—heavy cotton goods made to resemble ordinary woolen or worsted suitings.

With regard to the printed cottons, Mr. Whitam found that the Germans and Dutch have a complete monopoly of a very large branch of the trade, namely, the prints worn by the Boer women and children. These are heavy and strong cotton fabrics, made to wear and wash well, dyed with "pure indigo," so as to withstand the action of the powerful sun, printed with a neat and pleasing pattern (small styles) in such a way that no amount of washing or exposure will cause it to run or fade, and offered for sale in suitable qualities and widths, and at prices to suit everyone. The demand for these prints is said to be enormous and constant, and at present the field is held exclusively by a print known as the H quality "Deutsche Blandruck," and by the best Dutch prints. This appears to be a matter deserving the careful attention of our calico printers. Equally, if not more important, is the trade in cotton blankets, which until seven years ago were imported only from this country, and are now, according to Mr. Whitam, almost entirely of German and Belgian origin. These blankets are of two kinds, the one made of unbleached cotton, with a colored heading, the other made with colored yarns, woven into a bright and showy pattern. They are raised on both sides, and are said to be more fluffy or wooly and made in more convenient sizes than similar blankets manufactured in England. Almost every Kafir in South Africa has one of these blankets, and in view of the immense demand for them. Mr. Whitam thinks that Lancashire manufacturers would do well to find out why the orders go to the Continent. In the cheaper class of flannelettes, again Germany appears to have ousted us in South Africa. The German flannelette is said to be preferred because of its weight (or apparent weight), its durability, its "soft-handling" finish, the attractive colors and patterns in which it is woven, dyed and printed, its liberal width (the average circumference of the Boer women exceeding European standards) and its cheapness. In the better qualities English flannelette more than holds its own, but the demand for the cheaper sorts is enormously greater.

Workmen's overalls and cheap cotton clothing are largely imported to South Africa from the United States, and America competes also to some extent in cotton sheetings and in sail and tent cloth of cotton, linen and flax. But except for the workmen's clothing, in which they have the advantage of an immense home market with similar needs, the United States has not yet proved a very serious competitor in the textile trade of South Africa.

### WHAT OF THE SMALL WOOL MANUFACTURER?

We live in an age of big things. Big organizations and "combines" seem not unlikely to sweep the smaller concerns either out of existence or into their own gigantic nets. The woolen manufacturing industries have not yet experienced much of combines and trusts, and there does not seem any immediate prospect of the creation of such organizations. The nearest approach to such monopolistic trading in woolen circles is the Yorkshire Woolcombers' Association, which, however, has thus far offered little inducement to the further welding together of independent firms. Moreover, it is now an accepted fact that the general public do not like the trusts and combines, and the fate of the small trader, which was at one time said to be sealed, is now much more hopeful than of late; and if he can but hold his own for a little while longer, it is not unlikely to become yet more assured. Nevertheless, the small mills feel acutely the competition of the larger concerns, although these cannot be described as "combines;" and whereas once upon a time there were quite a number of manufacturers who owned but a few looms, and made only a few pieces of cloth every week, which they sold without difficulty, to-day there are very few such tiny concerns. The development of the fancy trade in woolens and worsteds has largely caused their disappearance. When the woolen trade was almost entirely confined to plain goods (such as broadcloth, beavers, doeskins, etc.), these small men were always certain of their stock—even if they accumulated any, which was not often; for there was no continual changing of colors and designs as at the present time. Men used to be able to start in business as manufacturers on their own account with little capital which they had managed to save out of their personal earnings, and from this class have sprung many of our older manufacturing firms. These men, who had learned manufacturing by actual work at the loom, became often large employers of labor and successful business men, whose practical experience served them well in dealing with the operatives they employed, and with the problems of cloth manufacture. Having nothing to depend upon but their own efforts and energy, they were far more likely to succeed than many of those who came after them and found businesses and capital ready to hand, which their fathers and grandfathers had made by strenuous and intelligent work. It is thus a legitimate subject for regret that so few men of brains are able to start woolen manufacturing to-day with what little capital they have managed to save from their weekly wages; the industry is the poorer for losing these valuable recruits.

Although the very small manufacturer, with his two or three or a dozen looms, is no longer with us, his fellow of thirty or forty looms may still be found. Unhappily, however, he stands no great chance of survival. At the best of times these small firms feel the keenness of competition, even when the small orders that big firms sneer at when times were good, are finding their way into the smaller mills. But when things are quiet, the larger mills are glad to secure these orders—which they can do by cutting in price. Thus small and big orders are swept into their nets. In woolen manufacturing much depends upon the turnout of a mill, and it stands to reason that the firm which can produce 200 pieces per week is better able to do things much lower in price, and at the same time make a profit, than the firm turning out only 100 pieces per week, the cost in the one case being by no means double that of the other. The only chance for small mills is to specialize, producing fabrics upon which they can put a good profit. When they try to compete with

larger firms on goods which almost anyone can make, their position becomes hopeless. Merchants, while not too kind to small firms, tolerate them for their own particular ends, but lose no opportunity to grind them down. They take liberties with small firms which they dare not do with big ones; for if one of the small concerns sells goods where they think it ought not, they cast it off light-heartedly, while winking at the same practices by an influential house. In the matter of terms, where the big firms can fix and insist on their own dates of payment, the small firm has to take what is offered. Also, merchants are getting more and more averse to giving appointments to small manufacturers, as they like to see a large variety of ranges when they do take the trouble to go through a selection. A possible remedy is to be found in combination, reasonably carried out. For instance, there are many districts where co-operation of the small firms making much the same goods would enable them to turn out their good so much cheaper than they would be in a more favorable position in the market. They could concentrate their different departments and have one dye-house for all the mills, one mill for one class of goods, another for another, and so on. The objections advanced against "combines" would not apply to co-operation on the lines thus indicated.—Textile Mercury.

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### MR. TARTE AMONG THE COTTON MEN.

The following extract from one of J. Israel Tarte's recent speeches throws a side-light on the tariff history touching the cotton trade:

Mr. Tarte assured his hearers that the Canadian manufacturers were prevented by the tariff from giving their men as good wages and as favorable hours as Americans. He told a picturesque story of his relations with the cotton mills of Valleyfield. "I ran in Beauharnois, and the cotton people did everything possible to defeat me. Everywhere I went I was followed by wagon loads of cotton employees, who made a noise at my meetings. It was not pleasant, I assure you. I was defeated, and I was very angry. Then Mr. Fielding, Mr. Paterson and I started in on a revision of the tariff, and when it came to cotton I wanted the duty raised.

"When we came to discuss the matter in council, Sir Richard Cartwright turned to me, and said:

"Tarte, are you drunk or crazy? Did not those cotton people do all they could to defeat you?"

"So they had, but meanwhile I had been looking into the cotton industry, and Mr. Gault and some others had come and asked me if I were going to take my revenge, or if I would treat them squarely, and they had shown me that the cotton industry needed more protection."

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### WORSTED YARN SPINNING.

The Bradford, England, correspondent of the Textile Manufacturers' Journal writes that great interest is being shown in Bradford in the subject of mule-spun yarns against that spun on the cop frame. It will be remembered that recently a conference took place between Bradford combers, spinners and manufacturers to try to solve the question why so many French dress goods were being sold in British markets, and there was a unanimous verdict that the secret of the Roubaix manufacturer lay in his using mule-spun yarns in preference to everything else. It must be said that Bradford manufacturers have approached them so far with skepticism.

English yarn-spinning machinists are still busy perfecting spinning frames, and there has been lately put upon the market two new forms of fly-spinning machinery. A new form of ring spinning is being adopted in a mill at Keighley and meeting with unique success. It is claimed that it combines many of the advantages belonging specifically to mule-spun yarns, while the rate of production, which is always a good deal less on the mule, is about equal to that of the cop frame. The principle of this new machine is a combination of a live, or revolving ring and revolving traveller. The effect, it is claimed, is to produce a very soft or slack twisted yarn of any count desired. This will be a great advantage to manufacturers, enabling them to regulate to a nicety their yarns as regards twist. The yarns can be spun with equal facility with or without oil, while a further advantage, the inventor asserts, is that on this principle it is possible to spin a 60's yarn from an ordinary 60's top.



### BRITISH AND FOREIGN COTTON TRADE.

In the economic section of industrial history, we have been occasionally warned by well-informed writers that among the grave questions of the future will be: What must we do in order that we may continue to obtain trade and wages for our increasingly congested populations? Also, what must be done to maintain our home markets and profitable exchanges and to secure Colonial markets? The queries are of vital importance to Lancashire, and particularly to those large groups of working-men, who, under the spell of the Cobden Club, have raised their voices against any proposed change in the policy of Free Trade. One is driven to wonder whether the cotton operatives in particular have ever calmly reviewed the relative position of the trade by which they obtain their livelihood. Even if the facts did not exactly convince them that a national system of free imports is not necessarily the most profitable policy for us to pursue, they would at any rate justify an enquiry into the wisdom or folly of our present fiscal methods. For the past twenty years our great cotton industry has been practically at a standstill, while important advances have been made in the same trade by our foreign rivals. A brief survey of the cotton-spinning business of the world may enable us to see, to some extent, why that of Great Britain has not been able to record any progress worth speaking of.

Perhaps there never was a time when it was more necessary that we should take a wide survey of the position of this valuable industry. In the first place, it is many years since those who spin our cops and weave our cloth were threatened, to such an extent as at present, with hard times. For another thing, everybody connected with this important branch of England's industry must be anxious to know how Mr. Chamberlain's contemplated fiscal changes are likely to affect its supremacy. The leaders in Lancashire, both masters and men, have already concluded, with singular emphasis, that any scheme of protection, especially if involving the taxation of raw material, would speedily bring about their ruin. Putting aside, however, any question of free trade or protection, it is clear from speeches that have been recently made in cotton circles, that fears for the future of the British textile industry were never so rife, never so emphatic, never so pessimistic; and it will be found that these fears are strongly supported by statistics in relation to the cotton-spinning industry. It has of late become an open secret that our supremacy as makers of yarn has come to be seriously

menaced. How to avert the probability of a gradual sinking is now, or ought to be, occupying the minds of the responsible leaders of the industry. Years ago Lancashire—the greatest industrial area of its size in the world—turned out more cotton goods than all other countries combined. But this can be said no longer; for, as a matter of fact, we have lost ground, and are gradually losing yet more; in proportion to our former progress we have been getting behind for the past twenty years.

Reading between the lines of semi-official statements, it appears clear that the industry is not regarded as being in a safe or happy condition—many employers of labor are very doubtful about its future. A few weeks ago a Blackburn cotton spinner lamented that, apart from the Imperial Mill, there had not been a spinning factory erected in that metropolis of mill-workers during the past twenty-five years. It is quite true that new mills have been built in other places, notably at Bolton and Oldham; and from this fact the inference is too readily drawn that our cotton trade still shows signs of healthy development. But this is hardly correct. It must be remembered that, while new factories have been put up, old ones have been stopped and the profits of others reduced, and that the business captured by the newer and better-equipped mills has been lost by the oldest at the other end of the scale, which have found themselves without funds for the renewal of their machinery.

Now Mr. C. W. Macara estimates that over 3,000,000 persons are dependent on our textile industry; that £100,000,000 is invested in it; that we pay £35,000,000 a year for raw material; that we produce annually over £90,000,000 worth of yarn; that we pay in wages and for other things necessary and allied to the manufacture of cops, £40,000,000; that of our annual output of £90,000,000, about £70,000,000 is exported. It should be remembered, moreover, that our cotton trade involves the biggest yearly item in our gigantic import and export dealings. We have, therefore, much at stake, and the slightest reflection concerning these figures should make it unnecessary to emphasize the importance of any endeavor to realize our position in the world's race for markets—to ascertain whether we are losing or gaining. For the past fifteen years, again and again have warnings as to the future of Lancashire's enormous cotton trade been sounded in this journal; yet both masters and men still show a disinclination even to consider the present fiscal system.

In the first half of the nineteenth century, we were fifty years ahead of all competitors in cotton spinning, which was due, not to free trade (which did not exist at that time), but to the fundamental inventions of Kay, Hargreaves, Arkwright and Crompton. At the present time the world's competitors are in front of us; and a very serious point to be considered is that, while we are making little or no progress, they are forging ahead, in some instances alarmingly. If it can be shown that foreigners are making such advances in the manufacture of cotton goods that they may soon be able to supply their own wants, and afterwards will seek markets outside for their surplus stocks—then very plainly it will become more and more difficult for us to find a place for our exports, valued at £70,000,000, which is more than three-quarters of our production. This is a serious matter, not only for those directly concerned, but for the country at large. It means that for the maintenance of our great textile industry we depend on the markets of other countries. But of what value will those markets be, when the foreigner, who is devoting himself with zeal to the art of spinning cotton, is able to supply his own wants? This is the shadow that

has been looming through the years, and already it is drawing upon Lancashire and her staple industry.—From the *Textile Mercury, Manchester.*

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### MILLING FAST SHADES ON WOOLEN YARNS.

For the production of check, spot and figure effects in woollen fabrics for dresses, suitings, etc., it is necessary to use dyed yarns in the weaving thereof, and as these cloths have to be passed through various finishing operations after weaving, more or less involving the use of water, soap, alkalis, etc., it is a matter of importance that the yarns should be dyed with colors that are fast to such operations, all of which may be comprised under the general term milling, so that one color does not run into another color and stain it. The dyer has nowadays no difficulty in selecting dyes which will produce sufficiently fast colors to stand milling operations; in fact, there is a great range which are absolutely fast to even the severest milling. Particularly is this the case with the series of alizarines, which, on the whole, are the fastest colors known, but these require a double process of mordanting and dyeing in order to apply them to the wool, and for labor, steam materials, etc., this involves extra cost, therefore woollens dyed with the alizarines cost more than is the case with other dyes. It is proposed here to detail a method or methods of dyeing a number of useful shades on woollen yarns which, while they are very fast to light and milling sufficiently so for all practical purposes, yet are less costly to produce than if the alizarine were used.

The methods will be described in the form of recipes, as follows:

#### Pale Grey—(For 100 lbs. yarn)—

Prepare a dyebath with  
 ¼ oz. Diamine Fast Red F,  
 1½ oz. Anthracene Blue C,  
 10 lb. Glauber's salt,  
 3 lb. acetate of ammonia.

Enter the goods at 140 deg. F., raise to the boil, work for one-half hour, and add

3 lbs. acetic acid.

Work one-half hour longer, allow the bath to cool down to 160 deg. F., then add

1½ oz. bichromate of potash.

Raise again to the boil, work twenty minutes, lift, wash and dry. The work can be done on sticks in a hand dye-vat, or in a yarn dyeing machine, as may be most convenient.

#### Deep Crimson—(For 100 lbs. yarn)—

Prepare a dyebath with  
 2 lb. Wool Red B,  
 3 oz. Anthracene Blue C,  
 10 lb. Glauber's salt,  
 3 lb. acetic acid.

Chrome after dyeing with

1¼ lb. bichromate of potash, as described above.

#### Pale Grey—(For 100 lbs. yarn)—

Prepare a dyebath with  
 ¾ oz. Anthracene Acid Brown R,  
 ½ oz. Anthracene Blue C,  
 10 lb. Glauber's salt,  
 3 lb. acetate of ammonia,  
 2 lb. acetic acid and chrome with  
 2 oz. bichromate of potash.

#### Walnut Brown—

2 lb. Anthracene Acid Brown R,  
 ½ lb. Anthracene Yellow BN,  
 1 lb. Anthracene Blue C,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid, chroming afterwards with  
 2 lb. bichromate of potash.

#### Dark Moss Green—(For 100 lbs. yarn)—

Prepare a dyebath with

6 oz. Anthracene Acid Brown R,  
 ¼ lb. Anthracene Yellow BN,  
 1¼ lb. Anthracene Blue C,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid, chroming with  
 1 lb. bichromate of potash.

#### Bright Green (For 100 lbs. yarn)—

Prepare a dyebath with

1¼ lb. Brilliant Milling Green B,  
 1 lb. Anthracene Yellow BN,  
 9 lb. Anthracene Blue C,  
 10 lb. Glauber's salt,  
 3 lb. acetic acid, chroming with  
 1 lb. bichromate of potash.

#### Dark Blue—(For 100 lbs. yarn)—

Prepare a dyebath with

1½ lb. Anthracite Black B,  
 9 oz. Formyl Violet 10 B,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid.

Work at the boil for three quarters of an hour, then add ¾ lb. bisulphate of soda to exhaust the bath. Chrome with  
 2 lb. fluoride of chromium.

#### Gold—(For 100 lbs. yarn)—

Prepare a dyebath with

2 lb. Anthracene Yellow R,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid, chroming with  
 1 lb. bichromate of potash.

#### Dark Walnut Brown—(For 100 lbs. yarn)—

Prepare a dyebath with

3 lb. Anthracene Acid Brown SW,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid.

Chrome with

1½ lb. bichromate of potash.

#### Bright Yellow—(For 100 lbs. yarn)—

Prepare a dyebath with

2 lb. Milling Yellow O,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid.

#### Blue Black—(For 100 lbs. yarn)—

Prepare a dyebath with

5 lb. Anthracene Chrome Black 5B,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid.

Chrome with

1¼ lb. bichromate of potash.

#### Deep Black—(For 100 lbs. yarn)—

Prepare a dyebath with

5 lb. Anthracene Chrome Black FE,  
 10 lb. Glauber's salt,  
 5 lb. acetic acid, chroming with  
 1½ lb. bichromate of potash.

The Anthracene Chrome Blacks are really excellent black

dyes, working easily on to wool, the baths being pretty well exhausted of dyestuff, and good, level, and well-penetrated dyes being obtained. The blacks have a solid bloomy appearance, comparing well with logwood in this respect, while they are decidedly faster.

**Deep Olive Yellow—(For 100 lbs. yarn)—**

Prepare a dye bath with

- 3 oz. Anthracene Acid Brown R,
- ¼ lb. Anthracene Yellow BN,
- 2 oz. Anthracene Blue C,
- 10 lb. Glauber's salt,
- 3 lb. acetic acid.

Chrome with

- 5 oz. bichromate of potash.

**Deep Bronze Green—(For 100 lbs. yarn)—**

Prepare the dye bath with

- ½ lb. Anthracene Acid Brown G,
- 1¼ oz. Anthracene Acid Brown R,
- 9 oz. Anthracene Blue C,
- 10 lb. Glauber's salt,
- 3 lb. acetic acid.

Chrome with

- 9 oz. bichromate of potash.

The Anthracene Acid Browns are a range of chrome-developing dyes yielding browns of a great range of hues of considerable fastness to milling, light and weather. By shading with Anthracene Blue C, or with Anthracene Yellows a variety of Olives, Bronzes, etc., can be produced.

Diamine Fast Red F and Wool Red B are good dyes to use in conjunction with the Anthracene Blue C, and Anthracene Acid Browns to shade on to the Red tones; if a Violet is needed attention can be given to the Formyl Violets, while Brilliant Milling Green B is good as a Green shading dyestuff.—Textile Colorist.



### DEGREASING WOOL.

The process employed for degreasing wool is that of treating the wool in close digesters with the volatile solvents until a complete extraction is effected. One of the principal features of the process is the employment of compressed gas as a forcing or motive power to circulate the solvent through the wool under treatment. It is used to press the liquid solvent out of the wool as well as to blow out of it such solvent as has not been removed by pressure. It is also used as a heat-carrying medium to the wool, and as a solvent vapor-carrying medium from the wool. It is furthermore used as an atmosphere wherein to carry on the extracting operation, both for covering the solvents in the reservoirs and for taking the place of the solvent removed from any part of the apparatus, and thus prevents the ignition of the solvent vapors by any electric or other spark which might accidentally be communicated to it; and since the gas is always moved in a closed circuit, it prevents the loss of solvent vapors, and can be used repeatedly without limit. It may be explained that the gas referred to by the inventor is an inert gas, or one which does not form explosive compounds with the vapors of the solvent used or with atmospheric air.

The great importance and growing appreciation of the solvent process of cleaning wool and preparing it for dyeing and spinning permits of special and more extended observations. Scientists and technical experts, who have studied the wool fibre are unanimous in the opinion that it should

be freed from its fat by means of volatile solvents, and not by the use of soapy and alkaline solutions, as has been heretofore the universal practice.

The earlier attempts to carry on the process of degreasing wool by means of volatile solvents were none of them successful from a commercial standpoint, although the rationality of the process was fully demonstrated in almost every instance by the superior condition of the wool thus treated. The problem was a very complex one to solve, requiring considerable mechanical engineering skill, knowledge of the wool fibre of chemistry, due regard for the healthfulness and safety of the operation, and the blending of all these requisites into a system, the result of which would show a saving which could be expressed in shillings and pence.

In 1895 a plant for treating wool by the "solvent process" was put in operation in the United States by the Arlington Mills, of Lawrence, Mass., and was the first plant of its kind in the world that was commercially and technically successful. This plant has the capacity of degreasing 50,000 lbs. of wool every ten hours, and has been run to its full limit ever since it was started. After an experience of six years with the solvent process, the Arlington Mills are now building a new plant to treat wool by this process which will have the capacity of degreasing from 200,000 to 250,000 lbs. of wool every ten hours.

The saving effected by the "solvent process" to establishments that degrease and work their own wool for worsted purposes can be expressed in round numbers as averaging 2 cents per lb., figured on the greasy wool. This saving is made in the cost of the soap, which is entirely dispensed with by the new process; in a greater yield of the wool fibre, since none of it is dissolved by soap and alkali, in a larger proportion of top to noil, because the wool, being free from any felting, cards and combs freely without breaking off the fibres or the making of nibs; in a larger production on cards, combs, drawing, and spinning machinery; in the superior softness and appearance of the finished product; in the wool fat recovered, and in the potash recovered. The cost of the degreasing operation, including labor, solvent, power, interest, depreciation, etc., is, it is estimated, more than covered by the soap saved.

The average amount of fat taken out of such wools as are worked in the United States is 15 per cent, which at the minimum price of 3 cents per lb. represents 45 cents on every 100 lbs. of wool degreased, and if to this is added also the value of the carbonate of potash recovered from the rinsing waters, which on an average amounts to 25 cents net per 100 lbs. of greasy wool treated, we have about 70 cents as the average minimum value of the by-products recovered from every 100 lbs. of raw wool.

It is safe to say that from \$2,000,000 to \$3,000,000 worth of wool fat and potash are run down the streams and wasted annually in the United States. If this wool fat instead of being wasted were recovered, refined, or separated into its constituent parts, its value would increase at least fivefold, and its uses would multiply. As the freighting expenses from some wool-producing districts to the mills or wool stores are often as high as 2 cents per lb., and average more than 1 cent per lb., for that part of the wool clip which is consumed in the Eastern and Middle States, and as the average shrinkage of the wool clip is 60 per cent., and some wools shrink as high as 80 per cent., it will readily be seen that in some cases these freight charges amount to 10 cents per lb. on the clean wool, and that they average 2½ cents per lb. on clean wool. By establishing degreasing plants at the principal Western shipping points, thousands of dollars' worth of



wool fat and potash could be recovered annually, and from 60 to 80 per cent. of the freight charges, amounting to several thousands of dollars more, could be saved. Such a plan, if it were feasible, would have the further advantage of putting the wool upon the market absolutely clean, free from further shrinkage, and in the most perfect condition for working. In having wool cleaned at the shipping points, some system of grading or sorting the wool according to its qualities would necessarily have to be established in order to meet the requirements of manufacturing.

Wool grease under the name of "degras" is very largely used for stuffing leather. The term "degras," as employed in the trade in the United States, and as used in paragraph 279 in the Customs Tariff—where it is spoken of as brown wool grease—applies to grease extracted from the wool of sheep. In general use, however, the term "degras" is applied to oils and greases used by tanners without any special distinction, including what is known as "sod oil." Sod oil and wool grease have entirely different constituents as well as characteristics and hence should be easily distinguished. Wool grease is extracted from the wool of sheep. Sod oil is expressed or extracted from leather which has been curried with oils, particularly fish oils. Sod oil has no relation to wool grease in its derivation, but is related to it in its use; that is, for the currying of leather. Sod oil contains a resinous substance (not a resin), known as *degras former*, which is characteristic of sod oil. No other oil or grease (and this includes wool grease which is, scientifically speaking, an animal wax and not a grease at all), contains this *degras former*, which is therefore characteristic of sod oil. (Erastus Hopkins. "Journal of the American Chemical Society," June, 1900.) Originally sod oil was called *degras*. Later, the term "*degras*" was made by the American oil trade to embrace wool grease, and was adopted less extensively by the English. The term, has, therefore, come to embrace two substances, dissimilar in constitution, source, and chemical constituents.

The above information is taken from an official United States publication, and the facts suggest that if the methods recommended there were adopted in Canada, a profitable industry could be created by the saving of by-products now allowed to run to waste. Our official returns do not separate *degras* from oleo-stearine, but of those two articles Canada imported in 1902, 1,807,953 lbs., valued at \$109,432, and in 1903, 1,906,060 lbs., valued at \$116,722. The amount of *degras* imported into the United States for 1899-1900 was 13,263,480 lbs., valued at \$285,485, duties paid.

It will thus be seen that there is a considerable market in Canada and the United States, and that this demand could be supplied by the scientific treatment of a raw material which is now suffered to go to waste.



### BRITISH WOOL AND TEXTILE MARKETS.

(Correspondence of the Canadian Journal of Fabrics.)

REPORT.

Since writing you last, our expectations with regard to raw material have been fully realized. At the March series of London wool sales, crossbreds seem to get, if anything, a little harder, whereas merinos show a tendency to weakness. The advances realized, however, are scarcely justified by the state of trade, which is by no means good; both manufacturers and spinners are complaining that they are unable to make any profits with raw material so high and the finished material, comparatively speaking, so low.

At the Liverpool sales of blue wools, advances were noted from  $\frac{1}{4}$  to  $\frac{3}{4}$ d. per lb. on January prices. As the prices of these wools average about 6d. per lb., this advance means a high percentage.

We are told that the wools bought in London at the last sales are not yielding as well as those of the corresponding sales of last year, and this is given us as one reason for the weakness in merinos at the present sales.

Our reports from France are rather gloomy and confirm the opinion of local manufacturers. It is generally admitted that stocks are very low, but this is the only factor to account for advanced prices. German reports are better, and Germans and Americans seem to be able to buy at the highest prices at the sales.

In Bradford, little business is taking place, and London prices are above those of this market. Wastes and shoddies are advancing in the same proportion as wool, in fact special qualities, as for instance botany noils, fine colored laps and several grades of shoddy are higher than they have been since the boom of 1899. It is confidently expected here, that the present prices will continue at least for a few months, and some go so far as to say that the present sales will be the cheapest of the year.

Bradford, Eng., March 26th, 1904.



### IRISH DOMESTIC INDUSTRIES.

Lady Aberdeen always kept herself in touch with the people when in Canada, and it appears she has not lost interest in the affairs of the common people in the Old Land. On St. Patrick's Day she opened the 28th Exhibition of the Irish Industries Association, at Grosvenor House, London. The object of the Association is to encourage industry among the poor Irish peasants in their own homes, and since its establishment the organization has met with considerable success in that direction. Beginning with Lady Aberdeen, the founder, every Lady Lieutenant in Ireland has given a special share of time during her term of office in this wisely-directed movement. About £100,000 has been collected as the result of sales held from time to time in London and elsewhere. On the stalls of the London exhibition were some fine laces, linens, embroideries, handkerchiefs, tweeds, knitted articles, and baskets, with a similar display on the Dublin depot stall. A considerable number of the stalls were devoted to special industries, and among these may be mentioned the Derreen industry, which has been organized by Lady Lansdowne with the view to improving the quality of and extending the market for the homespun made in the district, the Killarney furniture industry, the Castlebar homespun tweed industry, the County Meath home industries, the Garryhill industry of embroidery, and the Quinton and Strangford industry for the encouragement of lace-making in the district.



—A well-known cotton planter, John Wilson, of Mississippi, is now on his way to West Africa, with negroes to start cotton-growing. They are proceeding to Sierra Leone, and are hopeful of securing an allotment of land from the Governor. Mr. Wilson has great hopes of cotton growing in Africa, and states that he is in a position to take over from America hundreds of negroes to take up cotton cultivation.

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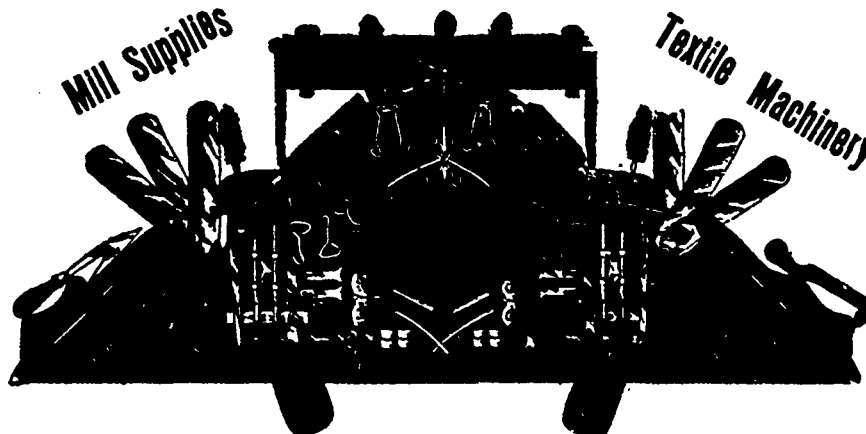
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supplying new mills and filling large orders.

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—The Agricultural Department at Hawaii has been making experiments with the plant called olona, which seems likely to become an important textile. It belongs to the nettle family, and has no resin. Ordinarily sized ropes made of olona fibre are silken in their fineness, and as strong as a ship's hawser. Ropes, nets and fishing lines are found to be impervious to the action of salt water. Olona is also remarkably light, strands that weigh no more than twine having the strength of wire. Garments woven of this fibre, though delicate in texture, are said to be almost indestructible, and with ordinary use will outlast the lifetime of the wearer. Olona thrives best in tropical forests 2,000 feet above sea level.

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Prices on Application.

Prices on Application

**WOOL SCOURING WITHOUT ALKALI.**

For scouring raw wool without alkali, the following process has been patented in France: The material is first treated in beek with lukewarm water to remove soluble salts and adhering earthy matter. It is then squeezed and placed upon a conveyer, when it is sprayed with oleic acid whilst travelling towards a pair of squeezing bowls, which in turn deliver it to a second conveyer, where the spraying and squeezing are repeated, so as to evenly and thoroughly impregnate the fibre with oleic acid, and to bring this saponifiable body in close contact with the natural grease. Thus prepared, the wool is delivered to a warm ammonia bath, where the ammonia soap formed exercises its dissolving influence upon the impurities of the wool fibre. On leaving this bath, the material once again undergoes the process of impregnation with oleic acid and the passage through ammonia liquor, to be finally rinsed in clean water. The whole process is to be worked in a continuous and automatic manner, so as to ensure a large output. From the spent wash-liquors oleic acid and wool-fat are recovered by decomposition with acid, the ammonia by distillation with lime.



—A correspondent of the Textile Journal, writing on new styles being brought out by the West of England woolen manufacturers, says: Overchecks, bright both in color and in make, are pretty certain to have a good run; but stripes will be very indistinct, as people are beginning to tire of them; they have now had a very good innings. Silk will not be so largely used as latterly, as the Continental trade will neither have silk nor its imitation in mercerized cotton—the duties debarring the former, and the unsatisfactory character of the latter in retaining its lustre being a drawback. Greys are still likely to remain favorites, and self-overchecks on these are likely to be in demand. By "self-overcheck" is meant an overcheck of the same character as the ground, but a trifle darker or lighter, just to show itself

off with subtle effect on the ground color. A medium grey ground with dark or black stripe alternated with a light grey and checked in the same manner looks very effective if properly balanced; but if the balance is not nicely adjusted, the effect is an eyesore. The winter confirmations do not come in very fast, and orders are not likely to be large for this season when they do come. The costume trade is expected to afford some scope to West of England designers to display their ability in producing novelties, for ladies have already, in keeping with their fickle character, turned their attention to finer goods in preference to the rough material we have been accustomed to see them in lately.



**CHEMICALS AND DYESTUFFS.**

A fairly good demand has sprung up for all descriptions of chemicals. As stocks are low at this season, better prices are obtainable. We have no particular change to make in quotations. All staples are steady.

Bleaching powder .....	\$ 1 60 to \$ 1 80
Bicarb. soda .....	1 75 to 2 00
Sal. soda .....	0 80 to 1 00
Carbolic acid, 1 lb. bottles .....	0 35 to 0 40
Caustic soda, 60° .....	2 10 to 2 25
Caustic soda, 70° .....	2 35 to 2 50
Chlorate of potash .....	0 09 to 0 10
Alum .....	1 35 to 1 50
Copperas .....	0 65 to 0 75
Sulphur flour .....	1 60 to 1 70
Sulphur rock .....	1 75 to 1 80
Sulphate of copper .....	0 06 to 0 06½
White sugar of lead .....	0 07 to 0 08
Sumac, Sicily, per ton .....	57 50 to 58 00
Bich. potash .....	0 7½ to 0 08½
Soda ash, 487° to 587° .....	1 25 to 1 35
Chip logwood .....	1 50 to 1 75
Castor oil .....	0 07 to 0 08
Cocoonut oil .....	0 07 to 0 08

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## PERSONAL.

John Scott, of the Clifford Woolen Mills, died at his home in that place on March 30th, after four weeks' illness. Deceased was one of the best known and most prosperous wool men in that part of Ontario, having purchased the mills in Clifford twenty one years ago. Mr. Scott was a native of Hawick, Roxburghshire, Scotland, where he acquired a thorough knowledge of the business. His reputation for making extra quality of woolen goods was widely known. He is survived by his widow, five sons and one daughter.

\* \* \*

**THE WEB PRESS TAKEN FROM THE CALICO PRINTING MACHINE.**

The newspapers are indebted to the textile trades for the first idea of the web press which has worked such wonders in the development of the modern daily paper. The story is told by the Toronto Globe on the occasion of the recent death at Barrie, Ont., of T. F. Davies, formerly a Globe pressman, but for the last 40 years connected with the Barrie Examiner. Thomas Fox Davies was the pressman of the Globe's first cylinder press. Having learned his trade in Manchester, Eng., and spent a few years in the United States, he came to Toronto in 1845. Peter Brown had just bought his first cylinder Hoe press, but no one knew much about it here, and he persuaded Mr. Davies to prolong his stay in the city and set up the new machine. This he did and became permanently employed in the Globe office, remaining until 1847, when he went north and established the Barrie Magnet. After the first cylinder press had been set up in the Globe office, the maker, Mr. Hoe, came from New York to see it in operation. While here Mr. Davies suggested to him the possibility of making a web press, the calico printing machines of his (Mr. Davies') native district of Manchester, Eng., having furnished the analogy. Mr. Hoe "pocketed" the idea, worked it into practical shape, and the next time he visited the Globe office he handed Mr. Davies a ten dollar bill for the suggestion.

\* \* \*

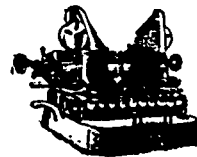
James Randle's woolen mill, at Meaford, Ont., has been rebuilt and is running again.

At Indian Orchard, Mass., there has recently sprung up a large plant for manufacturing fiberloid. The product of the Fiberloid Company is practically the same as celluloid, but it is made from a different base by a somewhat different process. The base of celluloid is tissue paper, while fiberloid is made from fine cotton yarn or rovings. Collars, cuffs, combs, brushes, and mirror backs are some of the products manufactured at this plant, also large sheets of fiberloid of various colors, from which are made various articles such as imitation tortoise shell combs. These goods were formerly manufactured by the dry process in which there was some danger from explosion, but in the new wet process they are said to be entirely safe.

The Shareholder, Montreal, recalls, with misgivings, the character of some of the recent failures in the dry goods trade. Our contemporary says. During recent months we have exposed houses whose failures were disgraceful, among them Thorpe, Maddock & Co., of Toronto; the Imperial Cloak Company, of Montreal; Saxe & Sons, of Montreal; Margolius, of Montreal; but the most unexpected and surprising instance is that of the long-standing and highly reputable and well-known house of Thomas May & Co., in connection with whose failure the developments are such as to make it particularly disgraceful, inasmuch as the tactics resorted to by them were considered as beyond their reach. That a house occupying the commercial position they did, should have set the bad example indicated, is deeply to be regretted. It awakens a suspicion among the export houses abroad which should never have cause to arise, and it leads to a distrust which should not exist. It casts a cloud upon the whole body of Canada's merchants, and raises doubts as to the integrity of the very best of them. It is impossible to fully realize the extent to which this distrust may extend. Commercial immorality is, unfortunately, on the increase, and the time has arrived when more repressive means to crush it out must be resorted to, if the evil is to be abolished.

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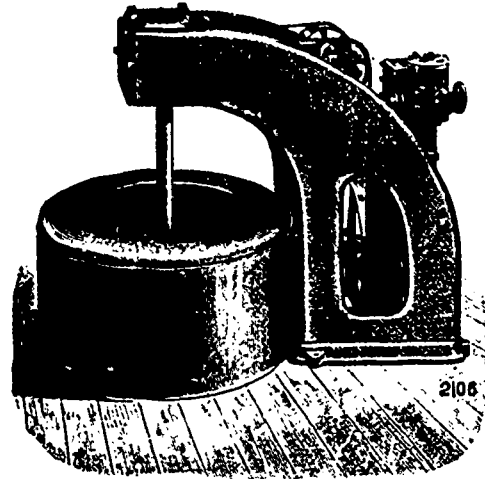
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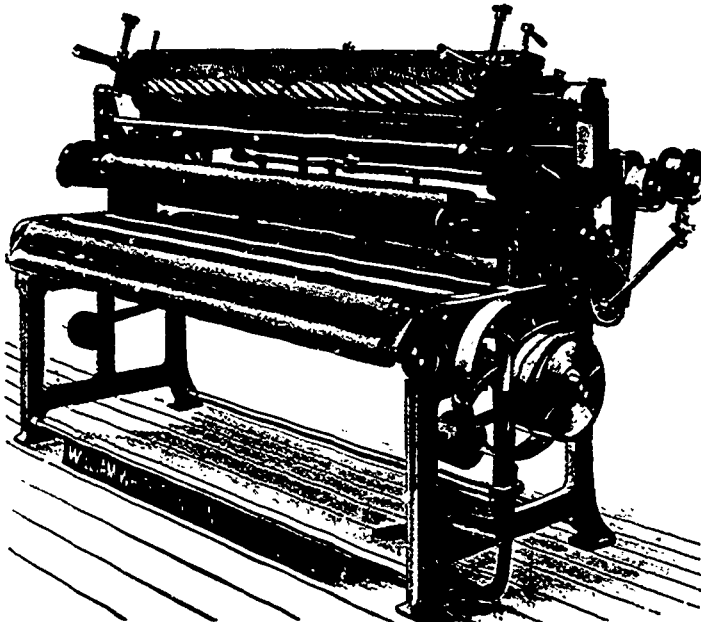
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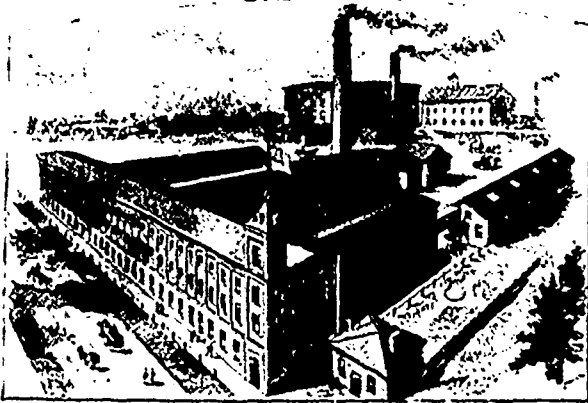
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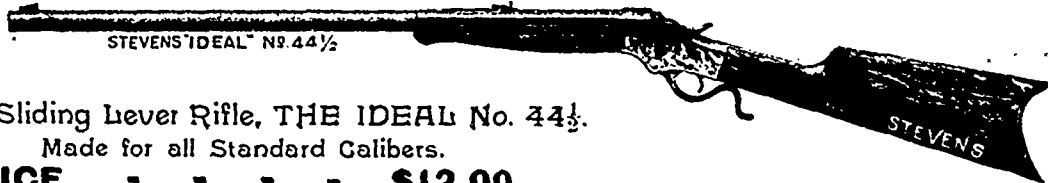
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Wilson, Paterson & Co., chemical merchants in the textile and paper trades, Montreal, have removed to new offices in the Board of Trade Building, Rooms 127, 128, and 129.

L. Bredannaz, of the Toronto Woolen Machinery Co., is being congratulated on obtaining patents on the French shoddy picker in Canada, Great Britain and the United States. Fourteen of these machines are now in use in Canada, and orders are being placed for more.

Wm. Hallitt, chief carder at the Aberdeen Woolen Mills, Lanark, is a veteran of the American Civil War. Mr. Hallitt is writing an account of his experiences in that bloody contest. As the author is blessed with an excellent memory, and has the art of stringing words together, the work is certain to make good reading.—Monte Gazette.

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Successor to JOHN HALLAM

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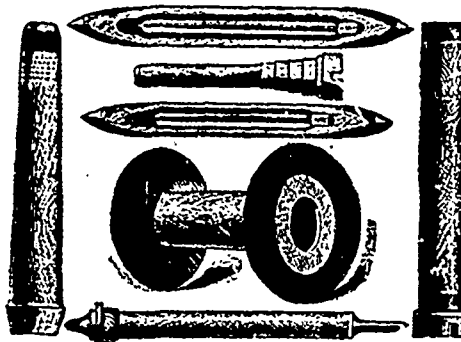
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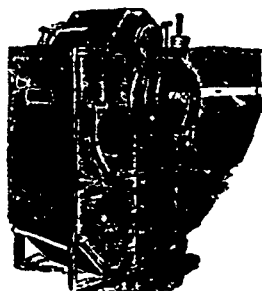
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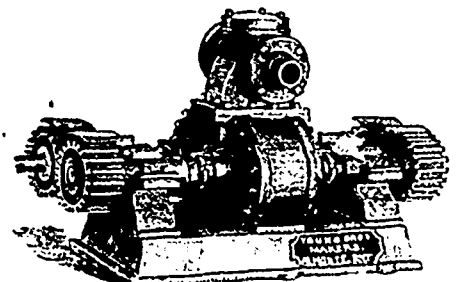
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 Full Fashioned Lamb's Wool Underclothing, Hosiery and  
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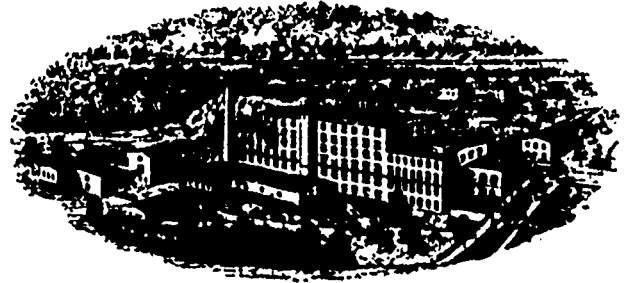
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**Oil-  
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Local agents wanted to take subscriptions  
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Manufacturers of all kinds of

**Hackle, Gill, Comb and Card Pins, Picker Teeth, Needle  
 Pointed Card Clothing in Wood and Leather for  
 Flax, Jute, Tow, etc.**

Hackles, Gills and Wool Combs made and repaired; also Rope Makers' Pins, Picker Pins, Specia  
 Springs, Loom and Shuttle Springs, English Cast-Steel Wire, Cotton Banding and General Mill Furnishings  
 Bloomfield Avenue and Morris Canal, NEWARK, N. J.



**JOHN W. DARLOW**

Manufacturer of

**LOOM PICKERS,**

LAWRENCE, MASS.

This cut represents Barlow's Pat. Bow Picker  
 with solid interlocking feet. Pat. Feb. 26, 1889.

## THE FLAX OUTLOOK.

The following report from the United States Consul at Flauen, suggests to Canadian farmers the same question raised by the Consul for the benefit of United States farmers:—

"An unprecedented shortage of this year's flax crop in Russia has led not only to a sort of corner in the raw material, but to a perfectly natural advance in its prices amounting, since October 1st, to about 25 per cent. So seriously is this rise felt that far-reaching limitations in linen production have already been determined upon, and unless the needed supply shall be obtainable elsewhere these limitations must remain imposed for an indefinite time. Not only does Russia furnish more than 80 per cent. of the present vast quantities of flax utilized in the linen-textile districts of Germany, but England and Scotland likewise draw upon that market for raw material. It is now known that owing to early and phenomenal snows fully one-third of this year's crop of Russian flax has been ruined, and the residue is totally insufficient to supply even present demands. This occurrence was followed by an immediate and sharp rise in the market; but even at these advanced figures practically the whole crop has passed into the control of a few persons. Undoubtedly the shortage is such that it can not be made good even by a successful Russian crop in 1904, and a further argument has therefore arisen, beyond those heretofore urged, why our farmers whose soil is suitable for flax culture should turn their attention to this most important staple. Persons can undoubtedly be found in almost every locality who have sufficient familiarity with the processes of retting and swingling, and each community of producers could have the raw fibre treated at some central plant, upon the principle now followed in cases of creameries, etc. Europe is eagerly hoping for some fresh source of supply beyond the insufficient and often times unsatisfactory Russian market."



## WOOL MARKETS.

Our Montreal report states: Very little enquiry for any large quantities, but a number of the mills are ordering sample parcels. Prices are very firm, and in nearly every instance some advance on previous figures has been obtained. Quotations are: Washed fleece, scarce, and prices asked are up to 19c., and unwashed to 15c. Some Nova Scotia fleece has sold at 23c.; greasy, Cape, 16 to 19c.; B.A., 30 to 40c.; pulled, extra, 23 to 24c.; North-West, 17c.

The Toronto markets are very dull pending the receipt of the new clip, which will not begin to come in till the beginning of May. Prices are as follows: Unwashed, 9 to 10c.; washed, 15 to 17c.; supers, 18 to 20c.; extra super, 20 to 22c.

A wool trade circular from Boston says that though stocks of United States wools are well cleared up, buying will be on a guarded scale, because of the uncertainties of the presidential election. Such, at least, appears to be the history of the seasons preceding former elections.

The second series of the London wool auction sales closed March 23rd. Prices were firm, and crossbreds were taken freely every day, closing at the top of the market. Australian merinos were 5 per cent. off at the close, and there was marked decline in wools of a faulty character. Coarse, greasy crossbreds were 10 per cent., medium, 7½ per cent.,

scoured, 5 per cent. higher than the January levels. United States buyers took freely of crossbreds. Of the total sold, it is estimated that 80,000 bales have been taken for the home trade, 64,000 for the Continent, and 12,000 bales for America. The third series of sales will commence May 3rd, the quantity for disposal being limited to 180,000 bales net arrivals. Adding the stocks held over the total available will probably be about 195,070 bales.



The Elmira Felt Co. are putting in a new set of 60-inch English felting cards, supplied by Geo. Reid & Co., Toronto.

Thos. J. Jermyn, vice-president of the W. R. Brock Co., wholesale dry goods dealers, died in Toronto on the 12th inst., aged 59.

The Standard Woolen Mills, Toronto, have decided to add a new story to their mill, and are now preparing plans for the extension, in which two new sets of cards and ten blanket looms will be installed.

Geo. Reid & Co., woolen machinery agents, Toronto, have been appointed agents in Canada for Asa Lees & Co.'s celebrated mules. They have also been appointed Canadian agents for P. & C. Garnett, Cleckheaton, makers of garnetting machinery.

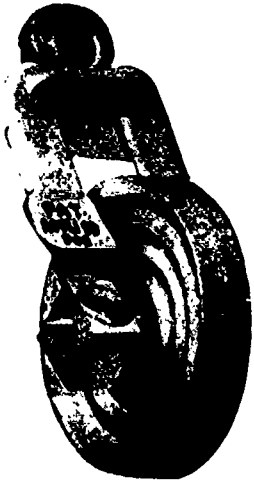
The appeal of the John Dick Company, woolen and bag manufacturers, of Cobourg, from the judgment of Mr. Justice Britton, awarding a workman, Gordamer, \$1,250 damages for injuries, was dismissed by the Divisional Court, Toronto.

A large three story brick factory for the Berlin Felt Boot Co., is now under way, at Berlin, Ont., to take the place of the one destroyed by fire. It will be operated by electricity, Mr. Rumpel having decided to build his own electric plant.

—It is estimated that there are nearly 3,000,000 sheep less in the United States in 1904 than in 1902, and that the clip of the past season was less than that of 1902 by about 26,000,000 lbs., the total production of wool being estimated by the Wool and Cotton Reporter at 324,107,462 lbs., in 1902, and 298,846,848 lbs. in 1903.

—Our trade exchanges report that for several months past there has been no disposition in China to take United States cotton goods, apparently owing to increased prices. The same causes will affect Canadian mills producing for the Eastern market. Existing stocks in China are now about exhausted, and a fresh movement is looked for.

—The proper ventilation of gassing rooms is of importance to the textile manufacturers, as, in the process of singeing the threads over the gas machines the room becomes saturated with gases and fumes, and without some positive means of ventilation, the room would be uninhabitable. For some time these rooms have been ventilated by disc or propeller fans placed in the walls, but by this method the operators were able to work in the room only about an hour at a time. Recently, however, the B. F. Sturtevant Co. solved the problem and the fan system of ventilation which they are now installing enables the employees to work comfortably in the room at all times. With this system the air in the room is changed at short intervals by means of a fan which draws fresh air from out of doors forcing it into the room through well distributed openings, while the smoky air is exhausted to the outside. A recent installation of this kind was that by the B. F. Sturtevant Co., of Boston, Mass., at the Arlington Mills, Lawrence, Mass.



We Would Call Attention of WORSTED  
SPINNERS to our

# IMPROVED TENSION PULLEYS



**STODDARD,  
HASERICK,  
RICHARDS  
& CO.**

BRADFORD, ENG.  
BOSTON, MASS.

OFFICES

Bourse Building, Philadelphia.

Charlotte, N.C.

## SHEEP NOTES.

The following paragraphs from the Scottish Farmer will be of interest to the manufacturer, as well as the sheep breeder:

Sheep require a variety of food to form flesh and fat.

With sheep, rather more than with any other class of stock, care must be taken not to overfeed.

Overstocking is usually injurious to the sheep and ruinous to the farmer.

Dryness is one of the requirements in the production of the finest grades of wool.

No sheep should be allowed to die of old age, but all should be fattened and sent to the market before their vitality has been impaired.

Sheep are naturally gregarious. When one is seen by itself, something is evidently wrong.

In commencing to fatten sheep, the feeding should not be crowded at first, but gradually increase the amount of the ration.

A small, fat sheep will always bring better prices than a large, poor one.

Sheep are almost essential in maintaining the fertility and cleanliness of the land.

Keep the quarters clean. Sheep do not need the accommodation of manure to keep them warm.

To have good-sized sheep, they must be grown rapidly while young, and it is important to give them a good start.

When sheep lose patches of wool from their heart or bellies, it indicates a feverish condition, and is usually the result of improper feeding.

Sheep thin in flesh have weak digestion, but even the strongest are easily injured by feeding grain too heavily.

It makes considerable difference in the quantity and strength of the wool whether or not the sheep have regular conditions.

\*\*\*

## PLUCKING SHEEP.

The pure-bred sheep in Shetland are not shorn, but plucked. The process takes place generally in June, when the fleece is "ripe" and the silky wool can be pulled off without pain. This is called "rooing" and is much less damaging to the young fibre than clipping with shears. The wool when thus handled retains its peculiar softness, so that any one of experience can tell whether the material of a knitted article has been plucked or shorn. It ripens upon the neck and shoulders, so that sheep half plucked resemble in some sort a poodle that is clipped. We must suppose that harsher handling prevailed at one time, for we read that in 1616 the Scottish privy council spoke of the custom as still kept up "in some remote and uncivil places," and James I. wrote to tell them that it had been put down in Ireland under penalty of a fine. Upon this they passed an act on March 17th, 1616, deploring the destruction of sheep thus caused and imposing similar fines on those who should persist in the practice.

\*\*\*

Ralph Hill, who has been designer in the Rosamond Woolen Co.'s mill for a good many years, has secured a position in the Republic to the south of us, and will probably remove there when released from his contract with the company here. Should he leave town his removal will be regretted by many, as he has proved himself a worthy citizen. --Almonte Gazette.

Established 1883.

41 Highest Awards.

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Telegrams "Wilson, Cornholme"  
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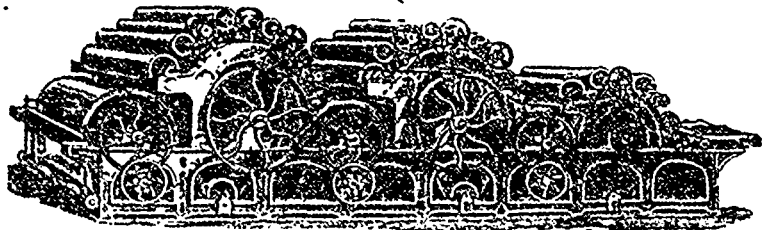
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are obtained by using 

**DRONSFIELDS PATENT  
GROOVED EMERY FILLETING**  
SPECIALITIES: MACHINES FOR GRINDING CARDS  
MACHINES FOR COVERING ROLLERS WITH LEATHER

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Atlas Works, OLDHAM, England.

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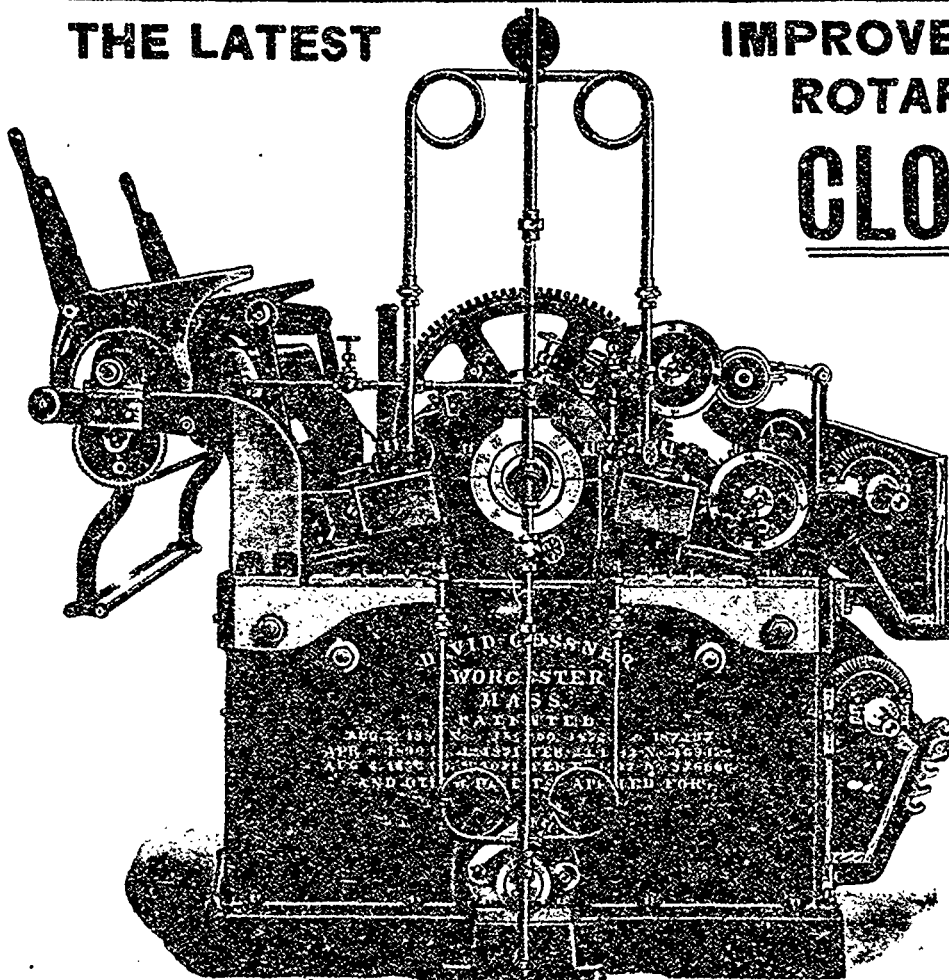
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**TETLOW'S**  
Stock in Canada  
**Condenser Aprons** Buffed Surfaces  
Plain & Groove  
Oak-Tanned and White Belting  
Cotton Banding, Rim Spindle and Braided  
Shuttles, Pickers, Heddles, Harness  
Patent Frames, GENERAL FURNISHINGS

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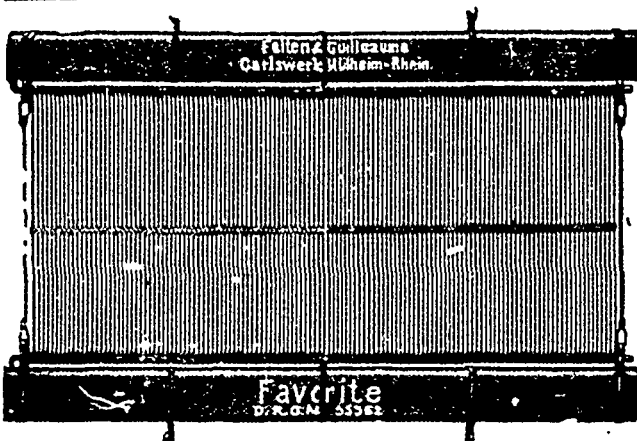
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