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Canadian Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XVIII. TORONTO AND MONTREAL, DECEMBER, 1901. No. 12.

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

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

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

E. B. BIGGAR { BIGGAR, SAMUEL & CO. PUBLISHERS } R. R. SAMUEL

TRAVELLING REPRESENTATIVE: A. W. SMITH.
PHILADELPHIA AGENT: H. E. BURNETTE. Cor. Fourth and Locust Sts.
BOSTON AGENT: F. F. GRANT, 5 Gayland St., Roxbury.
Toronto Telephone, Main 1392 | Montreal Telephone, Main 2589.

Business correspondence should be addressed to Montreal; but cuts, news items and editorial correspondence to Toronto; cuts from abroad should be sent by post wherever possible, not by express. Changes of advertisements should be in our hands not later than the 10th of each month to ensure insertion.

CONTENTS OF THIS NUMBER:

THE UNEQUAL INCIDENCE OF THE PREFERENTIAL TARIFF.

Among other newspapers, the "Montreal Witness" has given a good deal of attention during the past month to the preferential tariff, as it affects the woolen industry of Canada. Now the Witness is one of the most intelligently conducted newspapers in Canada, and its editorial department, especially, is an honor to Canadian journalism. Paying such high respect to our contemporary, we should like to have further opinions from the Witness, especially as it has quoted some comments made by the Canadian Journal of Fabrics last month on the tariff question. It will be remembered that the secretary of the Canadian Manufacturers' Association sought to account for the increase of $2,670,303 in the imports of woolens under the preferential tariff by stating that machinery capable of producing $2,750,000 worth of woolen goods had ceased to operate in Canada since the inception of the preferential tariff. The secretary admitted that his sole authority for this estimate was a United States textile directory's list of Canadian mills, and in remarking on this, we showed that the loose method of reporting custom mills to directory publishers, makes any such method of estimating machinery quite misleading As compilers of the Canadian Textile Directory, we know it is common for proprietors of small mills to report that they have "one set of cards," when, as a matter of fact, they run a custom carding mill, and do no weaving whatever, except, perhaps, in one case out of twenty, on a hand loom. The misconception usually arises out of the difference between the modern notion of a "set of cards," which implies a corresponding amount of spinning, weaving, dyeing and finishing machinery—and the idea of the old-fashioned carder, whose machinery is used for making roll cards from which the farmer's wife spins her yarn on the old hand-spinning wheel, or who cards wool for the batting of home-made quilts, etc. We pointed out that of those one-set woolen mills, that had really gone out of existence, most were equipped with narrow cards of an antiquated type, and that this class of mill was doomed to extinction by the evolution of the woolen manufacturing industry, no matter what tariff was in force. We stated these facts because we wish to be fair in analyzing the situation, and we cannot see that anything is to be gained by founding an argumentative edifice on the sand, as the secretary of the association was doing. Another thing we might have pointed out, but did not, was the secretary's method of arriving at the production of the woolen machinery he alleges had gone out of existence. He says: "Taking the annual production of a set of cards at $17,000," and thus he reaches the vast total, two and three-quarter million of dollars. It is no more possible to get a reliable average of the production of a set of cards than it is to get the total horse-power of the steam used in Canadian factories by knowing the number of steam engines in the country. As one engine may be 1,500 horse-power, and another 5 horse-power, so the annual product of a set of cards

may be $20,000 or it may be $1,000, depending on the character of the goods, the capacity of the machinery, and the manner in which that machinery is worked.

Having shifted the case of the woolen manufacturers from the false ground on which the secretary would have placed it, let us ask the Witness for an opinion on the following aspects of the case:

It is generally accepted, as pointed out by Robt. S. Fraser, of Montreal, in a letter to the Witness, quoted in another column, that Canadian woolen mills have been equipped with machinery which costs 40 per cent. more to instal in Canada than in Great Britain. The offset of this original handicap was the duty which was put on woolen goods when coming into the country; but this advantage has been taken away by the preferential tariff. Has any compensation been made for this? If a Canadian woolen manufacturer wishes to put in some special up-to-date machine, he cannot get it in Canada, as neither carding machinery, spinning machinery nor looms (except cotton looms), are made in this country, and if he imports from Germany, France or the United States, he pays the full duty—that is, he gets no benefit from the preference. So much for the general application of the preferential tariff. But with what peculiar force does it bear on the Canadian woolen manufacturer. The British woolen and worsted trade alone, of all the leading industries of Great Britain, is able to hold its own against foreign competition. Every other department of British manufacturing industry has been more or less successfully assaulted by foreign competitors, and some, such as the boot and shoe industry and some branches of iron and steel and the electrical trades, have been crippled temporarily at least. The British woolen industry alone stands firm. And yet the Canadian woolen mills are asked to stand the full impact of a competition under which even countries like the United States, Germany and France cannot bear up without duties specially levied to protect them. And still this does not fully disclose the unfairness of the situation. As a matter of fact, the incidence of the tariff falls on the woolen manufacturer alone, practically, of all the branches of the textile trades. As we have shown before, nobody is hurt in the linen trade, under the preferential tariff, because there is no linen industry in Canada to hurt, and so in the jute, and silk piece goods, and other minor branches, while even the cotton trade has more to fear in the future from the United States than from Great Britain. Take other large industries in Canada, such, for instance, as furniture manufacturing, and the preferential tariff becomes a cheap exhibition of make-believe loyalty, for Canadian manufacturers in that line already sell more in the British market than British makers can sell here, even if the present duty were removed altogether.

In view of these facts, will any fair-minded Canadian contend that the present conditions do not bear with peculiar severity upon our woolen manufacturers, and that these manufacturers have not a claim for relief? The closing, this month, of the Rosamond Woolen Co., of Almonte, one of the best mills in the country, followed a few days after by the shutting down of the large Cornwall woolen mill, at a time of boom in all the other chief manufacturing industries in Canada, are incidents which may supply their own answer to the question.

Another question: What was the preferential tariff intended for? Was it not designed to give a preference to British goods, and to British goods only? But the trouble with the preferential tariff is that it does not prefer. Since its adoption, tons upon tons of German and other foreign textiles have been brought over to England and reshipped to Canada, under the low tariff, after a so-called process of "finishing," in order that they may be classed as goods partly of British manufacture. In some cases that have come to our notice this "finishing" in England consists simply in taking off the German, French or Austrian labels and doing the goods up again in the style usually adopted for British goods of the same class, and then giving them a British name or label. There is no branch of trade in which this style of smuggling is carried on to the extent that it is in the textile trade. We know that the Witness will not justify this method of "preference," but has the Government done anything to stop it, or has it even investigated the matter?

And this brings us to the last question we should like to have the Witness answer. Is a preferential tariff really the best plan of sharing the burdens of Empire? The idea was that the British nation would get the benefit of the lower rate of duty, but does it? Apart from the smuggling referred to, and the large amount of goods that come from Germany and other countries for legitimate processes of finishing in England, and which contribute only in a small degree to the employment of British labor, the preferential tariff has developed new British trade with Canada in very few lines outside of textiles. And in the development of these lines, it has not benefited the British people at large, but only a comparative handful of merchants and manufacturers engaged in the particular trades affected. Would it not be a wiser thing and show a broader spirit if Canada made a direct contribution towards the cost of Imperial defence or Imperial administration—so that the whole nation, and not a little coterie of merchants and manufacturers, get the advantage of it—and have a uniform tariff for the whole world? Our preferential tariff has already brought retaliation from Germany by which the little export trade Canada did with that country has been already almost extinguished. But such retaliation could not happen under a common tariff.

The Witness misses the point of our comment on the question of machinery that has gone out of use in the woolen trade. We showed that the secretary of the

Manufacturers' Association was making a mountain out of a mole hill; and Mr. Fraser's letter to the Witness specially exempts the "custom" mills from the main class of woolen machinery, to which he refers, and which he rightly claims to be equal to the average possessed by United States mills. In the evolution of manufacturing in any line, it must be that some mills will retain a certain amount of old machinery, which ought to be replaced by new; but if every one of the larger woolen mills of Canada were equipped with machinery fresh this year from the world's best makers, they could not hold their own under the exceptional disabilities which the Government has thrown upon them

SALE OF THE YARMOUTH MILLS.

An important deal has taken place since our last issue, by which the mills of the Yarmouth Duck Yarn Co. at Yarmouth, Nova Scotia, have passed under the control of C. P. Grantham of the Imperial Cotton Co. The mills are the only ones of the kind in Eastern Canada. They were established and operated up to the time of the present deal by a local company, who have done well by their sale, the shareholders having received $200 per share, which is double the par value. The capital stock of the company was $150,000, all paid. The purchase money was paid half down, the balance to be paid within three years, with interest at eight per cent. Charles T. Grantham, manager of the Imperial Cotton Company, and formerly manager of the Yarmouth mill, takes charge. The the united concern, with headquarters at Hamilton. The George Burton will be local manager and Samuel Killam remains as superintendent of manufacturing. Preparations will at once be made for increasing the output, and the J. Spencer Turner Co., of New York, Chicago and London, which handles every year about twelve million dollars worth of mill products, has agreed to take for a term of years all the goods the mill can produce. The sale is an important event for Yarmouth.

—China has made a change in her tariff. A telegram from Shanghai of the 25th ult., states that the new temporary tariff on textile imports, which converts the ad valorem into specific duties, came into operation that day. The tariff has been drawn up by the China Association in conjunction with American, German and Japanese importers. How far it will affect cottons from Canada, of which we send a considerable quantity to that country, is not stated.

—The Draper's Record, London, reads this meaning into the Canadian premier's remarks on the woolen tariff at the recent meeting of the Manufacturers' Association: "The prominence given recently to the question of the introduction of a Revenue Tariff for this country gives additional importance to all tariff questions affecting the interests of our colonies. We therefore note with interest the reference made the other day by Sir Wilfrid Laurier to the present Canadian tariff. There seems no likelihood of an increased import duty on woolens, though Canadian manufacturers declare that a change in the direction indicated is essential to the continued prosperity of the Canadian woolen industry. Sir Wilfrid Laurier pointed out that while tariffs are not intended to be permanent their stability is one of the guarantees of industry."

—In a somewhat attractive looking circular The Deimel Linen-Mesh System Co., of Montreal, condemns the wearing of woolen under-garments as being injurious. The purpose of the circular is obvious, but in its wholesale condemnation of wool for underclothing—attributing to its use pneumonia, bronchitis, rheumatism, Bright's disease and other ills—it goes against all experience. It is true linen may be more comfortable in some respects, but we question the assertions contained in the circular as to its superior healthfulness. Experiments show that wool is a great absorbent of moisture; in fact a bucket of water left in a room with a quantity of washed wool will speedily be absorbed. Woolen underclothing must more readily take up the moisture which exudes from the skin, while it will almost as readily give it off to the air. Another point of superiority for wool is that it is a non-conductor of heat to a greater degree than any known fibre while linen is the worst as an article of underwear for it is a very rapid conductor of heat. For this climate give us woolen under-garments, at least for the cold weather, and many wear them with advantage all the year round, and would be in their graves did they not do so.

—The character of the sales in ready-made clothing for next season show that the prejudice against ready to wears is becoming less and less. There is, however, a demand for a better class of goods. The people have the money and they want the better goods. The variety of styles and makes is being enlarged, so that any ordinary man can be fitted about as well with a ready-made suit as with one made to order. A very satisfactory business has been done this fall in the better qualities.

—The Shareholder reads those who took part in the late strike among the Montreal Cotton Co.'s employees, at Valleyfield, a lesson over their conduct in the matter, and hints that means may have to be adopted to prevent the exercise of the tyranny which such a strike involves. Certainly the Montreal Cotton Co. is entitled to considerate treatment on the part of its operatives, for it has provided them with liberal educational facilities for their children and themselves, together with means for recreation and improvement, which should be appreciated. Happily the strike was not very serious or very prolonged, thanks to the intervention of the Department of Labor at Ottawa, which has successfully taken the part of conciliator on a number of recent occasions.

—About nine months ago the Kingston Hosiery Company issued a circular to the wholesale trade with whom it had been doing business, announcing that it had decided to deal direct with the retailers. The reason given for this course was on account of the unusually keen competition among the manufacturers of knitted goods, caused by increased importations under a reduced tariff. The company has now discovered that selling direct is not so profitable as dealing with the wholesale trade, and it has accordingly reverted to the old system. The Shareholder says the competition of which the Kingston company complains is not the result of importation, but of competition among home producers, who are disposed to imitate each other instead of diversifying their products. If they were to make a higher grade of goods the edge would be taken off the competition complained of.

Foreign Textile Centres

Manchester.—Business has been restricted up to the end of November, and the wholesale houses have had rather a quiet time. Manufacturers of cotton cloths are holding out for better prices, but buyers decline to give orders except at the old rates. There is some demand for the China market, and there are orders in which will keep some of the mills running for three or four months. The India market is quiet, but better things are looked for shortly from the East. The exports through Liverpool for the week were large. The quantity sent to British North America was 42,000 yards, plain, and 287,600 yards dyed, colored and printed. China and India were the largest takers. In linen there has been a reduction in flax, though existing quotations are much higher than a couple of years ago. The demand from the American market for cloth has improved somewhat, and although the home enquiry is not apparently satisfactory to producers, there is a more hopeful feeling noticeable. There is a prospect for a fair output of cotton yarn during the season. The trade with Belfast alone is a large one and has of late ranged from 300 to 350 tons a month. The average shipment of cotton piece goods from Manchester to China for the last three years is close upon 500,000,000 yards, which represents about 10 per cent. of the total shipments from that centre.

Bradford.—Business has been quiet, pending the opening of the London wool sales. It will be remembered that at the close of the last sale, the higher prices paid for all wools of the merino class were not warranted by the consumptive demand here. The opening of the later sale was therefore watched with interest. There was, and is, the greatest uncertainty as to the requirements of France and Germany in regard to merino wool, and also as to the ability of those countries to satisfy their wants. While keen competition is looked for for the very finest wools, foreign competition is not likely to carry prices beyond what Bradford can afford to pay. From Australia come reports of severe drought in the districts from which merino wool comes, which is likely to reduce the product, and necessarily stiffen prices. It is difficult to foresee when the prices of manufactured goods will be affected by this shortage of fine wool, but there can be no doubt that a time will come. The quantity of crossbred wools, which are being offered at the present London sales, is again large; and, as there is every prospect of the imports of these coarser wools being still further increased, there seems little likelihood of better prices being realized. At the present time the value of colonial crossbred wools is absurdly low. Considerable advances have been made here recently in the methods of finishing dress fabrics composed of even the lower and cheaper classes of these wools. Both a softer and finer appearance has been given to the goods in this way, but some time must elapse before the demand for fabrics finished by the new methods is sufficiently large to affect the price of raw material. There has been also an improved demand for worsted coatings made from colonial crossbred wools, largely resulting from the excessively low price of the raw material, but in the form of plain finished coatings they do not seem to meet the approval of buyers of cheap suits, as well as the heavily-milled sheddy cloths, although the wearing properties of the latter are far inferior. The consumption of crossbred wools, for the purpose of making worsted yarns for exporting to the Continent, has, up to the present year, been exceedingly large, but that trade continues to be in a most depressed condition, and the exports must show a great falling off. Mohair and alpaca of the best class are very firm; the demand for inferior goods is poor. Browns are being asked for, but bright goods are likely to be wanted for the spring trade. Spinners complain that there is not much new business coming forward in the yarn trade.

Kidderminster.—The last month has shown a steady but gradual improvement in the carpet trade. Short time has practically ceased, and rules for overtime, which has been a knotty question for years, have been agreed to between the manufacturers' and weavers' associations. A good run of business is confidently looked forward to for the remainder of the year. A satisfactory feature of the improvement is that it has commenced with the best qualities of carpets. Wiltons, and the best grades of Axminster and Brussels are being asked for. Enquiries are also being made with regard to specialties for the Coronation year, not that it is the intention, generally speaking, to put on the market special designs for the great event of 1902, but manufacturers are naturally anticipating that a few specialties will be required. The yarn trade is dull, but the price of carpet yarns is firm, and spinners are moderately well employed, although a portion of the machinery is only working five days a week. It would not do for prices to go lower, as it would mean loss.

Nottingham.—Though there is no change to note in prices, there is a movement in lace and curtain yarns in favor of the buyer. There is no buoyancy in the demand either for the higher counts or the heavier qualities. Bobbin nets have undergone no further change. Fancy cotton millinery laces and nets are in favor, though the actual demand is slow. The silk branches are depressed. Furniture lace, window blinds, and curtains are not in average request. The unsettled, foggy and cold weather has had a bad effect on the lace trade. It has, however, favored the hosiery trade, which is good. Manufacturers of cashmere, merino, lambs' wool, and other warm hosiery have been doing more business in vests, combinations and half-hose. Prices are somewhat irregular. Cashmere hose are in moderate demand, and prices are steady. Cotton stockings and socks are depressed.

Dundee.—The market is quiet. Buyers are confining themselves to immediate requirements. Orders for linen for the United States are very limited, and lower prices have to be accepted. The enquiry for home trade is also quiet. Fine yarns are steady, and are being sold as produced, both for home consumption and export. All other kinds of yarns are quiet.

Belfast.—There is no improvement in any section of this linen market, the demand being dull and prices weak. The present level of values cannot continue much longer, as in many instances it is substantially below the cost of production. Flax is a shade firmer. The spinning branch is very slow, line wefts being pressed for sale, and prices all around are in favor of buyers. The manufacturing branch remains quiet, but unchanged. A fair turnover is maintained in damask and housekeeping goods, as well as in low-class fabrics. Unions are meeting with fair support, and the demand rather increases. Finished goods for home markets are selling in small parcels. Trade with the United States is still good, but that with other markets is unchanged.

Leicester.—The hosiery industry is rather quiet, but stocks are under average, and repeat orders are coming in. The yarn market is steady, but the deliveries show some falling-off, and new business is being held back until after stock-taking. Lambs' wool and fancy yarns are in fair request, but prices are exceptionally low.

Leeds.—The changeable weather has had a bad effect on the winter trade. Retail business is quiet, and the wholesale and piece houses are in want of orders. Nor is the prospect for the opening of spring trade any better, owing to the unsold stocks of heavy goods. The delivery of spring goods is proceeding, but merchants do not display much confidence in relation to repeats, especially for medium and lower-class fabrics, but for superior worsted and woolen goods there is more certainty. For some descriptions, designed for women's wear, such as tweeds, there is a good demand, but cheaper fabrics are quiet. Black and white effects in woolens for men's wear sell well, and are being imitated in lighter weights for women's wear.

South of Scotland.—The movement in the wholesale houses is very slow, except in goods suitable for Christmas and New Year's trade, these branches doing a good business. The distribution of goods from wholesale houses is always quiet at this time, their season being really over. Reports from the woolen manufacturers state that business is good. The orders for the spring trade have come in very well, certainly much better than was expected earlier in the season. All the mills are on full time, and many carding and spinning mills are running overtime. In Edinburgh, weather conditions are more favorable, and there has been some excellent buying. Evening dress goods are in most demand.

LITERARY NOTES.

Among the interesting articles in the Christmas number of the Canadian Magazine is an illustrated review of the Pan-American Exhibition, citing some of the causes of its failure, and drawing some morals from the experience of its promoters; a sketch of Christmas games amongst the French-Canadians, by J. Macdonald Oxley; and some notes of odd things in nature, under the title of "Oddities and Curiosities."

The Christmas Century is rich in story and illustration. A noteworthy article is the first of a series on "Thackeray in the United States," by James Grant Wilson, richly illustrated, in tints and black-and-white, with rare and unpublished pictures, including a reproduction of the original crayon sketch for Lawrence's famous portrait, and a water-color drawing and pen-and-ink sketches, etc., by Thackeray himself. Not least is the month's contributions to the Century's leading feature, the "Year of American Humor." These are "Blackgum Ag'in Thunder," by Frank R. Stockton; "The Testimonial," by Gelett Burgess, with pictures by Florence Scovel Shinn; "The Deception of Martha Tucker," an automobile extravaganza, by Charles Battell Loomis, with pictures by Miss Cory; more of "Policeman Flynn's Adventures," etc.

R. W. McLachlan, honorary curator of the Chateau de Ramezay Museum, Montreal, is the most painstaking and voluminous writer on numismatics in Canada. His latest essay is on "Two Canadian Golden Wedding Medals." There appears to have been only two such medals struck in Canada, one being that struck in 1825, to commemorate the marriage of Chief Justice Powell, of Toronto, and the other that of Daniel Sutherland, struck in 1831, a Montreal merchant, who was one of the promoters of the first water-works company in that city, and who had been Postmaster of Montreal during the war of 1812.

The publishers of the Delineator are justified in a certain amount of self-gratulation and pride over the Christmas number of this home magazine. Every particle of the work, with the exception of the lithographs, was done on their own premises, and the edition is 690,000, with the likelihood of a shortage of supply at that. Each copy of the Christmas number weighs over a pound.

There is no lack of interest in the December number of The Ladies' Home Journal. Among the stories that go to fill the largest number of the magazine ever issued are: "The Baby Behind the Curtain," by Elizabeth McCracken; "How the First Letter was Written," by Rudyard Kipling, and the first part of an amusing story of Western ways called "The Russells in Chicago." There is a charming Christmas play for children. The regular departments are most ably presented by their respective editors.

THE WOOL MARKET.

The sixth series of the 1901 wool auction sales opened in London, Nov. 26th, with a very large attendance. Competition was slow, as the offerings, which numbered 10,755 bales were rather inferior. They consisted principally of crossbreds and faulty merinos. A few fine qualities were offered and caused active bidding, finally selling at unchanged rates. All lower grades were 5 to 7½ per cent. lower. Cape of Good Hope and Natal were in good demand at a 6 per cent. decline. The home trade and the continent took the bulk. There has been very little enquiry for wool since the October series closed, but the consumption has been progressing steadily in the manufacturing districts, and the quantity now offered will not be too large for requirements. Following are the sales of the opening day in detail: New South Wales, 1,600 bales, scoured, 3d. to 1s. 5d.; greasy, 4d. to 9d. Queensland, 900 bales, scoured, 9½d. to 1s. 5½d.; greasy, 3¼d. to 8½d. Victoria, 600 bales, scoured, 9d. to 1s.; greasy, 2¾d. to 1s. West Australia, 300 bales, greasy, 4¼d. to 7¾d. Tasmania, 100 bales, scoured, 6d.; greasy, 3¼d. to 9¾d. New Zealand, 6,200 bales, scoured, 3½d. to 1s. 5d.; greasy, 2¼d. to 9½d. Cape of Good Hope and Natal, 1,000 bales, scoured, 7¼d. to 1s. 5½d.; greasy, 4¾d. to 7¼d.

For purposes of comparison we also give the sales of Dec. 10, the last before going to press: New South Wales. 3,500 bales, scoured, 6½d. to 1s. 4½d.; greasy, 2d. to 11½d. Queensland, 8,000 bales, scoured, 6½d. to 1s. 6d.; greasy, 3½d. to 8½d. Victoria, 1,500 bales, scoured, 3½d to 17d.; greasy, 4d. to 10½d. South Australia, 100 bales, scoured, 6½d. to 8½d.; greasy, 4d. to 8d. New Zealand, 3,600 bales, scoured, 3¼d. to 1s. 4½d.; greasy, 2½d. to 9½d. Cape of Good Hope and Natal, 200 bales, scoured 3d. to 1s. ½d.; greasy, 4¾d.. to 5½d.

There has been good competition at the sales. Fine scoureds went principally to French and German buyers; fine

greasy to the home trade and the continent, with an occasional lot to an American buyer. Lower grades are more active and show a slight improvement. The first series next year has been scheduled to open January 21st, and the second series March 11th, at both of these sales the offerings will be limited to 250,000 bales. The third series will open April 29th, and at the series 400,000 bales will be offered.

The Boston and New York markets are strong, though there has been no general rise in quotations, but sellers will make no concessions. In the west the market is bullish and all markets are a cent higher than in the east.

In Montreal the market for Cape wool is unchanged. Some sales are reported at full prices this week. Crossbred and low grade wools are neglected and not wanted. Cape quoted at 13½ to 15c.; Australian and B. A. washed, from 29 to 33c.

About 300,000 lbs. of wool have gone from Toronto to the United States during the past week, but at prices which leave no margin for dealers. The highest price quoted for fleece is 14c. In pulled there is only a moderate business doing. Prices are unchanged at 18c. for extras, and 15c. for supers. The chances are that the market will be quiet, especially for coarse wools, for a long time to come.

THE PRINTING OF WOOLEN TISSUES.

The printing of woolen fabrics is not so common or so old, as the printing of calico, or the printing of silk cloths. This is probably due to the fact that wool did not give such good results in former times, when printers had to depend upon the natural dyestuffs for producing their effects. Those dyes have such a small affinity for the fibre that the effects produced were rather poor. John Mercer gave a certain amount of stimulus to the printing of delaines (mixed wool and cotton cloths), by his discovery of the action of chlorine in increasing the affinity of the wool fibre for dyes, but, even then, wool printing remained in abeyance for a long time, although delaine printing was practised in all the large print works.

It has been, however, the introduction of the azo and acid dyes which has enabled wool printing to come to the front. Their affinity for the fibre is great and is increased by chloring; consequently they produce bright and fairly fast colors. Few difficulties are experienced in their application. Such dyes as Naphthol Black B, Naphthol Green B, Tropaeoline G, Orange extra, Anthracene Yellow C, Scarlets FR, FRR, Brilliant Cochineals 2R and 4R, Wool Red B, Amaranth, Milling Yellow O, Eosine, Azo Rubine A, etc., are much used. The method of application is very simple; the dyestuff is dissolved in water, this solution is thickened with gum or dextrine and acidified with acetic acid, and in general a paste which contains 4 lb. of color in 10 gallons will print a very deep shade. while if this is reduced with gum liquor pale tints can be printed.

With the Naphthol Blacks and Green, the Lanacyl Blues and Violet, it is well to add a little chlorate of potash to the printing color, while with a few others, Cyanole and Milling Yellow, for example, the addition of a little oxalate of ammonia is of advantage. The steaming which follows after the printing should not be too prolonged, nor the steam too wet, or the colors may run.

The chloring should be carried out with some degree of care, or else the woolen tissue may be rendered harsh in feel and have a yellow tinge imparted to it. This effect is probably due to an over-oxidation of the fibre, and it is only by care that this is prevented, the chief point being to avoid using too great an excess of chlorine. The chlorine preparation will suit nearly all the azo and acid coal tar colors; there are some of these Anthracene Yellow, Anthracene Acid Browns, Eosines, etc., which can combine with metallic oxides; and where these are used, a preparation of chlorine and stannate of soda may be used so that a deposit of tin oxide is formed on the fibre, which fastens the color more firmly on the fibre.

Instead of preparing the wool before printing, a method which affects the whole of the fabric, Mullerus suggested the addition of oxidizing agents like chlorate of soda or barium peroxide to the printing pastes, thereby effecting the needful oxidation of the wool at the printing place. This is some improvement, and is worth carrying out, especially when only a small proportion of the surface of the cloth is to be printed on.

One great development of modern tissue printing is in the production of white or colored designs on a colored ground, and in wool printing this is extensively done. There are three ways of attaining this end. The design and the ground is printed on; the ground can be first dyed, and then the design is printed on, or the ground can be dyed and the design printed on with suitable combinations that shall discharge the color of the ground wherever the design is printed. The first method is perhaps the simplest to carry out, but the results are not of the best, the design appearing only on one face of the fabric. The second method is not suitable in all cases, it is only available for colored designs on a colored ground and the color of the latter will affect the shade of the designs. In this case, while the ground colors appears on both sides of the fabric, the design is seen only on one side.

The third, or discharge, method is the one most commonly used. It is not difficult to carry out; the ground must be dyed with dyes of the azo class which can be discharged with tin crystals, or zinc dust, the two universal discharging agents. These used alone give a white discharge, but if there should be added to the printing paste some basic dye, like Magenta, or Brilliant Green, or Thioflavine T, or New Methylene Blue, colored discharge effects are got, and if the process has been properly carried out, the design is nearly as visible on the back of the cloth as on the face or printed side. —Dyer and Calico Printer.

THE WOOLEN INDUSTRY.

To the Editor of the Witness.

Sir,—I note your remarks in Saturday's Witness re R. R. Stevenson's letter on the woolen question, and as a seller of textile woolen machinery, I have reason to believe I know something of what machinery is run in the Canadian mills. Mr. Stevenson is right; Canadian woolen mills generally are up to date in equipment. The knitting mills have the latest improvement in American, English and German machinery. The tweed and worsted mills, also in carding, looms and finishing machinery have the best and latest improvements of all the above countries. The mills to exist had to, or get out of business, as the tariff was not sufficient to protect them with old machinery, as they have no protection, which is a fact I can prove. If they had old and antiquated machinery, and used less elbow grease, there would not be a woolen mill running in Canada to-day.

Comparing our mills, not custom, with the United States, we are as up-to-date and as ably managed. I know several Canadians who own mills in the United States, and they admit that they do not know how we manage to keep our mills going with the tariff we have. These men learned their

business in Canada, and know the conditions in both countries. As you are well aware, the conditions of manufacturing are the same in the United States and more favorable for comparison than between England and Germany and Canada.

Did the United States progress on a 13.34 and 20 per cent. tariff basis? No, sir. You say you cannot put a duty on, as it will tax the farmer; yet the duty, three cents per pound on wool, is for the benefit of the farmer, and equal to 35 per cent. duty on the woolen manufacturers' raw material—more than the duty on the finished cloth, under these circumstances. No matter how modern the machinery, how skilful and economically managed the mills may be, they cannot possibly make headway. You must admit that wages are higher in Canada, coal dearer, money higher, condition of living entirely different from England and Germany. That brings us to the point where fair trade ends and protection begins.

Our factories were established under a 30 per cent. tariff basis of the machinery imported and paid duty on. Thus the English mill worth $100.000, would cost in Canada $140,000, before a wheel was turned. English money is three per cent., Canadian six per cent., charge on capital account. English mills would be $3,000. Canada $8,400, a nice margin to start with in favor of the English mill.

Now, wages in Canada are 25 per cent. more than in England and 35 per cent. more than in Germany, on an average. Does the 20 per cent. and 13.34 meet this? Far from it, the tariff could not be better arranged had you consulted England and Germany before it was made to know what would suit them best, and you ask us to believe it is best for Canada. How patriotic we are to make a tariff to keep English and German workmen busy! When the low tariff advocates get our workmen to accept the same wages as paid in England and Germany and the government refunds the manufacturer the duty paid by them on their machinery, I have no doubt that woolen and other manufacturers will have little objection to fight it out on a fair field, and no favor. Thus with a 30 per cent. net duty the Canadian manufacturer is only on a par with English mills. That is what they ask: what they are entitled to; anything else is discriminating against them. I hardly think any patriotic Canadian wants to bonus other countries to put their manufactures on this market.

Before closing, I note in The Huntingdon Gleaner an item in reference to the exodus to the United States of our young men and women, and it gives as a reason, "protection and excessive taxation doing their deadly work" on the farming population. It is a fact that they are going to the United States, the highest protected country in the world, from Canada the lowest, to escape the excessive taxation and protection of this Canada of ours. They must like high tariffs, or why leave low tariff Canada? If high tariff were a reason, I hardly think they would go to the highest tariffed country in the world.

Try some of the United States high tariff medicine. It may cure the exodus of our young men and women. It seems about what they want, or they would not go to the country that has it.

Montreal, Nov. 25, 1901.

ROBERT S. FRASER.

THE COTTON MARKET.

There has been considerable irregularity in the raw cotton market for some time, caused by disquieting reports as to the extent of the crop. Killing frosts have reached the fields in the south, and practically all the year's cotton, including the top crop, has been picked. The Government official figures place the crop at 9,674,000 bales, while the general expectation was a million bales larger. The result was an excited and advancing market, Reports of a poor crop in Russian Central Asia, caused by rain, and a shortage also in Bokhara helped to cause stiffer prices. Raw cotton for January delivery advanced 24 points at New York in November, while a general advance of 40 to 45 points is noted. The stock is short at all shipping seaports in the south. Some who sold cotton are buying it back at ⅛ to ¼ per cent. more a pound than they sold it for. It would not be safe to make calculations on a basis of less than 8c., and at present in New York the market rules 3/16c. higher.

BOILER ECONOMY.

The subject of economy in the steam boiler has not heretofore received the attention from engineers and manufacturers that it should, and justly deserves. This probably arose from the fact that the prosperity of the manufacturers of the last few years, and the accumulation of wealth which resulted from it, diverted the owners' attention from the steam boiler, as to the economy of fuel, and the waste of material. It is a well known fact that the incrustation that is daily accumulating in the boiler is a waste of fuel, in proportion to the thickness of the scale which becomes attached to the shell of the boiler and flues, and other part, and if the waste of fuel was the only evil caused, incident to the mismanagement of the steam boiler, it might be tolerated in places where fuel was cheap and plentiful; but there are other evils that arise from incrustation, such as burning the iron, granulation of the material, making it brittle and making it liable to explode at any time, and cause great loss of life and property, then we would hear from the coroners' jury "cause unknown." If a steam boiler is to render efficient service, to be a safe and durable and an easy steamer, there are certain conditions that must be complied with. It must be intelligently managed, carefully fired, and not over-taxed, and must by all means be kept clean inside, and this latter is the hardest to carry out, for if the water has only a few grains of minerals per gallon, it can be readily seen that all the water holds in suspension, when the process of evaporation takes place, the sediment deposited in the boiler must necessarily be enormous, and if this is not removed or held in the way of sludge it will in a short time become attached to the shell of the boiler, and before it is noticed, the boiler is burned or blistered and the longevity of the boiler shortened. There are a great many boiler compounds on the market for the prevention of scale or corrosion. The writer with an experience of 25 years, has not found any that will do the work of the Lord's boiler compound, as it only dissolves the scale and holds it in solution, thereby preventing it from settling down in pile over the fire and does not cause the joints to become leaky as any kind of oil will do.

The damper is also a waste of fuel, if not properly set; it is capable, if properly set, of saving fuel and also preventing sudden expansion and contraction of the boiler shell and flues. The damper, to be serviceable, should be well proportioned, work easy, and be tight when closed, of easy access to repair or renew in case it was necessary. It should be opened full, when the fires are being kindled, so as to allow the large volume of smoke and gases to pass away, which arise from the greasy waste and the kindlings used, and the dust made from cleaning the fires. It should be regulated to give the necessary draught to generate the required amount of steam and no more, the same as the pump is set to pump

the amount of water that the boiler demands, and by attention to this, a saving of fuel may be made in consequence of the water being put through the heater slower, and the temperature being raised, which would make a saving of fuel and prevent the variation of the steam pressure. The furnace will be kept at a uniform temperature, and the same result will be gotten as by the pump. It is not so much the quantity of coal the firemen can shovel into the furnace in a given time or the muscular strength that he displays, that makes him valuable to his employers, but it is the skill and judgment with which he performs the duty. The selection of muscle or brute force instead of brains and intelligence, in the care of the steam boiler, should by all means be avoided, as it is a great mistake and one of the many causes of disastrous boiler explosions.—Fireman, in Textile Excelsior.

THE ST. JOHN COTTON MILLS.

The people of St. John, N.B., are to have a welcome Christmas gift, as conveyed in the announcement that the Parks Cotton Mills, so long idle, and recently acquired by a local company, will again be in full operation about that date, giving employment to about 500 hands, to whom the problem of existence this winter would otherwise have been a serious one. The machinery is being thoroughly overhauled and cleaned and the necessary repairs made to the building and plant. Some new machinery has been purchased, and additions will be made, as found necessary. The machinery in the mill is in remarkably good condition, considering the time it has stood idle. The mills will be run in the day only.

In selecting the operators, preference will be given, as far as possible, to those who worked in the mills when they were in operation before. The office staff will consist of Stephen Gerow, bookkeeper; Miss Cowan, stenographer, and an office boy. J. B. Cudlip, who has won for himself a reputation as an efficient and careful manager at the Marysville mills, is to be manager.

All the raw cotton used will be of American growth. No Egyptian cotton will be used. It is expected that purchases will be made in small lots, as Mr. Cudlip is not favorable to stocking up heavily when the markets are so liable to vary.

It is expected that a large part of the output will be disposed of in Montreal, Toronto and Quebec. The Maritime Provinces will absorb a considerable quantity. These provinces take about $1,250,000 worth of cotton goods a year, most of which has hitherto come from the Upper Provinces. The output of the St. John mills is expected to reach $500,000 a year. The present condition of the market is such as to offer great encouragement.

Sufficient applications have been received to more than absorb the capital stock, so that the company will commence operations with ample capital for all requirements.

Barring accidents, both mills are expected to be in full operation by the New Year.

WOOL-CLASSING FIVE THOUSAND YEARS AGO.

Wool-classing, on a large mercantile scale, is no new thing, as the brokers and merchants of London, Sydney and Melbourne would perhaps readily admit; but among "things not generally known," must certainly be included the fact that classified inventories of wool—catalogues they might almost be termed—were made and used five thousand years ago or more. And, yet more remarkable, these catalogues are still in existence, and may be read with accuracy, if not with ease, in this present year of grace, by anyone who has a fair knowledge of Chaldean, and will be at the trouble of visiting the British Museum. In that great Storehouse of the Beginnings, in the New Babylonian room, he will find selections from several thousands of burnt-clay tablets recently acquired by the Museum, from a collection unearthed by the late M. de Sarzec, in the record chamber of the temple of the city of Sirpurra, or Lagas, on the Shat-el-Hri. Mr. W. St. Chad Boscawen describes them as the records of the Chaldean Board of Agriculture of the reigns of kings of the Second Dynasty of Ur, dating about B.C. 2500. Upon these records the taxation was based, and their minute accuracy would put to shame the returns compiled by many Government offices of the present day. Among others,are inventories of skins, two certain items being 1,702 sheepskins and 315 lambskins, while many of the returns relate to the tax of wool paid in by the sheep-farmers. Herein the wool is divided into several classes, the best being the "royal standard;" then three other classes; also mixed wool, brown wool, lambs' wool, and goats' hair. Moreover, in the early inscriptions the price of wool is given—four mana of wool being valued at one shekel.—Textile Mercury.

THE LARGEST LOOM IN THE WORLD.

A Bury, Eng., firm lately built a loom for weaving paper makers' dry felts, which has a total width of 37 feet, a reed space of 29 feet, and weighs 20 tons. It was claimed by English authorities that this was the largest loom in the world. We referred to this claim and received word from an American mill that they were operating an American loom with a reed space several feet wider than that of the Bury loom. C. H. Hutchins, president of the Crompton and Knowles loom works informs us that his company have for several years past been turning out looms with a reed space of 31 feet, 8 inches, and are now building one still wider than that.

A Chemnitz correspondent comes forward with the statement that a German firm exhibited at the Leipzig Exhibition in 1897 a power loom for weaving artists' canvas, which had a total width of 36 feet with a reed space (which is the proper standard of size for looms), of 32 feet, 10 inches. The Englishman retorts that his loom may not be able to weave as wide goods, but it's a deal heavier, "don't you know?" In fact, twice as heavy as the German loom.—Textile World.

A FINE FLEECE.

There has lately been on view at the Royal Exchange, Sydney, a remarkably fine scoured fleece of wool, which has been sent down by Mr. J. D. Cox, of Cullenbone, Mudgee. This fleece, which was shorn from a two-year-old ram—a prize-winner in the fine wool section at the New South Wales sheepbreeders' show in Sydney, in July—weighed 30 lb. 2 oz. in the grease, but as Mr. Cox is a firm believer in the scouring test the wool was handed over to Messrs. Wright and Abbott, of the Lakeside Works, Botany, by whom it was beautifully got up. In the scoured state the yield was 35 per cent., giving a weight of 10 lb. 8 oz., and as the lamb was shorn with only 11 months' wool on. Mr. Cox pointed out that this is equal to 11 lbs. 7 oz. for a growth of the full 12 months. The fleece filled a large case and attracted a good deal of attention, as it proves that in some districts of New South Wales wool of the highest quality and value per lb. can be produced without any sacrifice in the matter of quantity. The wool is of the fine-haired clothing type, which is now so comparatively scarce and which manufacturers are said to be badly wanting.

DISADVANTAGES OF DUST TO THE HEALTH OF THE OPERATIVE IN TEXTILE MILLS.

The most serious sickness to the operatives resulting from dust in textile mills finds its foundation in the breathing organs, the fine particles of dust adhering to the membrane of the larynx, windpipe and finally the lungs, forming a deposit which as foreign bodies cause acute or chronic inflammation.

Dust, as mentioned before, acts hurtfully to the operator on account of its fineness, thus having a chance to adhere to the membrane of the larynx, windpipe and lungs. The finer the dust and the more specific its lightness, the more deeply it penetrates the breathing organs of the body, and thus gets a firmer and more intense seat for the breeding of the disease. When dust enters onto the membrane of our breathing organs, the same excites an irritation, the body trying to expel the dust—impurities—by means of coughing.

Some impurities of vegetable origin (like rice, flour, etc.) are expelled by the coughing, whereas dust of vegetable or animal origin, like cotton, wool, flax, silk, etc., are not always expelled by said cough. After some time this cough becomes chronic—catarrh will enter. If the operative is able to change his occupation, i.e., get fresh, pure air, the catarrh will diminish, but not if the operative is compelled to adhere to his occupation; in other words, being compelled to work in a room loaded with dust, and thus continues to inhale the impurities.

The slight catarrh at the start soon gets chronic, and in turn fever appears. Some individuals, however, have such a strong constitution that the slight attack of catarrh is resisted, and some persons even have the strength to counteract the chronic catarrh, and thus get so acclimated to their occupation that they can work in rooms in which the air is loaded with dust without injurious results to themselves; in fact, may remain at work until old age. However, such cases are rare exceptions.

Cotton.—The injurious effects of dust from cotton (people working in a cotton mill), first gives the person a slight catarrh, noticeable by a dryness and tickling in the larynx: next coughing and later on hoarseness appears, followed by hard breathing and in turn consumption finds its foundation. Large particles of dust (impurities) are certainly, on account of their size, taken up by the saliva and discharged by the body, but this is not the case with the small particles lodged on the membranes of the larynx, windpipe and lungs, and they cannot be removed by coughing.

The most injurious particles of dust in a cotton mill are to be found in the picking, carding and spinning rooms. Persons working in cotton mills using short-stapled cotton are subjected to more danger by dust than such persons working in mills where long-stapled cotton is spun; for this reason mills using waste yarn subject the operative to the greatest chances of inhaling dangerous dust. A recent investigation amongst cotton mills has shown that in a well ventilated cotton mill from 100 sicknesses, 75 cases referred to more or less acute cases of consumption. It must be remarked that this instance referred to a healthy location, the mill at the same time providing splendid tenements for their help, and the food taken in consideration being of the best kind.

Flax.—In flax spinning such operatives as attend to the scutching, roughing and hackling have to stand the bulk of dust. According to the well-known authority, "Prof. Popper," in an average taken from 100 flax spinners 74 are afflicted with consumption, and from 100 operatives employed in scutching, roughing and hackling, 85 are thus afflicted. One of the chief sources of this sickness to operatives in a linen mill is the immense amount of siliceous acid in the fibre. If examining dust as found in a flax spinning mill by means of the microscope, we clearly see in the same the fine flax cells, numerous bast cells being formed pointed, besides lots of fine dust, the natural construction of the flax fibre being yet clearly distinguishable.

Hemp.—In the carding and spinning of hemp, dust is liberated which intermingles with the air in the room, and thus finds its way into the breathing system of the operator. Said dust, if examined by the microscope, shows the fine refuse of the hemp fibre, fine bast cells, all torn and broken up through the process of carding and spinning, also refuse of leaves clearly distinguishable by the remains of their origin.. veins. On account of the considerably larger, coarser and sharper parts of fibres composing said dust, as well as the feature that hemp fibre is more brittle and flawy than the fibres previously referred to, this dust will act more injuriously to the operator.

Jute.—This dust is of a light-brown color, easily adhesive with intermixed refuse of straw and wood, and has the peculiarity to be easily felt. The fibre, on account of the process it was subjected to during spinning, is sharply torn up on the edge, a feature which will make said dust stick to the membrane of the larynx, windpipe and lungs, hard to be liberated from it by means of coughing. According to "Pepper," operatives in a jute spinning mill suffer mostly by means of irritations in the stomach, paleness, and tired feeling, as well as pains in their feet.

Silk.—As will be readily understood by the reader, this refers only to silk waste spinning. The fibre itself is smooth and not easily torn, a feature readily explained by means of the process said fibres had been subjected to. This results that the average health of operatives employed in such silk-spinning establishments is far superior to other textile workers, statistics showing that only 20 per cent. of the sickness of such operatives is caused by the breathing organs.

Shoddy.—Dust as caused at the manufacture of shoddy, mungo or extract is very dangerous to the operative, since the product as used for their manufacture (rags, old clothing, etc.) in frequent cases has been worn by people afflicted with contagious diseases, such as smallpox, typhoid fever, diphtheria, etc., and thus the operative is subjected to any possible germs adhering to the material under operation; again, the nature of manufacturing (picking, garnetting, etc.), shoddy, etc., has something to do with it, since by means of it the original wool fibres are actually broken up in very small particles; in fact, in the manufacture of flocks we might say that the fibres are transformed into nothing more than dust.

We next come to a disease very dangerous to employees in a woolen mill, i.e., such persons as are connected with the grading of the wool. So much has been heard of "wool-sorters' disease" that its nature, causes and method of preventing it should be briefly explained. The disease first appears as an ordinary cold, accompanied with headache, oppression of the chest and much perspiration. Then the temperature gradually becomes high and the pulse irregular, intermittent and weak. A cough comes on, with hurried respiration; the pulse gets weaker and weaker, till the man dies. The whole illness lasts but three or four days. If a post-mortem examination is held the blood is found to be full of innumerable minute germs of fungus, known as bacillus anthracis.

These bacilli are quite different from blood corpuscles; they are small rods and are accompanied by tiny particles of granular matter. The rods measure from 1-2000 to 1-1000 of

an inch in length, and 1-6 or ⅛ of that in width. If some fluid containing these rods be now placed for a few hours in a favorable position and warmed, changes may generally be seen to take place. The little rods grow by additions to their length, though the breadth remains the same, and we may observe the little rods of 1-1000 of an inch spread over the whole miscroscopic field. As to the granular matter, which can be seen mixed up with the rods, there can be no doubt that some of it is spores, or seeds, capable of reproducing the whole organism. The spore often divides into two by a transverse division, and these again each into two, so that a spore originally single may become four. If these subdivisions be watched in favorable circumstances they may be observed to lengthen out at one side till they produce the little rods, and these in turn lengthen out, as we have already seen, till they obtain a comparatively great length.

The theory of this disease is that these bacilli pass with the dust from certain classes of wool into the lungs of the sorter, and thence into his blood. The organism can be found in the washings of infected wools. It can be found in the blood and tissues of men who have been in contact with such wools When the fresh blood containing it is injected under the skin of animals the animals will die in from one to four days, and their blood and tissues will in turn be found loaded with the organism. Blood from these last animals may be employed in a similar way on other animals, and with like results. Ordinary blood, fresh or putrid, has either no effect when injected into animals, or, if it has, will not produce this organism. The name "wool sorters' disease" is, perhaps, too vague, and the malady should rather be called "anthracamia," implying a disease in which the baciflus anthracis is found in the blood.

Until lately it was believed that the disease was caused by the putrefaction of simple animal matter, such as pieces of skin and blood adhering to the wool, which poisoned the blood of the sorter, but researches show this to be incorrect. How, then, does the bacillus anthracis get into the wool? The Angora goat, the Peruvian alpaca sheep or llama, and sheep in all countries, are liable to a disease known as splenic fever, which is caused also by this same bacillus anthracis, and is practically the same as wool sorters' disease. Those animals which have it die, and their owners, unwilling to lose the wool, shear it off and pack it with the wool from the rest of the flock. It is either infected by the mere fact of the animal having the disease or some part of the skin is clipped with it, and thus carries the germs. These fleeces are called "fallen fleeces," and can be distinguished from the rest: one of them, if infected, may contaminate the whole bale, and thus cause the sorter to run the greatest risk. Though all sheep may have this disease, yet it is found that the danger only arises from the following wools, all of which are imported full of dirt and dust, both animal and mineral: Van mohair, which is the worst of all: Persian wool, Camel's-hair, Alpaca, Turkey mohair, Brown mohair, Cape mohair and Cashmere from Thibet.—Textile Record.

LABOR PROBLEM IN JAPAN.

An active movement has been started in Japan with the avowed aim of upholding the interests of working people, abolishing the system of night employment, prohibiting the employment of children at factories, and so on. This apparently philanthropic movement, says the Japan Times, has called forth a protest from the Tokyo Economist, which wishes to remind those who espouse it that it is not compatible with the interests of work people. The Economist tries to demonstrate its contention by pointing out that owing to the existing state of affairs it would not be advisable to abolish nightwork as proposed by the so-called friends of working people. The Journal has heard of the experience of a manager of a factory who abolished the night work in his factory. The operatives themselves objected to the change, because it lessened the amount of their wages. The result of this innovation proved unsatisfactory all round, for this discontinuation did not facilitate the progress of the day work so much as he had expected. He estimated that if girls were exempted from work at night they might undertake 6 out of 10 parts, one-half of which had been previously allotted to day time and the remaining half to night time. Contrary to his expectation he found that they could turn out only 5/2 parts. Besides, the abolition of night work naturally lessened the volume of the output, and the cost of the goods produced under this arrangement became so high that it seriously crippled them in competing with other establishments which produced similar goods. The same journal has ascertained from other factories that it is hardly possible to prohibit the employment of girls below 13 years old. From a business standpoint it is not profitable to employ girls so young, only factories are obliged to give them work from charitable motives, and because they find it hard to reject the earnest applications for employment made to them by their parents. A miner's case is an exception, and cannot apply to most of the other forms of industrial activity. The Economist therefore concludes that all such industrial questions ought to be left to adjust themselves, and to the natural working of economic rules. If the working hour is to be restricted, those who advocate this movement must be prepared to see the productive power of national industry decline and the poor people now subsisting on their work at the factories must be either wholly or partially supported in some other suitable way.

DYEING—SOME NEW METHODS.

During the past few months many small innovations in the methods of applying dyes and dyestuffs to the dyeing or printing of textile fabrics have been brought before the notice of dyers and printers. These are of interest, and may be of service under some conditions, but it is quite possible that they may be unknown to a number of our readers, and so we think that a brief account of some of these new developments may not be without interest, and possibly bring under their notice methods of working with which they were not acquainted, and that might possibly be of use to them.

The principle of bottoming cotton with various blue dyestuffs for indigo dyeing in the vat process, with the object of working at a cheaper rate, is pretty well known and much practiced. The difficulty is to find a dye that will resist the application of the indigo vat and be sufficiently cheap; then, of course, the dyestuff must produce a blue not unlike that of indigo. Melanogen Blue B of the Farbwerke vorm. Meister, Lucius and Bruning seems to have some advantages in this direction that are worth attention. The cotton yarn or cloth is dyed direct from baths of Glauber's salt, and the use of 2 per cent. of Melanogen Blue B makes a sufficiently good bottom. The material is next topped with the indigo vat, using a zinc lime vat, and if Indigo MLB be used very good results are got. After dyeing, the cotton is soured off, used 2 pounds sulphuric acid in 100 gallons of water. By adding copper sulphate to the souring bath greenish shades are got, which are faster to washing and rubbing than the uncoppered blues. Up to 2 per cent. of Melanogen Blue

bottom the nitric acid spot test shows little or no difference from that of a pure indigo blue, but beyond that amount there is a difference, the spot becoming redder in hue.

With the Melanogen Blue bottom, discharge effects can be got as with indigo, using the ordinary bichromate discharge process. White, yellow and red designs can be got, scarcely distinguishable from the results with ordinary indigo, while the cost is less. We may note that the Melanogen Blue B appears to act as a fixing agent for the indigo, and so less labor is needed in the topping bath to obtain the same shade of blue.

When cheap cloths are produced from shoddy materials the cotton fibres and threads are apt to come up after the dyeing process, white or but faintly tinted, which is considered a defect, and is not required. It is not at all easy to cover up these threads. Usually attempts are made to use logwood in cold baths, but the results are not always satisfactory. Advantage may be taken of the fact that Dianil Black CR will dye cotton very well from soap liquors, while under the same conditions it will not touch the wool; with it, therefore, the covering of the cotton may be done during the milling operation. The following mode of working gives good results: The goods are well rinsed and then put into the milling machine, and for every piece of about 25 pounds' weight, 4 ounces of Dianil Black CR, previously dissolved in a little of the soapy milling water, is added, and the milling proceeded with; about 10 to 15 minutes before the end of the operation 2 pounds of Glauber's salt are added in order to ensure the complete exhaustion of the dye from the liquor.—U. S. Journal of Commerce.

KHALAM-KAR, THE HAND-PAINTED CLOTHS OF INDIA.

Mr. Azizudin writes on the above subject in The Journal of the Society of Arts as follows: The competition of mill-made European cloth has not only affected hand-weaving, but also crippled all the ancient Indian industries connected therewith. The trade in khalam-kar, or hand-painted cloths, which was once flourishing in Bandar (Masulipatam), Cuddalore, and other places, has of late steadily declined. The famines of recent years have also helped to stamp out this decaying industry, by contributing to the poverty of the classes engaged in it. As a class, weavers and painters of cloth are rarely well-to-do, the majority of them being in the hands of the usurious cloth merchants, who take their finished goods in repayment of advances made to them. In famine years, the celebration of marriages being retarded, the demand for cloths of all kinds is diminished, and very often the weavers and the cloth painters have to give up their looms and brushes for field labor or some other occupation. On the return of favorable times, most of them return to their profession from the out-door labor, while others, either owing to want of sufficient encouragement in the trade, or the loss, to a certain degree, of their professional skill and delicacy, abjure the craft altogther. The State, of course intervenes to help such persons to tide over the famine; but that cannot lead to the material development of the industry, or to a substantial amelioration of its condition. The one satisfactory remedy seems to lie in finding a market for it.

Khalam-kar cloths cannot be placed in competition with European production of a similar character, which, so early as the days of the Moghul Emperor Akbar, attracted the remark of being "the wonderful works of the European painters of world-wide fame." But the boldness of the designs, with the careful draughtsmanship of the minutest details, and their general finish and harmonious coloring, give them a fascination of their own, and this, taken with their cheapness, would necessarily find them favor in the eyes of many purchasers, if they could only be introduced in merchantable quantities into Europe. They can be utilized as tablecloths, bedsheets, curtains and other articles.

The process of making these cloths is remarkably primitive and simple. The first stage in the process is the preparation of the cloth for the painting. This is done as follows: A sufficient quantity of gall nut is powdered and boiled in water, and the sediment is removed; after which one-fourth measure of buffalo's milk, or one-half measure of cow's milk, is mixed with water; the cloth is then put into it and saturated; and after a time it is taken out, strained, and allowed to dry. It is subsequently folded and beaten down with a dyer's block. The cloth is now ready for purposes of painting. The painter takes a quantity of alum, and boils it in water. With this solution, which gives a pale dark color, flowers and other objects are drawn artistically with a brush, or printed with a block on the cloth. The cloth is now dried, and gently washed in water. It is then boiled in water with pounded roots of nuna (Morinda umballata). During the continuance of the boiling process, which lasts for nearly three hours, the cloth is frequently stirred up with a stick. It is then taken out, and left to cool. When cooled, it is immersed in water mixed with sheep dung, and immediately taken out. It is again washed well and dried by spreading for nearly six hours over the damp sand in the river bed. This process renders the vacant spaces between the flowers white. The white portions are then colored with dyes of local manufacture, or with any European dye, after it has been boiled with gall-nut water. White and black are believed by the Hindus to be the origin of all colors, and are looked upon as extremes, and as the component parts of the other colors. Indigenous black color is obtained by burning pieces of old iron in dry plantain leaves; and then boiling them in water with sugar-cane jaggery and pounded marking nut (Semicarpus Anacardium). Yellow is manufactured by dissolving Bengal saffron with aplakaram, a substance akin to soda, and boiling in water with gall-nut "flowers." Green color is obtained by dissolving pure indigo in similarly treated water. Other colors are prepared by similar devices, and each color is painted in separately. Finally, the cloths are soaked in boiled rice water and strained. They are then ready for the market.

The price of a bed-sheet of khalam-kar ranges from Rs. 1½ to Rs. 2. It is durable and of fast color, and is commonly used by Mussulmans of Singapur and Sumatra, and other places. In India, it is largely in demand on marriage occasions, when it is used by the middle classes as a covering, or palang-posh [Anglice palampore]. It is also largely utilized in the decoration of Hindu cars. This art was apparently introduced into India by the Mo(n)gols from Persia, and in the days of Akbar, who showed a great predilection for the art of painting in all its application, and gave it considerable encouragement. Abul Faz writes that the work of all painters was weekly laid before the Emperor, and they were rewarded according to the excellence of their workmanship; and that in this way much progress was made in the commodities required by painters, and that the mixture of colors was especially improved.

Although the Mussulman religion prohibits drawing of likenesses of living objects, yet Akbar with his wonted liberality of thought, not only encouraged the art of such painting, but even censured those who had on religious grounds imbibed a hatred for it. One day, at a private party of

friends, the Emperor is said to have remarked: "There are many that hate painting; but such men I dislike. It appears to me that a painter has quite peculiar means of recognizing God—for a painter, in sketching anything that has life, and devising its limbs one after the other—must come to feel that after all he cannot bestow life upon his work, and is thus forced to think of God, the Giver of life, and will thus increase in knowledge of God."

It is to be hoped that the khalam-kar cloths may find a market in England, and Europe, and America, in which case this vanishing industry will be resuscitated in India, and thus a portion at least of the Indian population, whose sole occupation is agriculture—will be better able to withstand the calamities to which they are recurringly exposed in seasons of scarcity.

A PERSIAN CARPET YARN.

During the last visit of the Shah of Persia to Paris he paid a visit to the Gobelins, where he showed a most appreciative interest in all that he saw. Before a remarkably fine Persian carpet, given to the museum by M. Goupil, he remained for some time, interpreting for himself the symbolical allusions thickly embroidered upon it, which, however, he declined to translate into French. A few days since the mystery was cleared up. There arrived in Paris the manager of the Imperial Carpet Weaving Factory in Teheran, who stated that he had been commissioned by the Shah to study the methods of manufacture in use at the Gobelins. To him the director applied for a solution of the legends of the carpet which had so captivated the Shah. Thereupon the Persian began to read out a running translation: "A carpet for the ruler of the earth; superiority for his feet; how beautiful it is; it is in his cabinet and knows his secrets. It is pleasant as Paradise, and brighter than the Academy of Mari (a Persian painter), for it contains all the colors of China. The nightingale coming to perch upon it cannot tear itself away from its loveliness. Neither winter or autumn can ever change the tints of this carpet." This is a good deal for one carpet to signify, but critics say that it is justified in holding a high opinion of itself. It is about three centuries old.

WEAVING A MINERAL.

The mystery which has surrounded the fibrous mineral, known as asbestos in the popular mind, has been one of long standing. From ancient history we learn that asbestos was used in the arts to some extent, but the few cases which have been authenticated are those in which fibres of this interesting mineral were spun into threads, woven into cloth, and used in one case to amuse a Roman Emperor's guests by throwing his asbestos napkin into the fire for cleansing, and in another for the purpose of containing the remains of the dead during and after cremation.

Since 1868, however, asbestos has been brought from the darkness of the laboratory and museum to the full light of the commercial world. As a mineral, asbestos appears a gray-green glistening rock, easily discerned, and greatly differing from the matrix in which it is found imbedded. To one whose experience has led him to examine mines of varying kinds, a curious characteristic is immediately noticeable, namely, that though the serpentine matrix above and below the nearly horizontal vein of asbestos is igneous and found its place in the liquid or molten state, the asbestos between it seems to have crystallized almost perpendicularly; that is, though the asbestos runs parallel to its matrix, its fibres are practically perpendicular. The geologist has never informed us why. It is hard, but is easily crushed, after which it turns to a pure white and resembles nothing more than cotton. It is fibrous, differing from all other known fibres, inasmuch as each apparent fibre is shown by the microscope to be still indefinitely divisible, although no instrument has been made fine enough to accomplish its further division.

In the foregoing will be found the sole reason for the value placed upon this mineral in modern times, namely: It is a mineral, therefore incombustible in the ordinary sense; it is fibrous, therefore it may be spun and woven; it is flexible, therefore it may be made into any form. Incombustible, flexible, spinable, weavable, and practically acid proof, these qualities make it as nearly indestructible for the purposes for which it is used as any known material.

At the present it would seem that there is no line of commercial business, mechanical, electrical, chemical or structural, in which asbestos in some form or another does not enter, and to an important degree. No steam pipe, boiler or engine can free itself entirely from asbestos; no dynamo, motor or any of the numberless adjuncts to the development or transmission of electrical power can claim absolute freedom from it; no chemist can banish it from his laboratory, and no building of the modern type can be called fireproof without its aid. In short, asbestos is a material which is indispensable wherever the best results in modern mechanics are required.

Its main commercial uses are for pipe coverings, boiler coverings, heat insulation, for any degree, and for steam packings in almost numberless forms.

In the field of electricity, asbestos has been called into use as a non-conductor of the uncertain fluid, and to protect the delicate mechanism from the overheating due to short-circuiting or overloading; that is, the use of asbestos in the form commonly called vulcabeston, which simply means vulcanized asbestos. A dollar's worth may be, and daily is, the means of saving many thousands of dollar's worth of valuable machinery, as any electrical engineer will admit.

The manufacturing chemist, as well as the analyst, requires this material wherever heat is an important factor in his manufacture or experiment. Acres of asbestos cloth are used for filtering hot acids, alkalies, salts, etc., and it has been found the only material that permitted the theorist to develop processes which he well knew were possible, but lacked the one essential—asbestos.

The skyscraper of to-day, as well as buildings of all other classes for modern purposes, require the fireproof quality of asbestos under many conditions; in the form of wall plaster, containing only a small portion of cement, it is largely used: being fibrous, it will not crack; being fireproof, it will not carry flame; and, having both of these qualities, it will stay in place under the combined action of fire and water as long as the supporting structure will last. Public tests have been made proving this, both abroad and in this country.

As a building felt, manufactured on the usual cylinder paper machine, it has no peer. As a roofing, it is first made waterproof, and yet will resist the encroachment of fire from the inside or outside many times as long as metal would. Many instances have been cited where a wooden building has burned down, the roof fallen in, and the flames smothered by the asbestos roofing.

It is impossible to do more than touch on the large variety of uses to which asbestos in some form is put. The United States Government has ceased to use wood on its warships, and has replaced wood in many instances with asbestos, as a

fireproof, non-splinterable, and non-conducting lining throughout the vessel. The well-known battleship "Oregon" carries *some seven and one-half miles of pipe and boiler coverings* made entirely of asbestos.

The company with which I am connected turns out from five to seven miles a day of asbestos roofing. Their 110-inch paper machine is capable of turning out twenty tons of asbestos paper per day. As a summary, it may be said that wherever fire and heat are present, asbestos is in demand.

THE INDIGO CROP OF INDIA.

The following statements, regarding the condition of the indigo crop in the Northwest and Oudh provinces have been sent by the Belgian consul at Calcutta to the "Bulletin Commercial of Brussels," viz.:

"In consequence of the continual low quotation of prices, the acreage of the indigo plantations has been rapidly diminished. In 1900, there was a slight improvement, but during the present year veritable discouragement has been produced among the indigo planters. Until the middle of April, 117,313 acres were planted with indigo, against 183,645 acres last year; the irrigations have only reached 78,894 acres against 162,299 acres in 1900. The germination of the seed has taken place in good conditions, since there was no want of water. Some districts have had to suffer from floods, but it is principally the lateness of the monsoon which has afterwards caused serious failures of the plants.

"In none of the districts is a normal crop expected; according to the present appearances, the yield will in the divers districts vary between 25 per cent. and 75 per cent. of a normal crop. The recent rains, however, have done much good, and there is hope of a great improvement."

THE WORLD'S SHEEP.

Amongst domestic animals, the sheep is the most useful to man. In the British Isles alone there are 29,000,000 sheep. The world's total stock is 540,000,000, or fully 100,000,000 more than all other domestic animals combined. It might be possible to dispense with the 2,800,000 tons of mutton the world devours in the course of a year, though it comprises one-fifth of the total meat supply; but what we could not do without is the wool. Great Britain alone exports 341,000,000 pounds' weight of wool in a year, turning this vast amount of fleece into material valued at $220,000,000. The world at large works up nearly 12,000,000 tons of sheep's wool in the same period. This is a much greater amount than that of any other material used for cloth-making. Cotton only runs to 13,000 tons, and the other forty fibres in common use do not altogether aggregate half of this amount.

NEW DYESTUFFS.

Fast Light Yellow 3 G.—This new brand differs from the older Fast Light Yellow G., chiefly in its shade, it producing a much clearer and greener tone, and is also remarkable for its particularly full shade. Fast Light Yellow 3 G, like the older G brand, dyes in a strongly acid bath, and is possessed of the same excellent fastness to light; further, it dyes equally as level as tartrazine. Cotton checking threads are left white, and it is equally as well adapted for the same branches of dyeing, as the older G brand. The color can be discharged a good white with zinc powder, tin crystals, however, not producing so good an effect.

Katigen Indigo B.—This new dyestuff, like the other numbers of the series, is dyed with sulphide of soda, glauber salt and soda. The strength of this product has been considerably increased, 65 parts of the present make being equal to 100 parts of the older quality, the benefit of which is given to the consumer. Katigen Indigo B will, no doubt, form a good substitute for indigo, owing to its excellent fastness to light, its good resistance to washing and boiling, as well as its good fastness to cross-dyeing, which no other product of a similar shade possesses to the same degree.

Our latest pattern card No. 875, 1901, illustrates fashionable shades on gentlemen's suitings. This card shows the different kinds of undyed material, together with a range of shades, that will in all probability be in vogue during the coming winter season. We have also included in this card a number of fashionable shades that are still popular, and trust that this shade card will be found useful to all interested in this branch of dyeing. Only such colors are used as dye easily, level and meet all other requirements.

Samples, instruction circulars, and pattern cards will be mailed gratis to interested dyers, upon application to the Dominion Dyewood & Chemical Co., Toronto, sole agents in Canada, for the Farbenfabriken Vorm., Friedr. Bayer & Co., Elberfeld, Germany.

NEW CHROME AND COLORS.

New samples to hand from the Society of Chemical Industry, Basle, Switzerland, of Chrome, Fast Browns and Yellows, show some improvement over the older brands.

These colors, demanding an increasing interest every day, are well worth the manufacturer's attention. Being practically equal in fastness to the alizarine and anthracene colors dyed on chromed wool, and being much more cheaply and easily handled, they must very shortly replace these colors.

Chrome Fast Brown, B, dyes and prints very level shades, and is in this respect very superior to all other manufactures. Carbonized with sulphuric acid it becomes a little more reddish. It is fast against ammonia (street dust). Is fast to milling during half hour with soap and soda at 60 deg. C. When milled for eight hours with soap and soda, at 55 deg. C. it becomes considerably clearer and somewhat yellower, and is considerably faster to light than all other brands are with 3 per cent.

Chrome Fast Brown, G.—Fast to milling, but turns somewhat yellower, and is fairly fast to light.

Chrome Fast Yellow, G.—Is a fustic shade. It is very fast to milling and light, and does not bleed into white wool or cotton. It is as cheap to dye as fustic, and is strongly recommended to replace fustic for all classes of work on wool.

Chrome Fast Yellow, G G.—In milling, this bleeds somewhat into white cotton, but in all other respects is fast. Like chrome Fast Yellow G, it dyes very evenly, penetrating heavy cloths without difficulty. Dye with 2 per cent.

The dyeing process for these chrome acid colors is as follows: Begin dyeing almost cold with necessary amount of color and 5 per cent. acetic acid; heat gradually during half an hour to the boil, add 1½ per cent. bichromate potash, boil from half to one hour, rinse and dry. Samples and any further instructions can be obtained from Watson, Jack & Co., 7 St. Helen St., Montreal, sole agents of Society Chemical Industry in Canada.

BENZYL COLORS.

These colors are suitable for dyeing wool in hanks and piece goods. They dye level shades and are considerably faster to washing than the ordinary types of acid violets.

Further, they possess the valuable property of dyeing wool in a neutral bath, which makes them very suitable for dyeing unions, by dyeing the cotton first with substantive colors, and then the wool in the same bath with Benzyl Violet or Benzyl Blue. Wool is dyed with 10 per cent. Glauber salts and 5 per cent. sulphuric acid. In dyeing unions, after dyeing the wool only, the cotton is left practically unstained. These colors are fast to acids and alkalies; fairly fast to sulphur. There are three brands: Benzyl Violet 10 B, Benzyl Violet 6 B Benzyl Blue B. Fastness to light is not very remarkable, but is, however, sufficient to answer the purpose of this class of dyestuff.

Benzyl Blue S.—Is an acid color which is considerably faster to washing than wool Blue S, and is equally as fast to acids (sweating), chlorine, ammonia (street dust), and other influences. It is fairly fast to sulphur, though it turns somewhat greener. However, as the alteration is not unfavorable, Benzyl Blue S is suitable for dyeing woven articles which have to undergo a sulphur treatment.

Benzyl Green B.—This is an acid color, dyeing level shades of a pure blueish green, which surpasses Kiton Green in purity. It can be dyed in a neutral bath (Glauber salts), and also with sulphuric acid, draws on slowly, therefore dyes very evenly and can be added to a hot bath for shading purposes. It is fairly fast to washing without bleeding into white wool or cotton, and is fast to sweating and street dust, and withstands sulphuring very good.

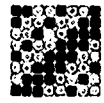
All particulars can be obtained from Watson, Jack & Co., 7 St. Helen St., Montreal, sole Canadian agents of Society Chemical Industry.

THE ROSAMOND MILLS.

Referring to the closing of the Rosamond woolen mills, at Almonte, the Times, published in that town, which is understood to give expression to the views of the Rosamond Co., says: "The people of Almonte have been having for some time a practical illustration of the manner in which the preferential tariff affects the woolen industry in this country, as the mills of the Rosamond Woolen Co., which have given steady employment to nearly 400 people for many years, were closed down owing to lack of orders. The Almonte factories are by no means exceptions to the general rule, because the woolen trade all over Canada is in a greatly depressed condition and many of the mills are fighting for their very existence. In order to meet increasing competition from England, the wages of Canadian woolen workers have in many cases been reduced, these reductions ranging all the way from 5 to 25 per cent. The management of the Rosamond Woolen Co. have not as yet adopted this policy, but they feel they are waging an unequal battle and that if the tariff remains unchanged, it is possible that they may have to resort to some expedient of this kind in order to operate their plant successfully. At the recent meeting of the Canadian Manufacturers' Association, the woolen men laid their case before the Ministers present, and strongly insisted on the necessity of revising the tariff in so far as woolens are concerned. No definite answer was given by the Government, but it is to be hoped for the sake of the immense capital invested and of the workpeople employed that some remedy for the present condition of affairs will soon be arrived at. The tariff also affects the local farmers, as the mill above referred to, when running full time, consumes annually many thousands of pounds of Canadian wool, most of which is purchased from the farmers in this district. Largely owing to the decreased consumption of this valuable product of the farm, the prices are now at the lowest figure ever known."

Textile Design

FANCY WOOLEN TROUSERING.



Complete Weave.
Repeat 8×8

Warp:—3,672 ends, 8 or 16-harness straight draw.
Reed:—18×3.
Dress:—

4 ends, 4¼-run, olive.
2 ends, 2-ply, 8-run twist, crimson and gold.
4 ends, 4¼-run, brown.
2 ends, 2-ply, 8 run twist, blue and gold.
4 ends, 4¼ run, olive.
2 ends, 2-ply, 8-run twist, crimson and gold.
4 ends, 4¼ run, brown.
2 ends, 2-ply, 8-run twist, blue and gold.

24 ends repeat of pattern.

Filling:—52 picks per inch, all 4¼-run olive.
Finish:—Fancy cassimere finish, shear clear; 56 inches wide.

WOOLEN CHEVIOT SUITING.

Complete Weave.
Repeat 4×4

Warp:—1,560 ends, 8 harness straight draw.
Reed:—12×2.
Dress:—

2 ends, 2½-run, green mix, 2 ends, 2½-run, dark brown,	× 6	=24 ends.
1 end, 2½-run, green mix, 1 end, 2½-run, dark brown,	× 2	= 4 ends.
2 ends, 2½-run, green mix, 2 ends, 2½-run, dark brown,	× 5	=20 ends.
2 ends, 2½-run, green mix,		= 2 ends.
1 end, 2½-run, dark brown,		= 1 end.
1 end, 2-ply, 5-run twist, red and dark brown,		= 1 end.

Repeat of pattern, 52 ends.

Filling:—28 picks per inch, arranged thus:

1 pick, 2½-run black, 1 pick, 2-ply, 5-run twist, black and pearl,	×29	=58 picks.
1 pick, 2½-run, black,		= 1 pick.
1 pick, 2-ply, 5-run twist, red and dark brown,		= 1 pick.

Repeat of pattern, 60 picks.

Finish:—Woolen cheviot finish, scour well, clip on shear, 56 ins. wide.

CRITICIZING THE BRITISH MANUFACTURER.

P. H. Burton, of the Merchants' Dyeing and Finishing Co., Toronto, writing to the Drapers' Record, thus criticises the methods of a certain class of British manufacturers, and helps to explain the position with reference to the preferential tariff: "I notice that your Manchester correspondent says that there is a feeling growing in Canada against the preferential tariff. The feeling is against the frauds that are possible under it of passing off foreign goods as British, and not against the preference itself. Our efforts, however, to prefer British goods are not seconded by many British producers—notably, the Calico Printers' Association. They deserve the present great depreciation of their stock. There are 60 concerns in the combine, and not one of them has taken up the printing of flannels. You can go to an Alsace concern and get a printed all-wool flannel, a printed all-wool delaine, a printed half-wool delaine, a printed muslin, organdie, or calico as you may wish, or as fashion

hands, but the 60 concerns in the combine still want to ick to the same classes of fabrics they have done for gen- ations, or demand unreasonable quantities to take up other ths. The Alsace printer will give you 100 metres to a or, or even 50 metres on payment of ½d. metre more. e Manchester printer wants 300 or 400 yards or nothing; metimes he will take 250. The American is also in evi- nce in Canada. We can buy the fabric that is in demand, hether calico, muslin, organdie, dimity, or flannelettes— lendid styles—pay the full duty, 35 per cent., get assorted ses, and sell them against British goods paying 35 per nt.—½ = 23 1-3 per cent. duty, and make money on them. t I suppose the C.P.A. will muddle through somehow."

A NEW CARPET.

It may interest many readers to learn that there is being manufactured in Scotland a double carpet. By double carpet we mean two Axminster carpets woven at one time, face to face, a feat never accomplished before. It is woven by a specially patented process on the principle of the celebrated Persian carpets, and the pile is woven from back to face, and cannot be brushed out as in ordinary pile carpets. Woven face to face in one fabric, they are afterwards split and finished by specially-made machinery. Rugs and mats are also made by the same process. This carpet is running the cheap American Axminster very closely, and there is no doubt a great future before it.

ENGLISH SHEEP AND WOOL PRODUCTION.

Notwithstanding the enormous supplies of wool we draw from our Colonies and foreign countries, the home produc- ion remains a factor of considerable importance. It is very doubtful whether, for the sake of wool alone, the rearing of sheep would be followed to any material extent in this country, in face of the powerful competition to which it is subjected by our Colonies and two or three leading wool-pro- ducing foreign countries; indeed wool has now come to be looked upon by our farmers and the country rather as a by-product in one branch of our food supplies. Mutton in this respect holds a considerable place, and where mutton is produced there must be also wool. The Times, in its review of the state of agriculture during the past statistical year, referring to sheep, says: "The statistical character of the sheep industry has been unsatisfactory for a number of years. The depredations of the memorable drought of 1893 had the ultimate effect of reducing the numbers both of cattle and of sheep to a minimum in 1895, but cattle-breeders have recovered more rapidly than sheep-breeders from the blow which was then dealt them. The proof of this asser- tion is found in the fact that, whereas the cattle of this year are 326,599 over the decennial average, the current total of sheep falls 572,461 below it. In the present year, moreover, the total of sheep, at 30,829,784 head, is 224,942 less than that of last year, while it is as much as 2,813,024 below that of 1892, when the largest total of the decade was registered. There are, indeed, only three years of the preceding decade— 1894, 1895, 1897—in which the aggregate of sheep fell below this year's level. The current total includes 15,548,057 sheep in England, 3,427,734 in Wales, 7,401,409 in Scotland and 4,378,645 in Ireland. On the year Scotland alone shows an increase, and that to the extent of 86,412 head. As against this England has a decrease of 206,656, Wales of 4,782 and Ireland of 8,231." The total of sheep in the United Kingdom for this year as given in the official returns is 30,829,784, against 31,054,726 last year and 29,774,853 in 1895, the lowest in the de.ade. Compared with 31,402,245—the average of the decade—the figures are not satisfactory, although one would think that an industry which calls for the employment of very little labor might in these days have shown a steady increase. The maximum figure of the decade was reached in 1892, when the census showed 33,642,806 sheep in the Kingdom. The slowness of the recovery is not a good sign, showing as it does either the strength of opposing forces, or a want of enterprise in those who follow the business of sheep-raising. From the number of sheep recorded, which include all our different varieties, there will be approximately a supply of 200,000,000 lbs. of wool per annum.—Textile Mercury.

DON'T CROWD THE CARDS.

A stray hand writes thus concerning an evil practice prevalent now-a-days: It has been often asked why it is that cards make more waste and need to be stripped and cleaned oftener now than they did years ago. This can be answered in a few words; manufacturers and carders are crowding too much stock through their cards. They start on a lot of stock, enough to make a two run roving; then speed up their cards, doffers, etc., and take off 4 and 5 run roving. This is called production; for they turn off a large quantity of work and never think of the results to cards and clothing. Forty-five years ago the writer stood at the feed table of the old style card and weighed out the feeds and spread them with care upon the feed apron, always being careful to get each feed just the same. In those days there was not the change gears of to-day. If they wished to make six run work they put just the amount into the scales to make that, then having their 1st, 2nd and finisher adjusted equal, the stock passed through all in a continuous web of six runs weight until the finish. If it was heavy or light the adjusting was done at weight on the scales at the feed. In this way the cards were not overtaxed, thus requiring less grinding and stripping. At the present day many carders are crowding all and more stock through their cards than they are able to take care of and carry along, thus making an unnecessary amount of waste and flyings besides grinding the fibre instead of carding it, and thus making uneven jumbled and specky yarn, to say nothing of the wear and damage to the card clothing. Everything in the makeup of card clothing to-day is far superior to that made forty-five years ago; yet its life is shorter and it loses its usefulness before it should. To see the results of this card crowding system one has only to take a stroll through the finishing department and count up the number of hands employed in burling, specking and sew- ing in. Forty-five years ago a sewing-in girl was rarely seen, whereas at the present day there are mills that keep quite a number of this class of help. One mill the writer has in mind where he was employed, and the carder was running on the stuffing system, getting off a large production of specky uneven and twitty yarn, kept a sewing-in girl for nearly every set of cards. When you see a girl one, two and three days on one cut of cloth, sewing in, there is something wrong somewhere. If you want to turn off a large production don't try the stuffing process. If you do, you will hear something drop some day.

The Crown Laundry Co., of Montreal, with a capital of $10,000, is applying for incorporation. The applicants are, W. S. Richardson, James McNab, William Geraghty, Wil- liam Heaton Henry, of Westmount, and W. M. Reid and A W. Adams, of Montreal.

TECHNICAL TRAINING IN THE UNITED STATES.

There are 629 universities and colleges and 43 schools of technology in the United States. The total value of the property possessed by institutions for higher education amounts to nearly $343,000,000. The endowment fund amounts to over $154,000,000. The total income for the year, excluding benefactions, was nearly $28,000,000. The value of gifts and bequests during the year 1898—1899 amounted to about $22,000,000. Some $2,500 is invested for each student enjoying the advantages of any of these institutions of learning Thus is the United States prepared to promote the intelligence of its young people. And the movement is still growing. With the educational equipment that country now possesses, it ought to lead the world in commercial and industrial competition, for that depends upon intelligence, of which the schools and colleges are a guarantee. Is Canada doing all it should in this respect?

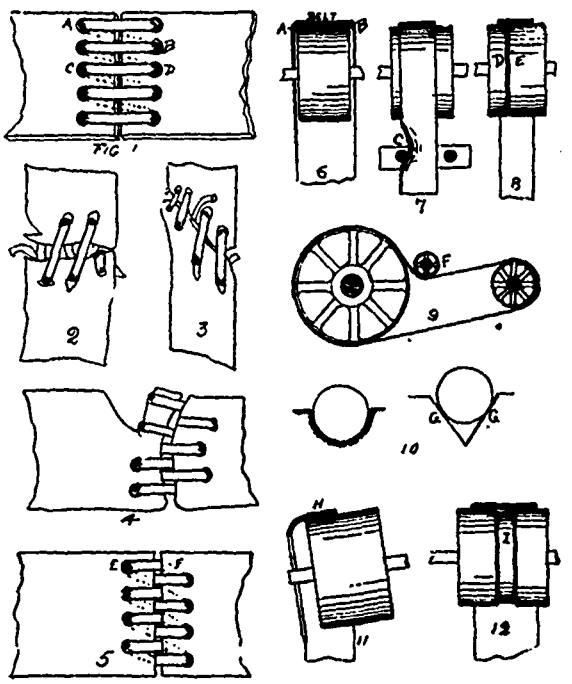
—Two foremen, John R. Ball and Chas. Harsant, employed by the Continental Cloak Co., of Toronto, are under arrest for stealing goods from the company.

BELTS AND MODERN MACHINERY.

We show in the accompanying sketches a number of samples of belting sewings, indicating the difference in good and poor unions as applied to modern machinery. In olden times, when slow-speeded machines were employed largely, there was not very much need of skill in joining belting. Almost any sort of a union that would hold the ends of the belts together served. But a few years ago the demand for increased speed in all types of machinery caused a revolution in the mechanism for operating the machines. The wobbly gear which served effectively a dozen years ago on the moderate speed machine, had to be substituted by up-to-date gears which could be operated at high speed. The same with pulleys and belts. The first view, Fig. 1, shows a belt splicing laced firmly, and which ought to serve all purposes on the ordinary driving gearing. It is made by first punching a row of holes in either end of the belt leather very evenly. The only way to do this is to use a foot rule, measure off an inch from the ends, and draw a line with scratch awl. Then prick the holes at proper intervals according to the marks on the rule. Then use a good smooth cutting punch that will cut clean, and not tear the leather. Then use a good, strong and evenly shaved belt lace, starting at hole a, proceeding underneath to hole b, through which hole come up Thence over to the opposite hole, down and up through d and over to c, and so on. Go over twice with the lace, and if required, three times.

If you pass through a mill in which considerable machinery is running you will observe belts flapping about on some of the wheels, resulting in slipping of the leather, loss of power and general bad work, which may be attributed to the machine itself, when it is due to the poor way in which the belt is laced. An examination may show that the belt lacing is something after that in Fig. 2. I have observed many similar lacings, even on important machinery. The frail lacing draws out and trouble is constantly experienced. When a belt is laced after the manner of Fig. 3, the chances are that the belt will pull in such manner as to cause it to lose its alignment. Part of the belt will tend to run to one side, while the slanting formation of the union will tend to draw the other power to the opposite side. Thus the belt will wobble from one side to the other on the wheels, causing the motion of the machine to be unsteady. Still another troublesome type is shown in Fig. 4. Here the system of lacing the belt is not very poor, but the leather in the belt is inferior, for it has torn open, as shown, along the row of holes. The selection of good leather is, therefore, as important as the employment of effective lacings. The cheaper grades of leather belting may prove serviceable for the light and low-speeded machines, but when it is necessary to drive the faster running devices of the age, it is a wiser and more economical plan to invest in the superior grades of leather belting.

But even the best grades of leather belting and effectively united ends, prove fruitless when it comes to placing the new belt upon a system of high-speeded wheels in which the turns to be made are short and sharp. Take the sample in Fig. 1, for example. Supposing that the belt is run at high speed over a series of small wheels. The chances are that the numerous turns to which the splice will be subjected will



strain the flaps and draw them out to such extent as to cause them to loosen and wear off prematurely. If, however, the lacing is effected on the plan of that shown in Fig. 5, there is great freedom offered to the union to turn. It will bend like a hinge. The bending is accomplished without any strain upon the laps. The process of lacing this union consists in first punching the holes in the butts about three-quarters of an inch from the ends, following up with a single lace, which is inserted in hole e. From this point the lace is passed down between the ends of the belting and brought up again through hole f, in the opposite portion, as shown. The dotted lines indicate the plan of the drawing of the laces on the under side.

We may buy good belting for the new modern high-speeded machinery, and then have the whole system spoiled by the process of applying the belting power to the machine itself. I found belts too large and belts too narrow running on some of the best machinery, to the detriment of both belting and machinery. The view in Fig. 6 is one which seemed common, the belt being too wide for the wheels. Sometimes the belt is selected promiscuously from a lot of belting which may be on hand, or perhaps the person mak-

ng the measurement failed to get correct dimensions. When the over-width belt is applied, and run for a time, the edges, of course, begin to drop over the rim of the wheel, as at a and b, and in a few months the leather is ruined. Such belts have to be removed and the edges cut off in order to save them. Again, a belt is sometimes applied which is too narrow for the wheels, and although it may ride well, it is out of proportion to the pulleys and slipping occurs. In Fig. 7 is a way used by some machinists to retain a belt in the middle of a pulley. The guide pin at c soon wears off the belt edges. This is not the right way. The belt probably runs to one side of the wheel because of the incorrect alignment, or perhaps the belt is not laced evenly, or may be the belt is too loose, or warped, or not heavy enough for the work

In Fig. 8 is a common mistake which I noticed, consisting in adjusting the belt guides in such way that the belt could not ride the fast pulley enough to turn it properly. Most of the belt is over on the loose pulley e. This type of defect, although causing much trouble, is simply remedied by adjusting the guides or shippers to bring the belt over on the fast pulley. In Fig. 9 is a good way to have an idler or take-up wheel for belts arranged on one large and one small wheel in systems in which the wheels are in close proximity, as in the cut. The idler is marked f, and should be operated in bearings which are hinged or studded to framework in such a way as to permit the wheel to ride freely and to gauge the tightness of the belt by its own weight.

A word or two concerning the driving of modern machinery with ropes. In Fig. 10 are the two common ways of using the grooves for ropes. In the first view, the rope is shown in the perfectly round groove and these ropes slip, because pressure from the rope merely means to bind the rope closer to the smooth oval-shaped groove without permitting a positive grip. Thus we have much slipping and wear. In the V-shaped groove, however, the rope gets a very good opportunity to grip or bite the groove at g. g. by its own weight and pressure. Thus we have practically no slipping.

In Fig. 11 is shown one way in which good machinery is put out of effective running order by poorly adjusted driving gearing. The shaft carrying this wheel is not in line with the shaft of the driver. The plane of rotation formed by this diversion from the straight alignment causes the belt to run over on the low side of the wheel, and the centre of the belt is at h. The portion beyond the centre is permitted to lap over and become worn and torn by the prongs of the shipper, if a shipper is used, or by the guides which are ordinarily nailed up to hold the belt in place when the belt runs as shown. The proper mode of procedure is to line the shaft with driver shaft, and place the centre of the wheel opposite *the centre of the opposite wheel. In Fig. 12 is a sample of* a case which came to notice in which a new machine of good construction failed to give good service, and it was supposed that the machine was inferior. An examination of the driving power developed the conditions shown in Fig. 12 in which the driving wheel was composed of three pulleys. All three were supposed to be secured to the shaft with keys or set screws, but for some reason the centre wheel was never tightened, and besides it was of smaller diameter. Thus the best portion of the belt power was lost and the belt which under right conditions was wide and strong enough to drive the machine steadily, failed to run the machine without jarring, loss of motion and generally defective work. The machine was blamed for this, until the defect was discovered and rectified, after which the machine gave no further trouble.

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.*

It is proposed to turn the old cotton mill at Dundas into a boot and shoe factory.

The wincey mill at Brantford has been purchased by the Bailey Cutlery Co., who will convert it into a cutlery factory.

The Canadian Colored Cotton Mills Company, Milltown, N.B., are equipping all their pickers with the new "Tripod" eveners.

The old carding mill at Appleton, belonging to the Messrs. Brown, has been taken down and will be removed to Carleton Place.

Several new machines have been added to the equipment of Logan Bros'. woolen factory at Renfrew. Its capacity is now taxed to the utmost.

Stevenson, Blackader & Co. have been made selling agents for the Dominion Cotton Co.'s mills. They already represent the Montreal Cotton Co.

The Kingston Hosiery Company is asking for a further period of exemption. It is now employing half as many more workmen as it was obliged to under the terms of the agreement with the city.

The Hamilton city council has agreed to supply W. A. Holt and his associates in the new knitting factory with water for $10 a year under 4,000 gallons; over that quantity 7½ cents a thousand gallons. An attempt to fix the former amount at $50 was unsuccessful.

A large number of employees at the woolen mills at St. Hyacinthe recently refused to be vaccinated as required by the Provincial Board of Health. They held a stormy meeting to protest against the order, and threatened to strike if it was insisted on. The enforcement of the order caused considerable feeling.

A heroic act on the part of an elevator man is worthy of record. A fire broke out in the carpet making plant of the Planet mills in Brooklyn, and destroyed $25,000 worth of property. There were 800 women at work on the upper floors. William Stewart, an elevator man, kept his cage going until the last woman had left the building, and then fell unconscious from the smoke and flames which he had inhaled.

T. A. Code, of Perth, has installed a shoddy picker in the building formerly used as a power house by the Electric Light Co. He is also building an addition to his woolen mill and will, if satisfactory arrangements can be made, introduce electric power in his mill instead of steam. A plan for utilizing water power is also being considered, the power to be conveyed a considerable distance to the mill by an endless chain.

The Merchants Cotton Co., of Montreal, have recently completed arrangements with Fred Mallison, resident director of Mallisons, Ltd., cotton spinners, of Bolton, England, whose headquarters are at 28 Wellington street east, Toronto, for the handling of their output of cotton yarns. The coarser numbers will be spun in Canada and the finer ones in Bolton, so that by this arrangement Mr. Mallison will be able to fill orders for yarns from No. 1 up to No. 300.

Frank Schneider has purchased a half interest in the woolen mills at Morden. The name will be changed to the Manitoba Woolen Mills.

Canadian textile mills are now busy on spring goods and expect to have their capacity fully taxed through the season. They are behind with deliveries of some lines.

The village of Paisley will apply to Parliament for confirmation of a by-law granting $14,000 by way of a loan to assist G. A. Burrows, of Breslau, to establish a carpet factory.

C. R. Whitehead, who recently resigned his place on the directorate of the Dominion Cotton Mills Co., and has since been manager, has now resigned the latter position. His successor has not yet been selected. Mr. Whitehead will devote his attention to the Montmorency Mills.

A site has been chosen for the Burrows carpet factory at Galt immediately north of the gas works. Contracts for its erection have been let as follows: Carpenter work, P. Nichol, $1,982; stone and brick, David Smith, $3,194; roofing, Mr. Brown, Brantford, $250; plastering, Wm. Mogg, $60; painting, J. E. Mitson, $249; total, $5,735. The plans provide for a main building 32 by 106 feet, two stories high and a basement; one story annex, 35 by 48 feet; boiler house, 13 by 28 feet, and one story high. The building will be of stone from the ground to the basement window sills, and then brick. The roof will be flat and made of gravel. The large annex is intended for drying, dying and chemical room. The engine is to be in the basement. On the first floor the office and weave room will be situated. The top floor will be largely devoted to card patterns for the looms.

The Imperial Cotton Co.'s mills on Sherman avenue, Hamilton, are now in full running order. Their chief product is cotton duck, though twine and string are also manufactured. The works cover several acres, the main building being 224 by 108 feet, in which are the looms, cards and chief machinery for making the duck. There is a finishing building 44 by 80 feet, warehouse and offices 180 by 52 feet, storehouse 62 by 163, and building containing carpenter and machine shops. Between two and three hundred hands are employed, and the output is expected to reach three million pounds a year. The 54 carding machines in use came from England, being made at Accrington. The plant is valued at close on half a million dollars. Electric power and light is used throughout; the current being obtained from the Cataract Power Co. The electric machines are all of Canadian manufacture. There is a complete system of fire protection, and the sanitary conditions have been well looked after. The only other duck mill in Canada is that at Yarmouth, N.S. Its capacity is about one-third that of the Hamilton mill. C. T. Grantham is general manager, and David Bell, who has had 35 years' practical experience at Baltimore and elsewhere, is superintendent. The officers and directors of the company are: J. M. Young, president; W. D. Long, vice-president; C. T. Grantham, secretary-treasurer; John Knox, of the Knox-Morgan Company, Hamilton; T. P. Coffee, of the Canadian Trusts and Guarantee Company, Toronto; C. Kloepfer, Guelph, and James Hendry, Peterboro.

FABRIC ITEMS.

M. Alexander & Co., manufacturers of hats, etc., Montreal, have dissolved.

Coppley, Noyes & Randall, wholesale clothiers, Toronto, have removed to Hamilton.

The corporate name of the Merchants' Shade Company, Ltd., has been changed to the Empire Shade Cloth Company, Limited.

Totton & McKay, shirt manufacturers, are about to remove from Hamilton to Toronto.

Manilla rope has advanced in Halifax a half cent. This is due to a scarcity of manilla hemp.

From Belfast it is reported that the Canadian preferential tariff has been a great help to the local linen industry.

S. F. McKinnon has sold his interest in the wholesale millinery company, Toronto, which bears his name.

The Montreal Cotton Company has declared a quarterly dividend of two per cent. payable on 16th December.

When Dunlap, the hatter, started in business he had only $2,000. He attributes his success to judicious advertising.

The new machinery at the Anchor Knitting Mill, Almonte, has been placed in position and the mill will soon be running at full capacity.

The demand for woolens for the women's wear trade is on the increase. This is particularly the case in the United States.

A good demand is reported in the east for cotton goods of Canadian manufacture as well as for British printed goods, and values continue firm.

W. J. Webster, who has recently arranged for starting a woolen mill at Edmonton, left Ontario for that place recently, taking 400 sheep with him.

M. Haid and W. Segal, partners in the Winnipeg Shirt and Overall Manufacturing Co., have dissolved partnership. M. Haid continues the business.

The Bean & Davis Manufacturing Co, clothing manufacturers, St. Stephen, N.B., have dissolved, and have been succeeded by the Borden Manufacturing Co.

The Montreal Suspender & Umbrella Co., Montreal, have bought out the Progress Manufacturing Co., makers of whitewear, and will extend the business.

All the fibre companies of the United States with the exception of two have amalgamated as the American Vulcanized Fibre Co., with a capital of $3,400,000.

An artificial silk is now produced in Germany, manufactured from chemically pure cotton, but far superior to ordinary mercerized cotton. Competent judges say it is the best yet produced.

At the live stock exhibition held in Chicago the beginning of December, Canada won first prize in each section against sheep exhibited from Illinois, Iowa, Minnesota and Michigan.

Eight thousand pounds of binder twine were sold in Brandon during the past season. The demand will be partly met next year by the local company which is about to erect a factory.

The W. E. Sanford Clothing Company, of Hamilton, are making the uniforms for the new South African contingent. Each man will have two uniforms, an extra pair of trousers and an overcoat.

F. E. Atteaux and Company, a New Jersey corporation, has been licensed to do business in Ontario, to manufacture and deal in chemicals and dyestuffs. John B. Paine, of Toronto, is its attorney.

The Canadian Hammock Manufacturing Co., Ltd., an extra provincial company, has been licensed to transact business in Ontario, and has appointed John Allan, manufacturer, of Paris, to be its attorney.

The factory of Bromley & Co., tent, awning and mattress manufacturers, Winnipeg, has had a particularly busy season this year. Increased demand for tents for summer camping has been a noticeable feature.

Paderewski, the great pianist, is a sheep breeder. He has a farm in Switzerland, where he spends his leisure looking after his sheep. King Edward recently presented him with six fine animals, bred on his own farms.

The tailors' section of the Retail Merchants' Association of Toronto, at a recent meeting expressed the opinion that the remedy for the stagnation in the woolen goods trade lies in the manufacture of better goods, not in protection.

The long established wholesale dry goods house of J. G. Mackenzie & Co., Montreal, is to be wound up. Thus another of the links of the past with the present will be broken. The firm had made a reputation for itself by honorable dealing.

A fire at G. H. Harrower's shirt factory, in Montreal, destroyed the top flats. The Dominion Paper Co., who occupied part of the building, and Redmond, Greenleese & Co., hatters and furriers, next door, also lost through water and smoke.

Leopold Cassella & Co., of Frankfort on the Main, have issued through their Canadian agents, Wm. J. Matheson & Co., Foundling street, Montreal, a book of samples of their patent immedial sky blue dyes, as dyed on cotton, with instructions how to use.

Sisal hemp is 2 cents higher in price this fall than it was last year at this time, which some take as an assurance that binder twine will be higher next season. It is said that United States manufacturers have practically obtained control of the production of this raw material.

An Ontario charter has been granted to the Hurlburt, Mills and York, Ltd., with a capital of $40,000, to buy, sell and manufacture sewing machines and other machines for working on cloth and leather, and to take over the sewing machine business of Hurlburt, Mills and York, Toronto.

Steps have been taken towards the unification of the spool cotton interests in Montreal. The Canadian Spool Cotton Co. has been organized, with a capital of $200,000. Wm. Wilson, of New York, has been elected president, and John Beattie, of Montreal, one of the directors, secretary-treasurer.

Thos. Clearihue, manufacturer and dealer in gloves, mitts, moccasins, etc., of Brockville, has purchased the stock carried at the Winnipeg branch of James Hall & Co., manufacturers of the same line of goods. Mr. Clearihue has given special attention to the trade of Manitoba and the Territories, and has for years carried a sorting stock in Winnipeg.

The Sea Moss Carpet Company, with a capital of $25,000, headquarters at Isle Verte, has been incorporated to carry on a general trade in sea moss. The charter members are, William Raymond, A. J. Roy, Charles Prefontaine, Eugene Cote, Joseph Cote and Alphe Cote, of Isle Verte; Rene W. Lindsay, of Notre Dame des Sept Douleurs, and Samuel Charles Riou, of Fraserville

According to the British Board of Trade returns Great Britain exported to Canada during October wool to the value of £2,343. The figures for the corresponding month of 1900 were £2,137. In other items of fabrics the figures are as follows: Cotton piece goods, 1900, £33,148; 1901, £38,767; jute piece goods, 1900, £10,541; 1901, £15,327; linen piece goods, 1900, £6,642; 1001, £12,861; woolen fabrics, 1900, £12,037; 1901, £20,162; worsted fabrics, 1900, £22,445; 1901, £36,831; carpets, 1900, £5,808; 1001, £10614. All these articles show an increase. There was also an increase in haberdashery, apparel and articles partly of silk, but a falling off in silk laces.

Cashmere is in good demand at Canadian dry goods centres.

Grey cheviots for men's overcoats have had a big run this fall.

J. H. Snider has purchased the clothing business of Joseph Armstrong at Norman.

The Brantford binder twine factory has declared a dividend of 5 per cent. for the year. This is a great falling off from the big dividends of late years.

Canadian made dress goods are in increased favor everywhere, and mills are kept very busy getting out stock. Friezes are in particularly good demand for spring.

James Cumming, the recently returned Canadian commissioner to South Africa, says there is from $10,000,000 to $12,000,000 worth of wool produced there annually.

Victor Dugreuil, fair wage officer of the Dominion Government, during a visit to Montreal in connection with large military clothing contracts that are to be let, stated that it is the intention of the Government to investigate into the sweating system, not only in Montreal, but in all the larger cities of Canada, and find just exactly to what extent it is carried on.

The woolen goods and woolen rags which were seized by the United States Customs authorities, some time ago, being entered as paper waste, in violation of the revenue laws of the United States, and which were consigned by Montreal and Toronto firms, have been sold by the United States marshal at Burlington. The goods consisted of 36 bales of woolen cloth, and 23 bales of woolen rags. The consignment was a valuable one, being appraised at $22,000. Some furs which were seized will be sold at a later date.

W. S. Comstock, a woolen manufacturer of Smith's Mills, Quebec, relates the following as indicating the competition Canadian mills have to meet in consequence of the low customs tariff on woolens. He says: "I will relate you a conversation that I had with a customs officer of some note in the county of Stanstead. He told me that he was in want of a pair of pants, and that he called on a leading establishment and asked to be shown samples of Canadian tweed of a certain price. The proprietor told him that he had not a yard in his store of Canadian goods. I asked him how much stock he carried, and he said he should judge $500, and he expressed his opinion that it was a shame that the law allowed goods to be brought into the country at so small a rate of duty, especially low grades, as it must hurt the mills, and also the people. I am of the same opinion. The only remedy is more duty to stop low grade goods."

Personal

John Hewton, manager of the Kingston Hosiery Mill, has returned from Macon, Ga.

W. T. Addison, Ontario representative of the Dominion Cotton Co., is suffering from a severe illness.

Frank Robertson, head of the millinery firm of F. Robertson & Co., Toronto, died suddenly on Nov. 20.

Fred. McDevitt, formerly overseer at the St. John mill, N.B., and late of the Beaver mill, N. Adams, Mass., has accepted a position as overseer of spinning at Easthampton, Mass.

HOSPITAL FOR SICK CHILDREN.

An appeal has been made for extra funds for the Toronto Hospital for Sick Children. It costs about $34,000 per year, or a dollar per patient, per day, to maintain this hospital. The Ontario Government gives about $7,000 a year, or nearly eighteen cents per head, per patient, per day. This amount is all expended in maintenance. The City of Toronto gives $7,500 per year or eighteen cents per head, per day, and this, too, goes towards the maintenance, not only of Toronto patients, but for every patient in the hospital, no matter from what part of the province the little one may come. This contribution of the corporation is increased by from $4,000 to $6,000, donated by the citizens of Toronto for the maintenance of all patients, to say nothing of the $4,000 contributed yearly by Toronto people, the founders of maintained and named cots in the building. During its lifetime, the hospital has handled 8,000 indoor patients, and of these 4,000 were cured, and 2,700 were improved. Of these 1,757 came from 1,205 places in Ontario and outside the city of Toronto. Ten years ago the hospital carried a heavy burden of debt. The building and its furnishings cost $150,000, and of this $20,000 was paid by the corporation of Toronto, and $70,000 by the citizens. Year by year the debt has been reduced, and is now down to $13,000, and money is wanted to clear off the debt. Contributions may be sent to John Ross Robertson, Telegram Office, Toronto.

—The average weight of wool from a sheep's fleece is 5½ pounds.

—The cotton crop of Egypt has increased from 289,521,535 pounds in 1885 to 644,445,855 pounds in 1900. Of the 407,000 bales exported during the year 1885, Great Britain and America took 231,027, Russia, 83,203; Austria, 32,175, and France, 25,927. Of the 835,539 bales exported during the year 1900, Great Britain took 407,245, Russia, 73,740; Austria, 77,481; France, 83,090, and the United States comes fifth with 72,196 bales.

The Peterboro Underwear Co., knit goods manufacturers, Peterboro, Ont., which recently failed, is being reorganized.

The Toronto Carpet Mnfg. Co. has started up its new yarn manufacturing department, which has a capacity of two sets of cards.

Wm. Wilson, of New York, has been elected president, and John Beattie, of Montreal, secretary-treasurer, of the lately incorporated Canadian Spool Cotton Co.

Berman Brothers & Co. is the firm name under which Messrs. Aaron and Louis Berman and Abraham Cohen will do business as manufacturers of trousers in Montreal.

The Cornwall Mnfg. Co.'s large woolen mill has closed down indefinitely owing to depression in the woolen industry. The mill has not been paying for some years.

The woolen mill at Garden Hill, near Port Hope, after lying idle for a year or two, has been started up with Robt. Brodie, brother of A. W. Brodie, of the Brodie woolen mills, as superintendent.

J. I. Mackenzie, for several years inspector of licenses at Hamilton, died last month at the residence of his daughter in Chicago. Mr. Mackenzie was for many years well known among the textile trades as a wool merchant, and was the first Canadian to visit South Africa with the idea of importing wool direct from the Cape to Canada.

Nineteen broad looms are now running night and day in the Brodie woolen mill at Streetsville. Mr. Brodie is also putting in a new set of cards with mules and picker supplied by the James Smith Woolen Machinery Co., of Philadelphia, through their Canadian agents, Geo. Reid & Co., Toronto. The mules are of the Platt type.

S. T. Willett, jr., of the Richelie woolen mill, Chambly, Que., has volunteered and has been accepted as a member of the Montreal contingent of the new regiment of Canadian Mounted Rifles which is to sail for South Africa in January.

TEXTILE PUBLICATIONS.

In order to accommodate readers of The Canadian Journal of Fabrics, the publishers will be pleased to mail any book in the following list on receipt of the publisher's price, duty free. Books on technical and practical subjects, not in this list, can be obtained and mailed at publisher's prices. In ordering, please give full address, written plainly:

Loom Fixing; a handbook for loom fixers working on plain and fancy worsteds and woolens; containing chapters on shuttles and bobbins, and their management; head motion; putting in warps; filling; adjusting and starting new looms; chain building, etc.; 104 pages, by Albert Ainley $1 00

Technology of Textile Design; explains the designing for all kinds of fabrics executed on the harness loom, by E. A. Posselt 5 00

Structure of Fibers, Yarns and Fabrics, the most important work on the structure of cotton, wool, silk, flax, carding, combing, drawing and spinning, as well as calculations for the manufacture of textile fabrics, by E. A. Posselt 5 00

Textile Machinery Relating to Weaving, the first work of consequence ever published on the construction of modern power looms, by E. A. Posselt..... 3 00

The Jacquard Machine Analyzed and Explained; explains the various Jacquard machines in use, the tying up of Jacquard harness, card stamping and lacing, and how to make Jacquard designs, by E. A. Posselt..... 3 00

Textile Calculations; a complete guide to calculations relating to the construction of all kinds of yarns and fabrics, the analysis of cloth, etc., by E. A. Posselt.. 2 00

Wool Dyeing; an up-to-date book on the subject, by E. A. Posselt 2 00

Worrall's Directory of Cotton Spinners, Manufacturers, Dyers, Calico-printers and Bleachers of Lancashire, giving the mills of the British cotton district, with number of looms and spindles, products of the mills, cable addresses, etc $2 00

Worrall's Directory of the Textile Trades of Yorkshire, comprising the woolen, worsted, cotton, silk, linen, hemp, carpet, and all other textile mills, giving looms and spindles, and the various lines of goods manufactured, etc $2 00

Worrall's Textile Directory of the Manufacturing Districts of Ireland, Scotland, Wales, and the counties of Chester, Derby, Gloucester, Leicester, Nottingham, Worcester, and other centres not included in preceding works, with capacity, products of mills, cable addresses 2 00

The Wool Carder's Vade-Mecum, by Bramwell; third edition, revised and enlarged: illustrated; 12mo..... 2 50

CHEMICALS AND DYESTUFFS.

Trade has fallen off considerably during last week, this being the usual thing after the close of navigation. Prices have advanced on all heavy lines owing to the extra cost now of importation:

Bleaching powder	$ 2 75	*to*	$ 3 00
Bicarb. soda	2 00	to	2 05
Sal soda	0 75	to	0 80
Carbolic acid, 1 lb. bottles	0 50	to	0 60
Caustic soda, 60°	2 35	to	2 60
Caustic soda, 70°	2 60	*to*	2 85
Chlorate of potash	0 13	to	0 15
Alum	1 35	to	1 50
Copperas	0 65	to	0 70
Sulphur flour	2 00	to	2 50
Sulphur roll	2 00	*to*	3 00
Sulphate of copper	6 00	to	6 25
White sugar of lead	0 08	to	0 08
Bich. potash	0 11	to	0 12
Sumac, Sicily, per ton	75 00	to	80 00
Soda ash, 48° to 58°	1 30	*to*	1 40
Chip logwood	1 90	to	2 00
Castor oil	0 09	to	0 10
Cocoanut oil	0 10	to	0 11

FLORENCE NIGHTINGALE AND THE TEXTILE TRADE.

It may not be generally known that Florence Nightingale, who has reached her eighty-first birthday, has a close connection with the textile trade. Her father was William Shore, who assumed by letters patent the surname of Nightingale in 1815. The name, together with the family property, came from old Peter Nightingale, against whom Arkwright, inventor of the spinning jenny, brought, in 1776, one of his actions for infringement of patent rights. Lea Hurst, the home of the Nightingales, in Derbyshire, is only two miles from Cromford, where Arkwright set up his mill, and the adjacent manor-house, which he purchased from Nightingale.

THE TEXTILE TRADE IN GERMANY.

The textile industries in Germany, which is England's chief competitor in the markets of the world, do not appear at present to be in a very flourishing condition. Referring to the depressed condition of the various branches of industry in that country a Berlin paper says: Even the textile industries are no exception. Wherever mills are running it is generally at the cost of the price of the wares. This lowering of the price of manufactures is overcome by decreasing the wages of the employees, who are working for anything rather than remain idle. Manufacturers in the cotton-spinning industry have lately been compelled to limit their production more and more. The flax spinners are also forced to work on short time, owing to the high price of flax and the low price of the ready article. Trade is not good in the woolen-spinning industry, but the worsted spinners are tolerably busy. In other weaving branches there is a scarcity of orders. The lace and embroidery manufacturers in the Voigtland and Rhineland are still occupied, but business is very unsatisfactory.

In the case of Michael Lapointe vs. the Dominion Cotton Mills Company, the plaintiff claimed $1,000 damages, on account of injuries received while working in the company's service. Judge Lavergne has awarded him $700.

The affairs of the Smyrna Rug Mfg. Co., of St. Catharines, Ont., were thrown into the hands of the sheriff last month. At a sheriff's sale on the 11th inst., the plant was knocked down to the Empire Carpet Co., of St. Catharines, for $2,000

—Acetylene is coming into general use in Alsace for lighting dye-houses and print works. Acetylene gas gives a light the nearest we have to sunlight, so that under this light the shades have nearly the same appearance as in sunlight. The difference in appearance caused by gas and electric light is thus avoided.

Opinions of the Press

CHART OF THE METRIC SYSTEM.

The publishers have received many letters complimenting them on the issue of the popular Chart of the Metric System of weights and measures. The following are a few sample opinions:

I have very much pleasure in seeing you step to the aid of those pressing the Metric System to the front. I shall be glad to call the attention of teachers to your chart. The Metric System has for a number of years—since I came into office—been taught in all the schools of the province; and the metric measures are those called for in the returns from all our high schools—dimensions of school rooms, etc. I have much pleasure in sending you a few copies of my brochure on the "Three Great Reforms," in which it will be seen that for a number of years I had been an advocate of the system—even in the conservative city of Toronto. Wishing you much success.—A. H. Mackay, Superintendent of Education, Nova Scotia.

I am in receipt of your favor of the 7th ult., together with a copy of The Canadian Engineer for June, and a specimen of the Chart of the Metric System prepared by your firm. I am very pleased to read your article, but I wish particularly to compliment you on the chart. It is, I believe, the best I have seen for explaining briefly the principles of the Metric System. It will afford my committee much pleasure to hear of this awakening interest in Canada. Australia too is showing a growing disposition to adopt Decimal Coinage and Metric Weights and Measures, and here we keep gaining a step month by month.—E. Johnson, Secretary Decimal Association, London, Eng.

We see that you, too, advocate the general adoption of the Metric System of weights and measures, and we believe that as much as possible everywhere the same means should be employed to accomplish the desired aim. The widest possible distribution of your chart would no doubt be a good step forward. We request you therefore to forward to us two copies for our office and for the library of the American Society of Dyers.—L. M. Carnat, Philadelphia.

The Monetary Times has a review of your Chart of the Metric System. I notice the price is stated at ten cents per copy, but if you have any other more expensive editions printed, I should be glad to receive a copy or two; as it is my intention to frame a copy (if possible), and present it to the library of the society of which I am an associate, viz., the Incorporated Accountants (Eng.). It is high time that British traders and accountants awoke to the necessity of adopting decimal coinage and measures. Enclosed please find $1 (Canadian), to cover your expenses for as many copies as the remittance will pay for. Trusting you will be able to assist our efforts on this side to foster "intercolonial and home-country" trade, and lessen the tide of German competition, which is a danger to all the English-speaking countries, if Germany gets the upper hand (both politically and socially), and assuring you of the awakening of the British to their surrounding dangers of subsidized continental competition.—E. Woodroffe, 121 Stapleton Hall Road, Stroud Green, London, England.

Please accept my thanks for the Metric System Charts. The adoption of the Metric System must shortly take place, as everything is to be said for it and next to nothing against it. As to the chart, I consider it is a valuable one, and one which every progressive citizen ought to have in his home. The mass of information, which it explains, is handled in such a simple manner that anybody can understand it without becoming in the least confused as to the use of the different terms, which is the only drawback, that I know of, to the Metric System. There is no doubt though that, if the system were adopted, the terms would be abbreviated to suit the rapid business methods this side of the Atlantic. I expect that a number of people, to whom I have shown the chart, will be calling upon you for copies of it ere long, as they have already expressed intentions of doing so.—Dermot McEvoy, Mechanical Engineer.

At the annual meeting of the Canada Woolen Mills, Limited, the following officers were elected for the ensuing year: W. R. Brock, M.P., president; W. D. Long, vice-president; G. F. Benson, Timothy Eaton, W. D. Matthews, R. Millichamp, and George Randall, directors. R. Millichamp, John F. Morley and the president and vice-president form the executive committee.

CARPET-MAKING IN IRELAND.

Carpet-making is undergoing a new development in Ireland, one that, according to The Irish Times, is likely to be successful at once. In the Donegal district around Killybegs, 700 girls are employed in making the costly kind of fabrics known as hand-tufted carpets, which range in retail price from 18s. to £5 a yard. English carpets of this description are said to have been virtually forced out of the market by Continental competition, a fact imputed to the maintenance of high wage-rates by trade-union organization; but the Irish goods are sold at about half the price of Continental carpets. Whether this statement as to price be accurate or not, the matter of pr... is not all. The English schools of textile design have been drawn upon for artistic inspiration, and these new Irish goods are described as charming examples of modern design, in pattern and color alike. The Irish Times adds that Windsor Castle and the drawing-room of the new Royal yacht have been supplied by the Killybegs industry, and that 300 new hands are to be put on before the end of the year. This is a somewhat remarkable development—hand production cheaper than machinery.

A COTTON PEST.

A serious danger is reported as threatening the cotton plantations in Central Asia, which will make itself felt in Russia. Intelligence from Tashkent and Forgan shows that numerous dense swarms of locusts have passed through these cotton districts, and although the farmers have been able to drive them away, they could not prevent them from depositing eggs on the cotton plants. The growing crop is believed to be entirely destroyed. The culture of cotton constitutes almost the only means of livelihood of the local population. As to the consequences for Russia, the St. Petersburg Wjedomosti considers them to be extremely serious, as Russia at present imports about 700,000 bales of cotton from these Central Asiatic plantations.

THE QUESTION OF RAMIE.

Reference has been made on several occasions in The Journal of Fabrics to the use of ramie as a textile. Thousands of dollars and years of hard work have been given to the study of ramie and ramie machinery by men who have been attracted by its fine silky fibre. To separate the fibre from the stalk, properly degum it and get it down to a practically useful fibre at a reasonable cost is the rock upon which the hopes of many a ramie enthusiast have been shattered. The difficulty of working it is well known. That no great success has yet been attained is evident from the fact that its manufacture has not been established to any appreciable extent. Samples have been treated and fibre of fine quality obtained, but the cost of the process has been such as to prevent its use. Mr. Herbert Hoyle, from Halifax, England, recently visited America, and it is reported that a company may be formed to establish a ramie plant, using his process. Where it will be located is not yet decided, but Fall River or Providence seem the most likely points.

WHAT THEY WEAR IN BRAZIL.

At present there are only three hosiery and knitted goods factories in Brazil. Well-to-do Brazilians usually wear light flannel jackets, which are only partly supplied by local industry. Knitted goods, cotton jackets, and blouses are worn mostly by the working-classes. These blouses or shirts—known as "Camisolas de Meia faicas"—form an important article of commerce. They are made of unbleached or printed cotton, with or without a collar and cord and tassel, or a kind of tie, and they have also all a small watch-pocket at the side. In the State of St. Paul there is a good demand for common cotton or flannel jackets, usually of dark colors weighing about 3 kilogrammes (6,614 lb) per dozen; they cost about 9 frs. per dozen in Italy, whence they are imported. Better qualities, known as hunting jackets, come from Germany; they are made of light but strong material, are double-breasted, open on the shoulders, and have a low collar and linen cuffs. There is a good demand for hosiery, from 400,000 to 500,000 pairs of cotton stockings being imported annually chiefly from Germany, and partly from England and France. Woolen stockings are not so much in demand.

WATERPROOF TISSUES.

A German patent has been taken out for waterproofing fabrics with an emulsion in water of substances insoluble in that liquid, such as paraffin, stearine, palmitine, and the metallic salts of fatty acids, as well as beeswax and vegetable wax. The fabrics are boiled in these emulsions and dried. The fabrics then become perfectly waterproof, but remain quite pervious to air, as the interspaces between the threads are not stopped up. The repulsion of the threads for water is quite sufficient to prevent any wet filtering through the cloth, but offers no obstacle to the passage of air.

—A patent has recently been granted to Kalle & Co., Biebrich-on-Rhine, for a process of indigo-printing on cotton goods, using a strongly-alkaline dye and then steaming the dried fabric with exclusion of air and moisture and developing by washing in water, it is found that the beauty and depth of the print and the complete utilization of the indigo depend on the temperature of steaming, which should be 160 degs. C. or over. The goods may be either unprepared or with glucose, and, if dry steam is used, the period of steaming is not limited, and the indigo may be combined with "steam colors," such as alizarine red, gallocyanine, saffranine, etc. Various formulae are given with the proper steaming temperatures and minimum periods for various proportions of indigo, and whether the fabric is prepared with glucose or not. For blues or white or alizarine red, mixtures of British gum thickening, indigo salt paste, water, and caustic soda lye are used. For a pale blue and a red on white, prints are made on oiled material with a mixture, such as those above, and a mixture of acid starch thickening, alizarine SX, aluminium thiocyanate, calcium acetate, olive oil, tin oxalate and water. Similarly for a pale blue and violet on white, the violet mixture contains acid starch thickening, gallocyanine paste, Turkey-red oil, chromic acetate, potassium ferrocyanide and water. The dyes may be thinned by replacing part of the thickening with Turkey-red oil when the percentage of indigo is below a certain value.