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CANADIAN Journal of Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XXI.

TORONTO AND MONTREAL, OCTOBER, 1904.

No. 10.

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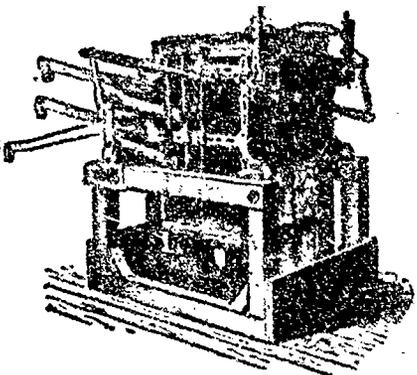
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Canadian Journal of Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XXI.

TORONTO AND MONTREAL, OCTOBER, 1904.

No. 10.

Canadian Journal of Fabrics

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

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RECIPROCITY AGITATION.

The September issue of the Bulletin of the National Association of Wool Manufacturers of the United States contains a very instructive criticism of the proposals for reciprocity with Canada as suggested by the Committee of One Hundred of the Boston Chamber of Commerce. The article is by the editor, and read in connection with a paper by Edward Stanwood in the same publication for June it is apparent that reciprocity with Canada will have strong opponents in the United States, even in New England, in which quarter of the Republic the agitation for reciprocity is most active. The arguments are founded largely on the opinions of United States public men and manufacturers adverse to the old reciprocity of 1854, which was considered a one-sided bargain that worked in favor of Canada. "It worked

injuriously against the producers of this country (the United States), laboring under the disadvantages of higher cost of production and higher taxation while it interfered also with the collection of needed revenue by a Government sorely pressed for funds. In a word, so meagre were its benefits and so many and great its disadvantages that only eight votes were recorded in the Senate against absolute abrogation, while every Senator from New England save two was against its continuance." The proposal of the Committee of One Hundred is that, unlike the old treaty, a new one should not be confined to non-competitive products. But the writer argues that if manufactured products were included it would open a side door to British goods that would be brought in under the preferential tariff and re-exported to the States, even as now the "Canadian manufacturers complain that the differential allowed the Mother Country is used by the Germans as a means to reach the Dominion markets." Then again, "To make the inclusion of manufacturers at all acceptable to the Canadian manufacturers they would, without doubt, demand that the treaty cover a long period of years. Otherwise, if they were constantly subjected to the danger of a short notice of abrogation, capital would be grudgingly invested—if at all—in Canadian manufacturing plants, because their success, dependent on the continuance of the arrangement, might be ruthlessly cut short by Congressional annulment. From a Canadian view-point, a long term must be the basis of such a bargain, and the granting it would be a menace to the manufacturers of the United States, as well as undesirable to this Government." The writer then proceeds to show from the speeches of Canadian public men that Canada would not negotiate a treaty which would involve discrimination against Great Britain. "The suggestion that Canada can be made, by reciprocal trade arrangements a great and exclusive market for the products of the American factory is a delusion. It . . . cannot be attained as long as this country holds a uniform and comprehensive system of protection and the Dominion clings to the Empire." Finally, it is pointed out that without reciprocity United States

exports to Canada have increased from \$28,340,174 in 1880 to \$117,506,058 in 1903, of which \$83,000,000 were domestic manufacturers and products of the United States, while in the same period the exports of Canada to the United States only increased from \$31,902,318 to \$48,402,545. It considers this growth quite satisfactory from the United States standpoint, and therefore there is no urgency for such a treaty.

This is a very natural reflection from the United States side of the fence but this very one-side trade development makes the Canadian now feel very much as the American felt during the old reciprocity treaty. Reflecting that this is because the United States has a tariff so much higher than that of Canada, and framed in some respects for the specific purpose of injuring Canadian trade, the question many people now ask is, If we cannot have reciprocity of trade should we not have reciprocity of tariffs? This is not desired in the spirit of reprisal, but to redress an uneven balance.



—Three or four years ago the High Commissioner for Canada in London permitted his office to be the medium of communication for firms in Canada desirous of opening up business connections in Great Britain and for British firms wishing to be represented in Canada. The idea was a good one, and was generously taken up by Canadian newspapers and trade journals, who published these notices gratis, and in many cases kept the names of the applicant firms on file, so that firms here could communicate direct with them upon applying at the office of the paper publishing the notices. But red tape has now conspired to kill the usefulness of these announcements by suppressing the names of the firms who desire the favor. The fault is probably not with the High Commissioner's office, but the applicants themselves, some of whom are aiming to get the service of Canadian and British papers for nothing and yet conceal their own identity. Why these people should make such a mystery of their application is inexplicable. The Canadian papers moreover do not publish the names of the firms, but only keep them on file for reference when Canadian firms wish to respond. This saves a month of time in responding to enquiries, but the publication of the applications without having the names for reference is useless, and this journal along with most of the other Canadian papers will, therefore, discontinue these announcements, as well as the like announcements sent out by the Imperial Institute.



—The September Bulletin of the National Association of Wool Manufacturers of the United States quoting an editorial on the tariff in the July number

of this journal, points to a parallel in recent legislation in the United States. It says: "Before the adoption of the Canadian preferential tariff, local mills supplied all but 10 per cent. of the woollens used in Canadian clothing factories; since its adoption all but 25 per cent. comes from British mills. This experience of Canada indicates the distress a uniform preference may bring upon one branch of manufacturing while many others may escape embarrassment; and it makes the adjustment of a preference—to benefit the Mother Country and at the same time not to injure home industries—a most perplexing problem. A similar danger threatened many industries in this country when the effort to pass the Morrison Horizontal Reduction Tariff Bill was made in Congress. To some it was of no consequence; to others it meant disaster." The opinion expressed by so many woolen manufacturers, clothing manufacturers and tailors that the raising of the woolen duties from 23 to 30 per cent. would not materially benefit the Canadian manufacturer is borne out by that of the Textile Recorder of Manchester, which, in commenting on the recent change of duty, from the British point of view, says: "Fortunately the rise is not serious, and will be easily met by the skilful manipulation of the woolen manufacturers; but the worsted branch may suffer since only pure wool can be used in that industry. It is reported that the preference in our favor will still be ample, since foreign countries will have a tariff 20 per cent. higher than our own to contend against."



—An interesting possibility for the textile trades of Canada is the raising of Angora goats. As most of our readers know, this is the animal from which the mohair of commerce is obtained. It is a native chiefly of Asia Minor, and is at home in the dry hills of Asiatic Turkey, where, like other goats, it thrives on fare which would starve most other animals. About thirty years ago an enterprising farmer of the Cape Colony went to Turkey, and at much expense and pains brought to South Africa the first few Angora goats, and began to breed them in the upland districts of the Cape, where they thrive remarkably. Since then the mohair exports of the Cape and other South African colonies have become important items of trade, and not only so, but Angora goat raising has been introduced into the United States and Australia with success. They have succeeded best when placed in dry and hilly regions. In the United States the industry has extended in Texas, Missouri and some of the Western States, such as Montana, Washington and California. James Bray, of Portage la Prairie, Man., imported half a dozen from Washington State a couple of years ago, and three of these were on show at the Winnipeg exhibition in July. J. B. Jickling, of

Carmen, Man., has also five or six, and both these gentlemen believe that they will continue to thrive in Manitoba and the Territories as well as the Jrier parts of British Columbia. For the present the mohair would have to be exported to Great Britain or some other mohair manufacturing country, but once the raising of Angora goats is found to be feasible and western stock raisers go into the business more extensively there is little doubt that machinery specially adapted to mohair fabrics would be imported and a new textile industry created in this country. As linen machinery is now on the free list as an encouragement to the projected linen mills in Ontario it is possible that this class of machinery would also be put on the free list, though no such concession has been allowed to the users of spinning and weaving machinery in the woolen and cotton branches.

—E. Holden, managing director of the City and Midland Bank of London, has been on a visit to Canada, and while in Toronto gave his views on preferential trade to Globe and News reporters. After stating that the South African war had had a bad effect on British domestic trade by reducing the purchasing power of the workingman and the resources of the local traders through the increase of taxation, he went on to state the effect which the Chamberlain proposals would have on the cotton trade. In his opinion "Mr. Chamberlain's policy will not succeed in England; and if tariffs be put on goods coming into England it would damage our export trade. No better illustration could be given of this than the effect it would have on the cotton industry. No comparison can be made between conditions in England and those of Canada and the United States. These countries are so rich in land that the wealth which comes out of the land at once makes the country rich. Everywhere one goes in Canada and America, the chief topic is the harvest, which is never mentioned in England. Therefore the creation of wealth in this country arising from harvests has no parallel in England. She must look for her wealth in her exports. The effect of preferential trade would be to increase the cost of every item in the building of cotton mills. This would necessitate more capital, and therefore more interest must be debited to profit and loss accounts. The cost of mills being increased, taxes would increase, depreciation would increase and every item in the profit and loss account would increase. This would lead to a reduction of the profit and an increase in cost of production. Considering the fact that England manufactures £90,000,000 of cotton and exports £70,000,000, the increased cost of the £70,000,000 would disadvantage her on foreign markets. The imports of manufactured cotton goods into England amount to only £5,000,000 annually. These could not have the effect of increasing the price of the

£20,000,000 consumed at home enough to recoup our manufacturers for the increased cost of the seventy millions exported abroad. Therefore, the result to the cotton industry of Lancashire would be the loss of her markets abroad. If, in consequence of food imports being taxed food went up also, our working classes would demand more wages. This would mean increased cost again to the manufacturer. "Surveying the whole scheme," he said finally, "whatever might suit Canada, protection would not suit the working classes of England. That they believe this is shown by the fact that the recent bye-elections have turned against Mr. Chamberlain."

LITERARY NOTES.

The October Canadian Magazine has a series of articles on the material advances made by Canada in recent years. The facts are based upon the records of the thirty-seven years since Confederation, with special reference to the growth during the census period, 1891-1901. As the census volumes are not yet issued, this is the first broad view of its results which has yet been given to the public. Bella Coola, the Norwegian colony in British Columbia, is taken as typical of the Western settlements and its history will be found most interesting. "The Progress of Higher Education for Women," by Hilda D. Oakeley, is a splendid feature. Archibald Blue compares the profits made by farmers with those made by the manufacturers, while A. L. McCredie contrasts the earning power of the farmer with that of the fisherman. Among other features are Mr. Bradley's description of "The Death of Wolfe;" Mr. Wicher's picture of Japanese social and religious life; Mr. Evans' illustrated summary of Current Events Abroad. The colored folding map and the colored frontispiece add much to the value of this 140th issue of The Canadian Magazine.

The great fire in Toronto has forced unexpected changes of location in the dry goods and allied trades. The wholesale trade, and more particularly manufacturers of fabrics, such as clothing and ladies' wear, have been scattered over a wider area, owing to scarcity of buildings. Some have temporarily gone west even into Parkdale, while several are already rebuilding as far away from their former locations as Spadina Ave. Among others whose even tenor of way has been disturbed, is our valued contemporary, the Merchant, whose able editor and proprietor though not actually burnt out, has had to move twice owing to building operations consequent on the fire. From all who call upon him with becoming appreciation, Brother Morley will continue to receive subscriptions (\$1 a year if paid strictly in advance), at his comfortable quarters, at 36 Toronto street, near the post office. May he nevermore be burnt out or frozen out, but continue for another half century or so to shed his healthful bi-monthly light on the pathway of the honorable merchants who are his constant readers.

Fibre and Fabric, our oldest textile trade exchange in the United States, has moved to new and larger offices at 146 Franklin St., Boston. Mr. Wade appears to have retired from the active management of the paper, which is now issued under the name of the Joseph M. Wade Publishing Co. The new issues give evidence of the benefits of the infusion of new blood while the legacy of good character left by our honest old friend Wade is evidently not undervalued by the new management. The employment bureau, so long conducted by Mr. Wade, will be carried on by the company.

NEW COTTON FIELDS.

The uncertainty of the cotton supply of the United States, and the insecurity of the market owing to the operations of speculators, has created a general interest in the question of cotton growing, not only in many parts of the British Empire, but in foreign countries. The Journal of Fabrics has given reports from time to time of the progress of the movement, and our exchanges show that interest in the subject is growing rather than diminishing. In an interview in New York, Arthur J. Buston, the English cotton statistician, said the other day:

"The Cotton Growers' Association is not standing alone in this matter. The Government is helping them and they are receiving liberal subscriptions—they are not doing it themselves. I am convinced that inside of three years these new sources of cotton production will be giving enough new cotton to become an active factor in calculation. This matter of raising cotton in Africa is just as much a factor as the irrigation of Egypt and the benefits that have arisen and will arise from that. I attach a great deal of importance to the movement. The point is that we have, speaking broadly, a sufficient crop at the present time to meet the world's requirements; and the development of new sources of production means the creation of a surplus production or at any rate it means the prevention of a famine. I am one of those who believe that when you get the price of an article high enough it will operate quickly, but small interests will combine and it will stimulate the growth. The high prices of cotton are therefore themselves a powerful help to the Cotton Growers' Association in promoting the growing industry in Africa and in the West Indies. You can grow cotton if you can get high prices."

From the Gold Coast it is reported that 5,560 lbs. of United States cotton seed have been distributed among the planters, and the samples grown in the past season have been favorably reported on. As yet, only 200 acres are under cotton. At the meeting of the West Africa Committee of the British Cotton Growing Association last month, a letter was read from Shelby Neely, one of the experts in Southern Nigeria, reporting that the soil in the Uromi country was very suitable for cotton growing. Satisfactory accounts had been received as to the crop grown on the Sobo plains, where the Association have an experimental plantation of between 700 and 800 acres. The buildings and machinery for the ginning mill at Sierra Leone are progressing rapidly, and it is hoped that the whole will be shipped next month. It was resolved that type samples of the cotton coming forward from East and West Africa, the West Indies, and other places should be exhibited at the Manchester Cotton Association's offices.

It is reported from the West Indies that while last year 4,000 acres were under cotton, this year seed has been distributed for 8,000 acres. In Montserrat, St. Kitts, and St. Vincent, there is much enthusiasm. In Barbados this year one bale of cotton brought 36½¢ a pound. South Australia is looking into the question, and the curator of the botanic gardens at Palmerston, who has been experimenting, is convinced that Sea Island cotton can be grown successfully in parts of the colony. In Natal cotton was grown experimentally as far back as 1852, and several parts of the colony are well suited. In August last, a company with a capital of £5,000 was formed to go into cotton growing, and has acquired 200 acres near the Umzinto, on which they will make a start.

Outside the British Empire, several countries are looking into the prospects of cotton. Abyssinia has had excellent results from two plantations, and the area in cotton in Argentina this year is over ten times that of last year. Paraguay and Buenos Ayres, as well as Brazil, are also preparing to compete on a larger scale.

In view of this widespread movement, there is point in the accompanying cartoon, reproduced from Punch.

TOUCHED ON THE RAW—MATERIAL.



Jonathan. "Hello! Startin' out to grow cotton, is he? Guess I must have 'Cornered' him once too often!"

[The recurrent shortage in the American cotton crops and the forcing-up of prices by American speculators have produced so serious a depression among Lancashire manufacturers and operatives that steps have been taken to secure a Royal charter for an association formed to extend and promote the cultivation of cotton in our colonies and protectorates.]

(From Punch).

SALE OF THE CANADA WOOLEN MILLS.

The Referee Declares the Sale Valid.

An auction sale of the properties of the Canada Woolen Mills, Limited, was announced to take place at Osgoode Hall, Toronto, on the 15th September by the Master in Chambers, J. S. Cartwright. Among those reported in attendance were: John Dick, Nicholas Garland, A. W. Bradshaw, George Smith, O. A. Howland, Wm. Turnbull, George Reid, T. W. Bailey, of Toronto; W. D. Long, Hamilton; Thomas Waterous, Ingersoll; Alex. Milne, Montreal; George Gillies, Carleton Place; F. W. Morley, Waterloo; Wm. Clark, West Flamboro; Nor-

man Ainley, Glen Williams; E. J. Coyle, and Jos. Horsfall, Montreal; M. Taylor, C. E. Calvert, and D. A. Ferguson, Preston.

There was first offered in one lot parcel 1, woolen mill and shoddy mill, at Hespeler, in the County of Waterloo; parcel 2, woolen mill, at Waterloo, in the County of Waterloo; parcel 3, woolen mill at Carleton Place, in the County of Lanark, known as the Gillies mill; parcel 4, woolen mill at Carleton Place, in the County of Lanark, known as the Hawthorne mill; parcel 5, site of woolen mill at Lambton, in the County of York; parcel 6, manufacturing supplies, tools, raw material, and office furniture.

No bid being made for these, the parcels were then offered separately, but for some not a single bid was made. For the Waterloo mill \$35,000 was bid by Wm. Clark, of West Flau-



W. D. Long.

boro, but was not entertained, and a bid of \$1,500 for the site of the Lambton mill was declined.

Parcel 6, consisting of manufacturing supplies, tools, raw material, and office furniture, etc., was then offered at a rate on the dollar. The first bid was at 25c., and the closing at 28c., which Mr. Cartwright would not consider. Parcel 7, consisting of manufactured stock of wooler goods, was also offered at auction, being bid up from 25c. to 52½c., which latter bid was not entertained. The book debts, accounts and bills receivable valued at \$83,000, were also put up but no serious bid was made.

The whole property was withdrawn and a notice was sent to the creditors that a meeting would be held at the Master's office on the 22nd September. At this meeting, at which about 90 per cent. of the creditors were represented, W. D. Long, of Hamilton, who was a creditor to the amount of \$80,000, offered \$250,000 for the entire properties, including the manufactured stock in hand. Mr. Long then withdrew while the offer was being considered. When asked if this offer could not be improved upon, Mr. Long raised the amount another \$1,000, and the Master declared the properties sold to him at \$253,000.

Geo. F. Benson, of W. T. Benson & Co., Montreal, through his counsel, protested against the sale on the ground that Mr. Long, being one of the inspectors of the estate, was not eligible as a purchaser, and that the price paid was too low. He said he himself would be willing to pay \$275,000 for the properties.

Argument was heard on the matter before the Master in Chambers on the 5th, and judgment reserved. On the 11th the Master gave his decision upholding the sale. He reviewed the history of the case from the time it was referred to him on the 27th April last. An application having been made for winding-up the company's affairs, six inspectors were appointed on the 6th May, namely, Messrs. Matthews, Benson, Long, Millichamp, Carter and Macdonald. Of these inspectors

five were among the largest creditors. On the 12th May a meeting was held to consider what prospects there were for carrying on the business. In view of the state of trade, and the condition of the company's affairs, it was decided to advertise the mills for sale. Although the sale on the 30th June was extensively advertised, only two tenders were put in, one for the Carleton Place mills and one for two others, but as neither was at a price that could be accepted, the tenders were rejected. At a meeting in August, another sale was fixed for September 15th, and at this sale the bids again were too low to be considered, as far as the mills were concerned, while for the manufactured stock the highest bid was 52½ cents on the \$1, this stock being since sold at 55 cents. After the failure of the auction of the 15th, he asked all those who had bid or were likely to bid to make fresh proposals in order that the business might be reorganized. Mr. Long then said that he would make an offer provided the offer was either accepted or rejected, and not made a lever for some one else to force up the price, while not himself intending to be a bona fide purchaser. He (the Master), then directed that a meeting should be called on the 22nd to consider a final offer, and notices were sent out accordingly. Mr. Long was of opinion that the business should be reorganized and the mill started at once, as delay meant depreciation in the value of the property. Acting on that belief, Mr. Long had in the meantime made many endeavors to interest purchasers, having interviewed and written to a number of persons likely to be interested. At the adjourned meeting on the 22nd, however, no one made an offer except Mr. Long himself, who bid \$250,000 for the whole estate. When asked if he could not increase this offer, he advanced it to \$253,000. After the acceptance of this, Mr. Benson objected, not at that time, on the ground that Mr. Long was an inspector of the estate, but that the price was not enough. On the 30th, Mr. Benson made an offer of \$275,000. To reopen the case meant a further delay, and it would be, perhaps, six months before the matter could be readjusted and the mills reopened. The interest alone in this interval, at 6 p.c., would be a loss of \$2,000 a month, not to speak of the expenses of caretakers at the mills, and the cost of heating them during the winter. There was also the item of insurance, which would have to be renewed, perhaps, at higher rates, as the mills had been insured in the mutual companies for the sake of economy. Under these circumstances, and considering the losses that would certainly be entailed by further delay, he thought the offer of Mr. Long was quite equal to that of Mr. Benson, and that it would be in the interests of the creditors to let the sale stand. However, he was willing to hear argument on the question, and on the 4th Oct., after hearing evidence, Mr. Benson's counsel made a motion asking the annulment of the sale on four grounds: 1st, that the price accepted was below the value of the property; 2nd, that the consent of the liquidator had not been obtained to the sale; 3rd, that no contract for the sale had been signed by the liquidator; 4th, that Mr. Long was not eligible as a purchaser, because he was one of the inspectors.

As to the first point, he (Mr. Cartwright), thought that the valuation that had been placed upon the property before the sale was too high, and the fact that a higher offer than Mr. Long's was made was no proof that it was worth it. Mr. Kendry, who had a wide experience in manufacturing, and a specific knowledge of these mills, having himself been manager for a time, gave evidence to the effect that in the present condition of the trade, such mills as that at Hespeler could not compete with Yorkshire in the class of goods it was making. Mr. Forbes, of Hespeler, a successful manufacturer of experience, and a man of good judgment in his business, gave it as his opinion that no one would buy the Hespeler mills except at a bargain, and that it was doubtful if capitalists could be found

who would put money into woolen mills in the present situation of the trade. These opinions were borne out by the fact, which developed when Mr. Long endeavored to dispose of the mills, after his purchase, that the prospective purchasers made it a condition that he should take stock in the new concerns if they took hold. In any case, considering the delays involved in reopening the matter, the offer of Mr. Long was as good as that of Mr. Benson. It was now conceded that the creditors could not in any case be paid in full, and the chances were that the losses and risks of delay and the depreciation of the property, that might arise from such causes would leave the creditors with less than they were now assured to get.

As to the second and third points, he did not consider that it was necessary to have the consent of the liquidator to take the action he did. The winding-up act sets forth (sec. 31 to 33), that the liquidator has to have the approval of the court in taking various steps, therefore, the court is the authority and not the liquidator.

The fourth point was a new one, and there were no precedents to go upon in this province, but he cited cases in Quebec to show that Mr. Long should not be disqualified from being a purchaser, because of his being one of the inspectors. The purpose of all these proceedings was to get the best and most expeditious means of settlement and reorganization, and the meeting of the 15th of September, representing 90 per cent. of the creditors, gave Mr. Long leave to bid. No one raised any objection at that time, and the fact that Mr. Long intended to bid was made quite plain at the time. Mr. Long, furthermore, was in a different position from the inspector, as contemplated ordinarily, under the Ontario law. He himself was interested as a creditor—for he was the second largest on the list—and was therefore concerned in doing the best for the estate. He knew its position and his knowledge was shared by Mr. Benson. As values had been discussed at the meeting, and the meeting, by an overwhelming majority, had urged him to sell, he considered it his duty to maintain the validity of the sale, and the motion to annul the sale is therefore dismissed. No order would be made as to costs, except that the liquidator's expenses should be paid out of the estate.

The counsel for Mr. Long said that the flume of the mills at Carleton Place required repairs, at an estimated cost of \$800, and these repairs, if not made before the autumn rains, would be a serious matter for the purchaser of the mills. If Mr. Benson would be responsible for any loss by delay, well and good, but such loss should not fall upon the estate.

Counsel for Mr. Benson said it was his client's interest and desire to obtain the best and quickest settlement possible for the estate, and if an appeal were taken from this decision, he would advise the court and creditors at the earliest moment.

Mr. Long's cheque for \$243,000 balance of purchase of the mills was then formally accepted.

Fabric Items

The National Skirt Manufacturing Company have registered in Montreal.

H. H. Hagen has started a shirt and collar factory at Berlin, Ont., to employ 30 or 40 hands.

The British Consul at Naples estimates the crop of Italian hemp at 25,000 tons, compared with 31,000 tons in 1903.

The Metropolitan Skirt and Suit Manufacturing Company, London, Ont., has dissolved. The business is continued by D. Rosenbloom.

The Win Blackley Co., of Toronto, has issued a writ against the Elite Costume Co., of Montreal, claiming \$628 for breach of contract.

E. W. Mudge & Co., commission merchants, of Montreal, have dissolved partnership, and E. W. Mudge and Thomas D. Watson have registered a new partnership.

The "C.B.C." Corset Co., Toronto, has been incorporated with a capital of \$50,000, to manufacture corsets, etc. The provisional directors include P. R. Corson, M. S. Belcher, and C. J. Currie, Toronto.

Official reports on the great annual fair at Nijni Novgorod, Russia, which always indicates the condition of trade in textiles and furs in that Empire, state that the trade in woolen and cotton goods showed a decline of 30 to 40 per cent. from the fair of 1903.

Returns compiled by the Silk Association of America show that the imports of silk goods at New York for August of this year were \$2,012,439, against \$2,499,250 for August, 1903. Raw silk imports at New York for the same period amounted to \$952,420, against \$402,249 for August, last year.

For about three months ending with the middle of September, the men's clothing and garment trades were so dull that a number of Canadian manufacturers working for the wholesale trade, took a forced holiday, while those who did not had difficulty in keeping hands together. Within the past month, however, orders have come in with a rush, and trade is exceptionally active.

The Gale Mfg. Co., manufacturers of ladies' and children's underwear, Toronto, have obtained a permit to erect a new three story brick factory at the corner of Spadina Ave. and Wellington St., to cost about \$30,000. A. E. Rae & Co., dry goods importers and manufacturers, are also rebuilding a warehouse at the corner of Spadina and Balsam. These were among the firms burnt out in the great fire of April.

A. O. Boehmer & Co., general merchants, Berlin, Ont., failed last month with liabilities of \$139,000. Selling goods at cost is attributed to be the cause of failure. Among the creditors are: A. A. Allan & Co., Toronto, \$5,173; Merchants' Dyeing and Finishing Co., Toronto, \$4,964; John Macdonald & Co., Toronto, \$1,801; Brophy, Cains & Co., Montreal, \$518; E. A. Small & Co., Montreal, \$1,169.

The wholesale millinery business of Cockburn & Rea, Toronto, has been turned into a joint stock company, under the style of Cockburn & Rea, Limited, with a capital of \$150,000. The incorporators are: W. A. Cockburn, C. A. Cockburn, and T. W. Rea. The company is now building a five-story brick warehouse at 54-56 Wellington St. W. The new building will be completed about January next.

Knox church property, on Queen St. West, adjoining the premises of the Robert Simpson Co.'s departmental store, Toronto, has just been sold to that company for about \$200,000. The company propose to use it in the extension of their premises. Meantime, this company's big rival across the road, the T. Eaton Co., is going ahead with its big new departmental branch in Winnipeg, which will be six stories high and occupy a frontage of 266 feet on Portage Ave.

Benning & Barsalon, trade auctioneers of long standing in Montreal, have assigned. The principal claims amount to almost \$85,000. Among the creditors are: J. P. Garneau, Sons & Co., Quebec, \$1,641; York Street Flax Spinning Company, Belfast, \$306; G. H. Rowell, \$361; Ehrenbach, Brunet & Co., Bradford, \$540; Greenshields, Limited, \$395; Waterloo Knitting Mills, Waterloo, Que., \$579; Boyd & Co., \$254; Montreal Woolen Mills, \$293; A. Hochar, \$148; Hodgson, Sikes & Co., Bonfield, \$327; Montreal Clothing Manufacturing Company, \$486; Dominion Woolen Manufacturing Company, \$1,921; Bargain Clothing Company, \$448; H. Mattier & Co., Ireland, \$3,041; H. Vineberg & Co., \$400; Gordon Clothing Company, \$300; Dominion Oil Cloth Company, \$5,161; Canadian Costume Company, \$1,517.

Among the Mills

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

The Almonte Knitting Co.'s mill was shut down for a few days last month for repairs to the flume and machinery.

The Windsor mill of the Dominion Cotton Mills Co. is closed while new boilers are being installed.

John Dick, Limited, Toronto, has installed thirteen 90-in. fast looms, purchased through Robert S. Fraser, Montreal.

John P. Legere proposes to start a carding mill, at Bathurst, N.B., using electric power generated by the Tetagouche Falls.

The Salvation Army barracks at Galt has been bought by the Galt Knitting Co., to be turned into an extension of the company's mill.

The action of William Hunsperger against the Imperial Cotton Company, of Hamilton, for \$1,000 damages for injuries has been settled out of court.

Robert S. Fraser, Montreal, during the past week or so, has sold several sets of cards, mules, looms, and other machinery, the Almonte Knitting Co., of Almonte, taking a set of five cards.

Among the textile exhibits at the Toronto Exhibition, we omitted to mention last month that of the Edmonton, N.W.T., woolen mills, consisting of a creditable display of blankets, heavy tweeds, and yarns.

The carding mill, saw-mill, and flour mills of Delery McDonald, at Rigaud, Que., which were recently burnt, were built in 1844. The loss was \$25,000, and insurance \$3,000. They will be rebuilt.

During the shut down of the Gibson Cotton Mill at Marysville, a 60-ton fly-wheel, running a drive belt of 10-ft. width, was put in place. The mill is now running full time. This shut down, of less than a fortnight, is the only important one since this mill was started nearly twenty years ago.

John Walshaw, of Bolton, Ont., whose mill was recently destroyed by fire, has purchased a portion of the Cornwall woolen mill machinery, through Robert S. Fraser, Montreal, and is starting up a new mill with a very complete equipment.

For some time past there has been more or less difference of opinion within the board of the Dominion Cotton Mills Co., as to the conduct of the company's affairs, and it is not unlikely that this will lead to important changes at the forthcoming meeting.

The Montreal Woolen Mills, which, along with the Excelsior Mills of that city, recently shut down, had been in operation continuously for fourteen years. It employed in all about 200 hands. This is the first year in which it has ceased to pay dividends, it having previously earned 6 per cent. steadily on a capital of \$200,000.

The Moore Carpet Co., which, as previously reported, succeeded the Dominion Carpet Co. at Sherbrooke, had a very attractive exhibit of its products at the Eastern Townships Exhibition. The exhibit consisted of Brussels and Wilton carpets and Wilton rugs, the latter being a new line introduced since the change of ownership. Some new looms have recently been put into the mill.

Gerald A. Dillon, of Bellhouse, Dillon & Co., dyestuff and chemical dealers, Montreal, has taken over that branch of the old firm's business relating specially to the textile trades, and will carry it on under the name of the Dillon Dyestuffs & Chemical Co., with offices at 216 Coristine Building, Montreal. The new firm will retain the dyestuff agency of Pickhardt,

Kuttroff & Co., and that of the West Indies Chemical Works, whose "Alligator" brand of logwood is well known to the trade. Mr. Dillon has been associated with the dyestuff and chemical trade for 21 years, and during that time has made for himself, among the Canadian mills, a host of friends who will wish him a prosperous career in business on his own account, and who will give him a good share of the trade that is going.

With regard to the case of the Canada Woolen Mills, Limited, reported more fully in this Journal than in any other publication, we understand that the gentleman who proposed to buy the Carleton Place mills from Mr. Long, has broken off negotiations since the validity of the sale by the Master-in-Chambers at Toronto was called in question. It is not Mr. Long's intention to run the mills himself, except, perhaps, temporarily while purchasers are being found. The mills, which are all now closed, will probably be sold separately to individuals who will conduct them separately, as before the syndicate was formed.

MR. HODGSON AND THE WOOLEN TARIFF.

In a letter to the Montreal Star, Joseph Horsfall, of the Montreal Woolen Mills Co., gives some attention to the statements of Jonathan Hodgson, the wholesale dry goods dealer of Montreal, whose expressions on the tariff were commented on in last issue. After speaking of the condition of some of the mills, Mr. Horsfall says: "There are lots of other mills that cannot pay a dividend to stockholders, and will never be able to under the present tariff; and let bad times come again in Canada, the same as they were in 1874 and 1878, and one-half of the mills that were running under the Foster tariff will be wiped out. This state of affairs should not be with the good times we have had in Canada for some time past. Instead of closing down, we ought to be building new mills in keeping with the increased population; but we are importing 50 per cent. more woollens than we did some years ago, and manufacturing very much less, which I think is not for the benefit of Canada or Canadians on the whole, as Canada requires lots of woolen goods for the severity of our climate. The Government should do something to retain this industry and find employment for our own people, but as the mills close the people have to emigrate either to the United States or go back to Great Britain, where they can get work of their kind, and they are then lost to us, as a man or woman that has worked in a woolen mill for ten or twenty years is good for no other kind of work. I don't think Mr. Hodgson would make a very good bargain with buying Paton woolen stock at \$75 per share, as my knowledge of trade has been that in bad times the makers of low goods were busier than the makers of better lines. But supposing that all those mills that are making low goods changed and went in for making better goods, we should have the experience of the 80's, as Mr. Hodgson says, that is, over-competition and loss of profits. If Mr. Hodgson had the experience in the woolen trade that I have had, and all his capital vested in the woolen line, as some men have, he would think differently on the subject. The change that has been made in the tariff from 23½ per cent. to 30 per cent. for the time being, and for some time to come, will do us more harm than if they had not changed it at all; for this reason, that the importers have bought from the other side much more than what they would have done if it had not been changed; no doubt it will help some in the future, but not sufficient to relieve the present conditions. I went into a warehouse of one of our customers the other day, and remarked to the merchant what a large stock they had, and he acknowledged to me that he had been buying extra before the new tariff came into effect."

THE WOOL TRADE.

There appear to be no accurate official statistics of sheep raising and wool production in Manitoba and the North-West, but from some of the leading wool and hide dealers in Winnipeg, we learn that the annual clip of wool in Manitoba is now about 100,000 lbs., the sheep of that province averaging six to seven lbs. per fleece. In the North-West Territories, the clip is estimated at 800,000 to 1,000,000 lbs., with an average of slightly under six lbs. per fleece. Ten years ago the total annual clip of Manitoba was 250,000 lbs. to 300,000 lbs. Considering the rapid growth in population of Manitoba in the past decade, this is a remarkable falling off in this industry. The decline is attributed to three causes: 1st, the destruction of sheep by wolves, and the difficulty of employing cheap hands as shepherds in the wolf-infested districts; 2nd, the low price of wool which has ruled for some years past; 3rd the growth of mixed farming, which led farmers into more profitable fields. The record of sheep raising is much better in the Territories, where in the past ten years the number of sheep has doubled. The original stock here was largely merinos, but the ranchers have turned towards crossbreds. The returns of the past year have been very satisfactory to the Territorial sheep ranchers, this year, as high as 14c. per lb. being realized at point of shipment, or two or three cents more than last year.

Reports from Winnipeg indicate that supplies of wool are pretty well cleaned up by dealers for the season.

In the Toronto market there is not much now offering, and the impression is that all except a few local dealers have disposed of their stock of this season's clip, and the large dealers in turn have been almost cleaned out by the mills. Prices are firm. Unwashed wools are quoted at 13 to 14c.; fleece, washed, at 20 to 21c., pulled supers, 20 to 22c.; extras, 22 to 24c.

Although there has not been any great volume of business done on the Montreal market, prices are very firm, and for any sales that have been made, slight advances have been paid. The London wool sales closed very firm and any withdrawals that were made during the series have since been closed out by private sales at top prices. Stocks of wool of every description are very light here, as in Ontario.

The fifth series of Colonial wool sales opened in London on the 20th September, with a large attendance of buyers. The quantity offered was 71,000 bales or less than half the quantity offered at the corresponding sale last year. Although the first lots were of a very poor quality, they were bought at values equal to the last sales. French and German buyers competed keenly for trade with home purchasers in merinos, while United States buyers went in for quantities of crossbreds, as well as Australian. Good merinos sold at par to 5 per cent. advance, while inferior lots were without change; crossbred staples, par to 5 per cent. advance. Good Cape and Natal were on a level with last prices. As the sales advanced, prices hardened. Very few lots were withdrawn, and of these most of them have since been sold on the higher level of prices.

Writing of the domestic and wool trade of Great Britain, the English correspondent of the Textile Manufacturers' Journal regards the change in the home wool market during the past year as marvellous. Lincoln wethers have more than doubled in price during the past two years, and all other grades of wool are up from 50 to 100 per cent. The present generation of woolmen has never known such a transformation in so short a period. From a state of chaos and extreme despondency there is to-day quite a little boom, and British sheep farmers are acting wisely in making hay while the sun shines. It is unfortunate to see our British sheep stocks dwindling year after year, and the fact is significant that there is no country in the world where sheep are on the increase. The financial aspect

of this is not so satisfactory as many would like, for there is no reason why the sheep should not be kept in as large numbers as ever, particularly when mutton is selling at very handsome figures. In the last ten years the number of sheep in Great Britain has decreased from 27,280,334 to 25,639,797. The question has often been asked what is the annual value of a home clip of wool, this including the entire United Kingdom? It can easily be estimated. Last year the wool grown in the United Kingdom was estimated at 133,124,762 pounds, the lowest clip produced since 1889. I do not think, says the correspondent, that we are placing a too extravagant price upon the clip if we reckon the same as being worth to-day all round 9d. per pound, this giving us a value of £4,992,178. This amount of money set in circulation is bound to be productive of good business, particularly in country districts, and will tell a far different tale in many a farm home to what was the case two years ago when wool values were practically half what they are to-day. The present boom in crossbred wool is no doubt due to two leading factors: First, fashions, and the universal craze for something cheap; and second, the great shrinkage in wool exports from Australia, with an absence of all wool stocks throughout the world. Consumption this last two years in crossbred wools has been on a very heavy scale, and the fact also of the Japanese Government placing heavy orders for war materials in the hands of manufacturers for very coarse fabrics, is also responsible for the present satisfactory state of the home wool market.

The next colonial wool sales in London will open on the 22nd November.

The United States wool market appears to be in nearly the same condition as the Canadian—a strong demand for almost anything in the shape of wool, and a shortage of supply in most classes of the domestic article. Not for years have the stocks been so depleted at this time of the year.

The Kidderminster Shuttle, reviewing the effect of the London wool sales, which closed this month, says: The general effect will be that for the next few months we shall have to look forward to stiffer prices. The English wool clip is now practically cleared, and the supply in the country is very limited. The yield has been somewhat below the average of recent years, while the quality is good. The average supply of sheep in the British Isles is about thirty millions per year. There has been a shortage of nearly two millions of sheep this year. The shrinkage in the sheep-growing areas of the world has been very great. Australia has not yet recovered from the effects of the great drought. From Buenos Ayres and Montevideo comes the information that the total quantity of wool shipped during the year shows a decrease of 80,000 bales, as compared with the preceding year, and that it is feared the new season will not show any improvement. This great curtailment in the world's supply of wool is seriously affecting our woolen industries, and is having a directly militating influence upon the carpet trade.

Dr. Sherman McKenney, Mrs. McKenney, of Fremont, Ohio; Dr. J. A. Neff, Dr. Angus McKay, Mrs. Neff and Mrs. McKay, of Ingersoll, have been incorporated as the Canadian Glove and Mitten Co., of Ingersoll; capital, \$30,000.

David Sloane Thomson, formerly manager of the White Abbey Spinning Co., of Belfast, linen manufacturers, recently contemplated coming to Canada as manager of one of the projected linen mills in Ontario. Mr. Thomson apparently saw the weakness of one or more of the propositions on foot here, and instead of coming to Canada accepted an offer from Frost Brothers, the extensive rope manufacturers and yarn spinners of London.

MERITS OF CANADIAN WOOLENS.

In an article on the woolen industry recently written for the Boston Transcript, E. W. Thomson, the well-known journalist quotes the following letter he received from a Canadian woolen manufacturer:—

"The old tariff (the present tariff before the preference to British goods) just about put woolen manufacturers on an even footing with English competitors. A little consideration will show you this. It is in evidence that tailors and purchasers of woollens, other than ready-made clothiers, make a boast of never keeping Canadian goods in stock, giving as a reason the false assertions that the latter do not keep their color and do bag at the knees, etc. On the strength of such allegations they can and do charge considerably more per yard and per suit for English goods than for the avowedly Canadian. It is in evidence that a Montreal tailor has paid twenty-five cents a yard more for a Canadian piece sold to him in the English department than the wholesale jobber than he could have got the same goods for in the Canadian department of the same house. He supposed, of course, that he was buying English goods, and he acknowledged that the pieces in the Canadian department seemed to be quite as good. They were the same in quality. There are many similar instances. In Toronto one large wholesale firm keeps all the woollens together, selling them on their merits, and with no English or Canadian marks on. A prominent tailor of Toronto, noted for his prejudice against Canadian goods, came in one day to buy, and when the wholesaler counted up the purchases it was found that seventy-five per cent. of them were Canadian cloths, bought on their merits. The salesman, when he found this proportion, thought it safer to tell the facts to the tailor, who then cancelled his order for most of the Canadian pieces. I have this from the wholesale firm, but it would be improper to give the names.

"The instance is cited in support of my opinion that the prejudice amounts to an additional twenty or twenty-five per cent. in favor of English goods. Consider now that we are paying forty to fifty per cent. more for labor than our English rivals; that raw material of all the cheaper kinds, including prepared stock, centres in England and can there be purchased from hand to mouth by the clothmakers at a moment's notice, and at much less than we have to pay for large stocks of the like; that all the ordinary expenses of operation are much higher in Canada; that not only is labor so much dearer here, but skilled labor almost impossible to get, which entails on us the additional expense of teaching the unskilled—let any reasonable man, even a free-trader, reflect on all this, and on the degree in which we are put to expense through the general operation of the tariff, and I think he will admit the fairness of my claim that the old duty did no more than place us on an even footing.

"When the preference to England was twenty-five per cent. we found the competition uncomfortable, and on certain lines disastrous, but when it was placed at thirty-three and one-third per cent. the effect was at once more noticeable, and the result is the closing of most of our Canadian mills for lack of orders. Many of the wholesale houses bought nothing from us this year. The bulk of the stuff that comes in preferred is of the very cheapest and worst materials, shoddy and cotton. Much of the yarn in these goods is of extremely poor shoddy, with a thread of cotton twisted around it to give it strength. One result of such preferred importations is that the Canadian woolgrower has to sell at lower proportionate prices than the wool-

grower of any other country in the world, the intrinsic values of the wools being duly considered. Our long and otherwise excellent wool is at the disadvantage of being harsh to the touch, and short-fibred shoddy gives goods made from it a much pleasanter feel. But the shoddy stuff wears out in almost no time, while goods made from our Canadian wool last so long that the wearer gets tired of them."

The manufacturer who wrote that, adds Mr. Thomson, is one of the straightest of men. His assertions are undeniable. Anybody acquainted with Canadian woollens and accustomed to Canadian tailors knows that they continually recommend English goods, just as Boston tailors do, and very often palm off Canadian as English. I know men who have and Canadian makers' marks on goods alleged to be English or Scotch. The popular preference for the latter continues in Canada solely because the absurdity of that preference is not exposed in any systematic way. Domestic manufacturers could destroy the prejudice which injures them by utilizing the press-agent method. They advert little, and that little is not on effective lines. So long as they allow themselves to be victimized by the puffers of English wares, so long as they do not employ modern methods of ridiculing that puffery and of puffing their own goods, they are open to the accusation of being stick-in-the-muds. Canadians are very patriotic, and would prefer Canadian goods if they were sedulously informed of their comparative merits.

COCOONS THAT YIELD COLORED SILK.

Several European newspapers have recently published the statement that Messrs. Comte and Levrat, of this city, had succeeded in so affecting silkworms, by coloring their food, that they would make cocoons yielding colored silk, thus obviating the necessity of dyeing the silk in the thread or piece.

The subject has attracted so much attention that I called upon the gentlemen in question to ask them what progress they had really made in their experiments in this direction, and received from them full information on the subject.

"In experimenting in this line," said one of them, "it is not expected that any commercial advantages will be gained or any discoveries made that will cause any changes in the industry of dyeing."

The gentlemen are engaged merely in laboratory experiments in a field which has been partially worked for the last sixty years. The object of their studies was to discover, if possible, why some breeds of silkworms produce white silks, while others produce yellow or yellow-greenish silk. Their experiments showed them that the natural coloring matter of the cocoons was identical with the coloring matter found in the leaves. It was, therefore, logical to believe that the color of the silk must originate in the chlorophyll of the leaves fed to the worms.

The experiments which followed, undertaken to test this hypothesis, prove that a coloring matter introduced into the intestines of a worm by means of food may, under certain conditions, reach the silk through the blood.

Thirty silkworms, hatched June 16th, 1902, were divided into a number of lots and reared on small branches. One lot was fed on leaves dipped in liquid to color them.

Some of the leaves the worms fed upon were colored a slight red and the worms ate them as they eat ordinary leaves in a natural condition. They grew and developed as if fed on common mulberry leaves. The general color of their bodies

became a dark red and the blood extracted from them was of an intense red.

When the cocoons were formed, August 12th, a pink silk was reeled from them. The entire cocoon was a beautiful red. To prevent the silk from being soiled by contact with the coloring matter on the leaves or by the skin of the worms, which might have been spotted by the dye, some of them (the worms) were washed and placed on freshly gathered branches, where they at once began to form cocoons as red as the first lot.

Two worms that had been eating colored leaves were separated from the others at the fourth moulting (July 27th), and fed for the rest of their lives on uncolored leaves. Little by little they lost the color received from the other leaves, and the silk reeled from them had only the slightest tinge of rose. In the excrement of these worms considerable quantities of red were found during the first two or three days, the quantity diminishing daily to the end of the larval period (August 14th.) The coloring matter contained in the blood passed into the intestines, and the red was completely eliminated in eighteen days.

The worms selected from the lot at the fourth moulting (July 23rd) were fed on colored leaves only during the fifth period of life, and they rendered on August 10th cocoons as red as those of the first lot, in which the worms had been fed on colored leaves during the entire larval period. The absorption of red during the last period is, therefore, necessary and sufficient to color the silk.

A fourth lot was composed of worms fed on methylene blue. They ate this with less avidity; and a number, in their efforts to escape this food, fell from the branches and were lost. They formed their cocoons slowly and rendered but little silk, which was of a slightly bluish color.

Another lot of worms, the *Atticus orizaba* (this is the wild worm, which does not eat mulberry leaves), were fed on the leaves of the *troene*, a tree of the olive family, (*Ligustrum* sp.) These leaves were dipped in a solution of picric acid. The well-known toxic qualities of that coloring matter did not prevent it from being eaten, but the worms did not relish it keenly and made no cocoons until September 4th. Notwithstanding the coloring power of picric acid, the silk remained white.

Thus we see that the neutral red passes easily by osmosis through the tissues, while methylene blue passes with difficulty, and picric acid leaves no trace of color.

The varying results of the different experiments are due to the different coloring matter used. The well-known properties of the neutral red and the methylene blue in coloring tissues marked them for experiments of this kind. As to the picric acid its absorption by the worms seemed to be so strange that the workers were led to carry on their experiments to the end. In order to give a careful answer to particular enquirers, inspired by the belief that the thread was possibly soiled by contact with the coloring matter, a subcutaneous injection was made in the worms ready to form their cocoons, in the false feet so as not to injure any organ. These worms immediately became red without appearing to suffer in the least. They produced a slightly reddish silk.

The experiments demonstrate that the injection of coloring matter into and through the serigene gland is less easy with the *bombyx* (black *bombyx* is a domestic worm that feeds on the mulberry), than with the *Atticus orizaba*.

From the investigations and experiments made, it is inferred that a coloring matter may be passed from the digestive tube through the blood upon the silk. The coloring matter possesses in a different degree the power to cross by osmosis the tissues of silkworms, and each race of silkworms is characterized by the osmotic power of its tissues in relation to different coloring matters, permitting the passage of some to the exclusion of others. This explains the natural coloring of the

Lepidoptera.—John C. Covert, United States Consul, Lyons, France.

THE MECHANISM OF WINDING.

By H. R. Carter, in Boston Journal of Commerce.

Winding is the enrolling of yarn, thread, etc., for the purpose of keeping it straight and untangled, and to facilitate its use later on when it is employed for the purpose of cloth construction, sewing, knitting, etc. Naturally, the variety of purposes to which yarns and threads are put after spinning or twisting, and the peculiarities of the machines employed in their subsequent manufacture, necessitate various modes of winding. For instance, weft yarn for weaving must be wound in such a way that it will unwind again at high speed with little strain, even when the end is suddenly jerked, as it is when the shuttle starts from rest at high speed under the influence of the thrust which it receives from the sword or picking stick. A sudden strain at this moment, even if the thread did not break, would cause the selvedge of the cloth to have a saw-tooth appearance and diminish the value of the tissue.

On the other hand, yarn wound as weft would not be suitably wound to feed the warping machine, for the yarn to form warps must be put upon the beam under a regular and fair tension. Threads which are to be retailed in small quantities are wound upon small reels or spools in measured lengths, or wound into balls or cross-wound rolls. Machines of precision are required for this sort of work, as the winding must be very regular for appearance sake.

Yarns, as soon as spun, must be wound up in one form or another to keep them from tangling. This winding goes on constantly upon a ring, throstle, or cap frame, but intermittently and turn about with the spinning upon the mule, hence the high turn off of the former as compared with the latter. As far as possible, the winding is done in such a way that the bobbin or cop produced may be directly used in the succeeding process of manufacture, thus saving time and money. The direct weaving of cotton cops is an instance of this mode of procedure.

Yarns spun wet can seldom be conveniently dried upon the bobbin upon which they are spun, as the dry yarn becomes loose upon the bobbin or tube, and, in the case of the former, the yarn dries away from the head and base, rendering any winding off difficult and wasteful. Special tubes have been invented, however, upon which flax yarn may be spun wet, then dried and placed directly in the shuttle to be used as weft. In the ordinary way, wet spun flax yarns are reeled into hanks for drying and then re-wound upon warper's spools or upon weft pirns.

The dyeing of yarns upon the bobbins upon which they are spun is likewise an impossibility, except in the case of woolen cops, which, by a special process, may be imbued with dyeing material under pressure. Flax or cotton yarn lies too close to be treated with the same success, and must consequently be wound into hanks for dyeing.

For threads requiring great regularity and absence of large knots, the use of the spinning bobbin in the twisting-frame creel is barred, owing to the comparatively short length upon that bobbin and the liability to lumps or bad piecings which would pass into the thread without being detected. Yarns for such purposes are wound upon larger bobbins, either singly or two or more together, stop motions being provided and often slubbers or fault detectors, so that a long length of yarn may be obtained as free as possible from faults. The "gassing" of yarns and the polishing of twine and threads are other processes which necessitate winding from one bobbin to another.

1. Parallel Winding.—In the winding of yarns upon bob-

bins running loose upon vertical spindles, it is usual to alternately raise and lower the bobbin by means of the builder upon which it rests, and to have a fixed point of delivery for the yarn—i.e., in the throstle spinning or twisting frame the eye of the flyer. The bobbin is then retarded by a drag band or friction washer and pulled round by the tension of the thread, its speed being rather less than that of the spindle or just sufficient to take up the yarn delivered. This method of winding is only applicable when the thread is comparatively strong and capable of withstanding the strain imposed upon it without stretching or breaking. In the roving frame, which affords perhaps the most beautiful example of bobbin winding, the mechanism must be regulated in such a way that, although the delivery of rove or slubbing is constant, each thread lies close against its neighbor and is laid on at a regular tension which produces no strain. If it be borne in mind that the bobbin is gradually increased in diameter as each layer is put upon it, it will be seen that to attain such a result, the speed of the bobbin relative to the flyer must change automatically at each increase in diameter.

There are two ways of winding a thread upon a bobbin on a throstle frame. Either the flyer may lead the bobbin and lap the yarn upon it, or the bobbin may go faster than the flyer and lap the yarn upon itself. In the flax, hemp, and jute roving frame, the former is the more usual method, while in the cotton frame the latter is generally employed. While the bobbin is pulled round by the tension of the yarn, the flyer, of course, must be leader. In the roving frame the bobbin is positively driven by means of gearing communicating motion from a wheel running loose upon the frame shaft, the difficulty presented by the up-and-down motion of the bobbin with the builder being overcome by the aid of the telescope shaft or link gear. The driving wheel just referred to as running loose upon the frame shaft is driven from another similar wheel fixed upon the same shaft through the intermediary of a series of epicyclic wheels, based upon the invention of Raynor, dating as far back as 1813. Although many patents exist for differential motions, they are all modifications of the original one and fulfil the same functions—i.e., to vary the speed of the bobbin and builder each time the latter rises and falls. A belt cone was at one time used to effect the necessary changes in speed, but was found not to be sufficiently powerful and exact, except for the very coarsest work. It or a substitute is still used, however, to give a quicker or slower speed to the jack wheel or box which is the main organ of all differential gears. This light work it does with exactitude and success, in this way governing the speed of the bobbins without itself driving them. According to the speed given to the box and the direction in which it turns, the bobbins go faster or slower, lead or follow the flyer. The contour of the cones must be parabolic, which is the only form of curve on any part of which a given shift of belt produces a like change in speed, that being what is required by the constant and uniform increase in diameter of the bobbin as each layer or rove is laid on. As a substitute for the cone, one maker uses an expansion pulley, another a disc and scroll; while the modifications of the differential gear are so numerous that we cannot here launch into a description of them.

In some classes of spinning and twisting frames in which very large bobbins are used, the latter turn upon stationary horizontal or inclined spindles, bobbin and flyer being independently driven. The bobbin drive is frictional, and is required to put the heavy bobbin in motion without unduly straining the yarn. The pressure between the friction surface is increased by shifting a weight along a lever arm, or automatically by means of a ratchet wheel arrangement, as the speed of the bobbin must be increased owing to its diameter becoming larger and its winding capacity greater. The building of the yarn upon

the bobbin in this class of frame is accomplished by a right and left handed screw which moves the bobbin, with its sleeve and carrier, backwards and forwards upon the fixed spindle, the delivery point of the yarn upon the flyer arm being constant. The usual way of obtaining an up-and-down motion for the builder of spinning frames is by the use of a quadrant or of a heart-shaped cam. A quadrant is a long and short armed lever of the first kind, turning around a fixed centre or stud. The short arm of the lever is connected by chains with the builder shaft, while the whole is giving a reciprocating motion by means of a builder pinion acting upon pins set in the segment of a circle and forming a T-headed attachment to the long arm of the quadrant lever. The end of the shaft carrying the builder pinion works in a slot, so that when the pinion comes to the last pin in the row, it is free to move around it and act upon the other side of the pins, thus causing the lever to turn in the opposite direction and producing the up-and-down motion of the builder. It is obvious that as the pinion turns the extremities of the row of pins a momentary stoppage of the traverse motion must take place. Indeed, there is no possible traverse motion which avoids a rest of longer or shorter period at each extremity of the travel. Consequently, when bobbins with flanged ends are employed the length of traverse should be rather less than that of the bobbin barrel, in order that any accumulation of yarn at the ends may have room to spread out.

Bobbins with flanged ends are generally used when the yarn is laid on by a reciprocating vertical or horizontal motion of the bobbin itself and when the traverse is of constant length and position. In the cotton roving frame bobbins with ends are dispensed with, the rove being built upon a parallel tube. To do this, however, a special motion is provided, which automatically shortens the length of the traverse as each layer is laid upon the tube, and thus produces a bobbin with conical ends, which bobbin winds off again without trouble.

The roving frame only is provided with a means of regulating the speed of the builder so that one spiral or rove is laid close against another whatever the diameter of the rove or of the bobbin. The differential motion, before referred to, serves also the purpose of giving a variable motion to the builder, as well as to the bobbins. Throstle spinning and twisting frames, as a rule, have no means of varying the relative speed of the traverse of the builder, so that the threads are more or less irregularly laid on the bobbin, which, however, does not matter in this process. The traverse motion is, as a rule, rather slow, but occasionally it is speeded up in order that the threads may be crossed to facilitate the finding of a broken end.

Turning next to winding frames, we have, in an old form of warp spool winder, the yarn built upon a bobbin with flanged ends by a vertically reciprocating thread guide rod, the spool turning upon a vertical spindle and driven by a disc and friction washer upon which it rests. A more modern machine for the same purpose is the drum winder, where the spool lies upon the face of a revolving pulley or drum which fits between its flanges. The use of flanged spools, however, is going more and more out of fashion, it being now more usual to build the yarn with a quick traverse motion upon a paper or wooden tube without ends.

The commonest machine for making these rolls or cheeses is known as the split drum winder, because the pulley or drum upon the surface of which the tube lies while being wound is made in two pieces, forming a groove which crosses the face of the pulley from one side to the other and back again, and serves to guide the thread and rapidly cross it, forming a compact roll, which will work as well as a spool in the warper's bank and be much lighter and more convenient for packing.—The Textile Recorder.

EPIDEMIC AMONG GERMAN DYERS AND FULLERS.

For a number of years the employees in the dyeing and fulling establishments throughout Germany have been suffering with a skin disease which in most cases was confined to the hands and arms. The disease has spread widely during the last few years and has recently been the subject of a government report, the outline of which is as follows:

The employees in the fulling department of woolen mills have suffered with a disease of the skin which consisted of itching pimples and bunches, particularly on the hands and arms which were uncovered while the operative was at work. The disease was mentioned by medical writers as early as 1878. At first it was confined to isolated cases, but in recent years has extended so as to become quite general. A few fulling establishments are free from it. Recently it has also broken out in dye works. In Forst, where the disease is most prevalent, out of 202 fullers in 69 mills, 35 in 24 mills were suffering from the disease. At the same place seven dyers were attacked. In Cottbus, of 90 fitters in 35 mills, there were eight victims in five mills, besides one dyer. Usually the sufferer is able to continue his work, and only eight cases were found where the fullers were compelled to change their occupation. The district doctor at Forst refers to the disease as follows:

"Frequent and sometimes uninterrupted contact of the hands and arms with warm or hot liquids or vapor cause a softening or disintegration of the skin which becomes chapped or cracked. The trouble is aggravated by continuing to work with the hands and arms in soap of chemical solutions. Itching pimples or postules form and are frequently rubbed off by the sufferer. This generally causes ulcers to form, which, however, are confined to the parts of the body where the skin has been removed. The disease makes its first appearance generally on the fingers and spreads to the hand and lower part of the arm. In some cases the patient complains of the loss of the sense of feeling in his fingers. This may be ascribed to the condition of the skin. The ulcers heal with difficulty and some of the sufferers have been compelled to change their occupation."

The fulling process has been changed but little in the course of time and to-day it is practically the same in all mills. To remove the oil from the cloth the pieces are first treated in a scouring machine with a solution of soap and soda, or a soap powder, which is a mixture of soda, soap and sulphate or carbonate of ammonia. Sometimes the cloth is fullled without previous cleansing, in which cases it is first-treated in the hammer fulling mill. The cloth is then washed and again fullled in a rotary mill, the object being to shrink the fabric to give it solidity and strength and prevent subsequent shrinkage. Almost without exception the persons afflicted with the disease state that they acquired it while engaged in the preliminary process of fulling the goods before they were scoured, and that danger was particularly great when the cloth bled, that is to say, when the dyestuff from the goods colored the fulling liquor. Furthermore, it has been established that no soap boiler or other person engaged in handling soap or soap solutions, such as washwomen, had been troubled with eczema on the hands and arms. Nine cases of the disease were also observed in which the patients, dyers, had come in contact with acid solutions but very little or not at all.

The conclusion was drawn from these facts that the cause of the epidemic was not to be found in the use of soap or soda, but rather should be sought in the dyestuff or mordant. It was also observed that the disease only appeared in those mills, as in Forst and Cottbus, where the material was dyed in the wool or yarn Spremberg and other places, where the goods were generally fullled in their natural condition, and subsequently piece dyed were practically free from the disease. The only two sufferers in Spremberg were working on dyed goods.

For a long time wool and wool pieces have been dyed almost exclusively with alizarine dyestuffs. Bichromate of potash, the most important mordant used to-day, was introduced more than fifty years ago. The only recent change has been in the method of application of these colors and mordants. Formerly the wool was mordanted and then colored, two baths being necessary. About ten years ago the one dip method was introduced by which the dyestuff was first applied and then the material was afterwards treated in the same bath with bichromate of potash or soda, the second process being called after chroming. With the one bath process the material was first treated with a mixture of the required quantity of dyestuff with about 10 per cent. of Glauber salt, and a certain quantity of acetic or sulphuric acid. Then some sulphuric or acetic acid and 1 to 3 per cent. of bichromate was added to the bath. The one dip process is much quicker than the two dip method and the wool fibre is not subjected to such harsh treatment in the one dip as in two. There was also a saving in time, steam, labor, etc.

The one dip method was not introduced suddenly. It was adopted by a few mills at first and has gradually extended to others, until for the last four or five years it has been in general use. The outbreak of the fuller's disease to which we have referred is practically coincident with the adoption of the one dip method of dyeing. In one mill a fuller who had worked at his trade for thirty-one years had been a sufferer from the disease only for the last five years, while in another mill a fuller of twenty-nine years' experience had been a sufferer for only three years. In another mill a fuller had been suffering from the disease for three years although he has been constantly engaged in the same occupation for thirty-three years with the same firm. These cases present the general experience of workmen in the different mills.

As contact with the alizarine dyestuffs, so far as known, does not cause the eczema, and the same is true regarding Glauber salt, sulphuric acid, acetic acid, and other mordants, such as alkali, alum, sulphate of iron in weak solutions, suspicion naturally pointed to the bichromate of potash and soda. It has been long known that bichromate has an injurious effect on the human skin. It remained, therefore, to be determined whether chrome was present in the fulling solutions. Six samples of the fulling liquor, taken from four different establishments, were analyzed. In each of the six samples chrome was detected; in four of them the quantity of chrome amounted to 1.5, 2.94, 4.47, 6.35 grams per 10 litres respectively. Dr. Boettiger, in Barmen, had already observed in Chemnitz that weak solutions of bichromate of potash would cause eczema. Dyers who handled chromed yarn were attacked with the disease. One dyer was positive that he had acquired the disease by working in chrome solutions. An overseer of dyeing stated that he had noticed that one of his employees was effected with the eczema every time he had occasion to work in chrome liquor.

It was, therefore, concluded that the recent spread of the eczema was due to the fact that the material dyed in one dip discharged a greater quantity of chrome during the process of fulling. To test this conclusion, two samples of wool were colored the same shade, one by the two dip method, the other by the one dip process. The former was mordanted with 3 per cent. of bichromate of potash and 2½ per cent. of tartar, the latter was chromed with only 1½ per cent. of bichromate of potash. Both the dyed samples were then handled in the soap and acid solutions in exactly the same way as is adopted in the process of fulling. The sample dyed with the two dip method revealed scarcely any traces of chromic acid. The other sample dyed with the one dip method, however, although but one-half as much bichromate had been used, discharged a considerable quantity of chromic acid.

A remedy for this disease has not been found at the present time. Gloves cannot be used as the fuller must have his

hands free for measuring and handling the cloth. Obviously a thorough scouring of the goods after dyeing would remove the surplus of chrome, but this method is not easily applied, particularly with goods that are dyed in custom dye houses.—Leipziger Faerber and Zeugdrucker-Zeitung.

MERCERIZED WORSTEDS.

The mixed fabrics to which the trade has applied the name, "mercerized worsteds," have sold freely during the present season, and bid fair to retain their popularity. The name is, of course, a misnomer because the mercerizing process is applied only to cotton. It is derived from the use of mercerized cotton in mixed worsted and cotton goods. The latter have long been known as "cotton worsteds," a term that is as inconsistent with the facts as is "mercerized worsted." Mercerized worsteds are made of white or colored cotton yarn and grey worsted or woolen yarn. The wool is dyed in the piece by a process that does not affect the cotton. The finished goods thus show fancy effects which could be obtained heretofore only in wool or yarn dyed fabrics. As the piece dyed shade forms the ground color, it has been found necessary in order to reduce the cost of the goods to substitute colored cotton for a part of the worsted. Mixtures of wool and cotton have also been used for the same purpose.

At first mercerized cotton was used for the fancy effects, but many styles have been made with unmercerized cotton for the fancy yarn. The term mercerized worsted has been retained, however, and thus made to cover a wide variety of fabrics. In making these goods manufacturers have had difficulty in dyeing the wool in the piece so that the color will penetrate the thread thoroughly. Many of the mercerized goods on the market can be detected by untwisting a ground thread and finding the centre to be of a much lighter shade than the outside. There have been other troubles, such as streaks and clouds due to irregular dyeing. Some fabrics have been imperfectly constructed because of the desire to reduce cost. The well made and successful lines of these cloths have demonstrated their merit. They can be made at a lower cost than wool or yarn dyed goods. The general process of manufacturing mercerized worsteds is likely to remain a feature of the men's wear trade. They are easily made, but like every other fabric possess certain peculiarities which a manufacturer must understand in order to make them successfully.—Textile World Record.

RIB-KNITTING MACHINE.

Frank Lasher, Bennington, Vt., has recently patented a rib-knitting machine that possesses some points of merit. The object is to improve a knitting machine in a way to render the use of much finer needles practicable.

With Mr. Lasher's device, it is claimed that a machine can be constructed of much finer gauge to knit much coarser yarn on fine needles, or on a fine gauge machine, than has hitherto been feasible. The mechanism that he has devised also protects the needles against breakage, and greatly increases the range of capacity of the machine for handling all varieties of yarn from the finest and most even to the coarsest and weakest, while allowing the machine to run at a higher rate of speed than otherwise would be practicable.

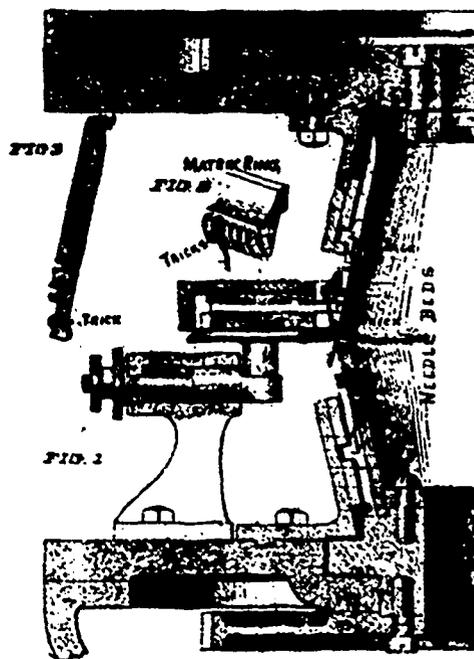
We have illustrated a section of rib-knitting machine taken through the axis of the needle cylinders, as shown in Fig. 1. Fig. 2 is a perspective view of the matrix-ring, and Fig. 3 is a

longitudinal section of the needle cylinder which carries the matrix-ring before the grooves are cut.

These improvements are specially adapted for use on circular rib-knitting machines, and to machines in which each needle is individually reciprocated; and while the needles are elevated or advanced to the forward limit of their respective strokes the sinker-blades insert the yarn between them to form the loops.

Straight smooth rods have been long in use in straight knitting machines to support the heads or tops of the advanced needles while the feed-thread is being sunk by the sinkers; but the application of such a support to the needles of circular machines has hitherto remained in abeyance on account, among other things, of the diverse nature of the two classes of machines.

To support the needles, sockets or matrices have been provided in Mr. Lasher's machine, into which the tops of the needles are forced, and where they remain while the sinkers are sinking the yarn to form the stitches or loops. These matrices are formed on a hoop or ring by grooving its periphery vertically in line with the needle-grooves of the cylinder, with which it co-operates, and by making the openings of these grooves toward the tops of the needles, which enter them flaring or trumpet-shaped, so that if a needle in its ascent or for-



ward stroke happens to be bent or sprung a little out of line, this funnel-shaped mouth will guide its head into the matrix with certainty and without damage to the needle itself or to the yarn. The bottoms of these grooves act to support the needles against the direct thrust of the sinkers in feeding the yarn and the drag or strain of the yarn around the needle-stems after the loops are formed, while the side walls of the grooves resist the tendency of the sinkers loaded with the yarn, if coarse or lumpy, to spread the needles apart sideways.

The needle-cylinders and sinker-bed move in unison. The matrix-ring is attached to the upper needle-cylinder and co-operates with the lower set of needles. The upper cylinder is first turned to the shape shown in cross-section in Fig. 3, and is then grooved for the reception of the needles to the depth shown by the dotted line in the same figure. Jacks and needles occupy the needle-grooves and are reciprocated by means of actuating-cams in the usual way.

Near the extreme lower edge of the upper cylinder is a row

of tricks which serve to guide the lower ends of the upper set of needles. The conical surfaces of the two cylinders are inclined away from each other sufficiently to permit the introduction of the matrix-ring between the upwardly-projected needles of the lower cylinder and the surface of the upper cylinder.

As the cloth is drawn out through a gap between the cylinders, its drag on the needles tends to draw the needles backwardly down against the bottom of the matrices and needle-grooves of the cylinder, so as to prevent a movement of the head of the needles while the sinkers are inserting the yarn to form the loops.—Textile American.



DIAZOTISING AND DEVELOPING WOOL.*

By J. J. Wittenberg.

Little work has thus far been conducted on the subject of diazotising and developing wool. Richards, in 1889, outlined a brief series of experiments supporting his view of the fact that the behaviour of wool toward coloring matters is like that of an amido acid; being basic towards acid colors, and acid towards basic colors. Thus, wool treated with nitrous acid soon becomes yellow, and is presumably diazotised. If subsequently treated with solutions of various phenols and amines, a variety of colors (azo dyes) is produced on the fibre, according to the nature of the developer employed.

Phenylene diamine yields shades ranging from a light salmon to a full reddish brown, depending upon various conditions, such as the nature of the wool, the temperature of diazotising and developing baths, and also the strength of the diazotising bath, as will be seen later. Toluylene Diamine yields brown shades; Blue Developer A D; greenish; Blue Developer A N, light brown; resorcline, yellow to granite red; phenol, yellow to orange; beta-naphthol, yellow to granite red; alpha-naphthol, yellow to granite red; Naphthylamine Ether N, yellow to reddish brown; and Naphthylamine Ether powder, light to dark brown. Phenol under all conditions yields the lightest shades.

The introduction of two hydroxyl groups in the developer (as when resorcline is used) causes the shades produced to be somewhat heavier and yellower. The naphthols show but a slight increase in depth of color, whereas the naphthylamines suffer a decided loss in brilliancy, but a slight increase in intensity. Upon replacing the hydroxyl by amido groups, as in the case of Phenylene Diamine, the resulting shades are considerably darker and of a reddish cast. The introduction of a methyl group into the benzene ring, together with two amido groups, forming toluylene diamine, yields heavy shades of a more or less brownish cast. Blue Developer A N, is an amido-naphthol sulphonic acid containing only one amido group, and does not give as full a color as Phenylene Diamine, which has two amido groups. Blue Developer A D, amido-diphenylamine, containing three amido groups, produces colors entirely different from any of the foregoing. The shade, instead of being yellow, reddish, or brown as heretofore, acquires a greenish or bluish cast.

As before stated, the effectiveness of diazotisation and developing, and the character of the shade produced, are more or less altered by the varying conditions of the wool.

*The author received the "Textile World Record" gold medal for this paper at the Philadelphia Textile School.

Wool in the following conditions was subjected to the process:—

1. Scoured wool.
2. Bleached with hydrogen peroxide.
3. Bleached with sulphurous acid.
4. Bleached with sulphurous acid and chlorinated.
5. Wool steeped in a 10 per cent. solution of nitric acid for 12 hours.
6. Wool steeped in 10 per cent. ammonia for 12 hours.

Bleaching the wool tends to make the diazotising bath more active, and also causes the formation of a darker color with the developer. A distinction must be made between the various bleaching agents, as they do not give the same results. Wool bleached with hydrogen peroxide previous to diazotisation yields shades a trifle heavier than those produced on the unbleached fibre. The action of sulphurous acid is, however, quite marked and characteristic. This is especially true when the amines and phenols act as the developer. The shades in general are heavier and of a reddish cast. This would tend to show that the sulphurous acid had in some manner combined with the amido base of the wool fibre.

Chlorination of the fibre plays quite an important rôle regarding the shade produced upon diazotising and developing. With all the developers, except the phenols and naphthols, the depth of shade is increased considerably; quite the same as in dyeing chlorinated wool with azo dyes. It is rather difficult to determine the true action of free chlorine on the wool fibre, but without doubt a chemical compound is formed which causes the wool to have an increased affinity for dyestuffs. When wool is steeped in a 10-per cent. solution of nitric acid, it gradually turns yellow, due to the formation of xanthoproteic acid. Upon diazotising and developing wool treated thus, the shade is but slightly altered. It tends to leave the shade somewhat yellower, due probably to the simple nitration of the wool. Wool which is simply nitrated produces no change in color with the phenols.

The action of ammonia is quite interesting, as it shows a distinct increase in the depth of the shades produced with the various developers. It is especially noticeable with the naphthols and phenols. The shade in all instances is darkened, the tone remaining the same, whether the ammonia was applied to the wool base or the diazo body formed by the action of sodium nitrite on the base. The latter yields the heaviest shades. It is thus clear that the wool has undergone some change with the sodium nitrite which renders it capable of combining with the developers, as the diazotised amines do.

From the above results it is quite natural to suppose that a diazo compound of the wool is formed; being, however, much more stable than the ordinary diazo compounds. Boiling the diazo body with hydrochloric acid does not destroy it completely; it may be dyed with diazo-naphthalene chloride, and it appears that a phenol is liberated in the fibre, produced by the decomposition of the diazo compound on boiling. These reactions tend to show that wool may be regarded as a primary amido compound, as it displays the properties of such a body.

On comparing with a primary amido compound such as aniline, it was found to be similar in its reactions. Aniline on being diazotised is turned yellow. On heating, effervescence occurs, and the smell of phenol is perceived. Again, upon bringing a solution of phenol in caustic soda in contact with the diazo compound of the aniline, an orange-red color is produced. Likewise other developers may be employed producing similar results.

The temperature of the diazotising and developing baths

is also an important factor, as will be seen from the results of the tests made under the following varying conditions:—

1. Diazotised with 10 per cent. sodium nitrite and excess of hydrochloric acid, cold. Developed with 10 per cent. developer, cold.

2. Diazotised as above. Developed at 180° F.

3. Diazotised at 180° F. Developed cold.

4. Diazotised at 180° F. Developed at 180° F.

It was observed that Blue Developer A D produced entirely different results under the various conditions. The difference in tone of color is not very marked, whether the diazotizing bath is hot or cold, as long as the developing is done cold. The former, however, produces colors much more brilliant.

Having noted the influence of heat on the diazotizing bath, its influence on the developing bath was next observed. When the diazotizing was done cold and the developing done at 180 deg. F., the color was much duller than under the foregoing conditions; whereas when the diazotizing and developing were both done at a high temperature, the color was more brilliant and of a yellowish cast. With toluylene diamine the variation in temperature does not produce as marked a change as with the above developer. The most brilliant colors are obtained when the diazotizing is done hot and the developing cold. The most intense color is obtained when the diazotizing is done cold and the developing hot; but when both are heated, the color shows a slight increase in brilliancy.

Again, with phenylene diamine the most brilliant colors are produced when the diazotizing bath is heated and the developing done cold. There is a marked decrease in the intensity and brilliancy when diazotized cold. On raising the temperature of the developer bath the color shows a further decrease in brilliancy, but a very marked gain in intensity. When, however, both operations are carried out hot, the color shows a loss in intensity and a marked gain in brilliancy over that produced with cold diazotizing and hot developing. With naphthylamine ether, the colors produced under the above conditions exhibit marked differences. The lightest shade is obtained when both diazotizing and developing are carried out cold.

When the diazotizing is done hot, and the developing cold, the resulting shade is much more brilliant and intense, with a decided yellow cast. Heating the developer causes the color to assume a reddish cast, being most intense when the diazotizing is done cold. On heating both baths the color loses its intensity and appears with a more or less yellow cast. This tends to show that the best results are obtained when the diazotizing is carried out at a high temperature; but more brilliant colors are obtained when the developing is done cold.

The strength of the diazotizing bath also marks a change in the shade produced. Wool diazotized with 5 per cent. sodium nitrite and excess acid, developed with 10 per cent. phenylenediamine, yields a fairly deep brown; on increasing the per cent. of sodium nitrite to about 10 per cent., the shade is darkened and turned to a deep reddish brown. Other developers, such as toluylene diamine and blue developer, show a similar behavior.

On combining the various developers fairly dark and full shades may be obtained, ranging from yellow to orange, reddish brown, brown, green, bluish and greyish, to black. To determine the fastness of the colors produced, acid, alkali, and washing tests were made. Those obtained with phenylene-diamine, toluylene-diamine, and naphthylamine ether are fairly fast to washing. The colors of blue developer, on the other hand, suffered some change. The acid has a decided influence on the colors obtained with the above developers; those of the diamine developers are altered considerably, assuming a distinctly red cast with a marked increase in depth of shade. The

colors obtained with naphthylamine ether and blue developer suffer but slightly. Alkali also affects the colors produced with the diamines, imparting to them a yellow cast with a decrease in intensity. The colors with naphthylamine ether are unaltered. Those of Blue Developer A D are darkened to a bluish slate.

A SIMPLE FORM OF ERYTHROSCOPE.

It is well known that chlorophyl, the green coloring matter of leaves and plants, possesses remarkable optical properties. For example, a thin layer of its solution in alcohol or ether transmits a beautiful rich green color, while a deeper layer of the same solution transmits a dark ruby red color. It likewise shows, both in solution and in the solid state, a reddish-brown fluorescence. The absorption spectrum of chlorophyl is one of the most complex known to colorists. When a moderately strong solution of this plant green is examined with the spectroscope, it is found to transmit freely the extreme red, while the orange-red and orange are absorbed. Yellow, yellow-green, and a part of the green are freely transmitted, while the bluish green, blue, and violet are all absorbed. The sum, therefore, of all the colored rays reflected from fresh green leaves—especially in springtime—gives the sensation of a somewhat yellowish green. From the fact that chlorophyl reflects a considerable amount of red light to the eye, arises the property—well-known to artists—which plants and tree foliage have of appearing "warmer," or of a ruddier hue, when seen in a sunset. The light has a predominance of red and orange rays. Most greens become duller and flatter under such an illumination. It is possible to illustrate this difference still more by having a tender green leaf placed upon a ground painted exactly the same shade of green as the leaf. In good daylight the color of the leaf and its painted ground may match each other perfectly, but if both are viewed through suitably colored glasses, it will be found that the leaf is almost a ruby red color while the ground is nearly black.

As the result of experimenting on this singular property of chlorophyl, Simler invented an instrument which he termed the erythroscop, a word meaning simply a "red seeing" apparatus, from the Greek erythros = red, and skopeo = I view. Simler's erythroscop consisted of two plates of colored glass; one cobalt blue of sufficient depth, and the other of a deep yellow color. The cobalt blue glass absorbs all the orange and yellow rays, and yet transmits some of the green, the extreme red, and all the blue and violet. When these two glasses are combined, it is found that the only colored rays transmitted freely through them are the extreme red, to about the lines B $\frac{1}{2}$ C on the spectrum, and the green and blue green from the E lines to about the line G in the blue. And what is the result? These combined glasses forming the erythroscop have the property of absorbing or cutting off just that part of the spectrum which the plant-green, or chlorophyl, reflects, and of transmitting freely the red light. The result is that a bright green landscape, with verdant fields and foliage, appears of a coral red color; while the sky retains its blue, and the play of light and shade remains undisturbed. The whole face of nature becomes changed in a marvellous manner.

Professor O. N. Rood, in graphically describing its effect, says: "All green trees and plants shine with a coral-red color, as though self-luminous; the sky is cyan-blue, the clouds purplish-violet, the earth and rocks assume various tints of violet-grey. Pine trees appear of a dark red hue; orange and yellow flowers become blood-red; greens, other than those of foliage, are seen in their natural tints, or at least more bluish. Lakes preserve their blue-green coloring, and the play of light

and shade is left undisturbed. The whole effect is as though a magician's wand had passed over the scene and transformed it into an enchanted garden."

But the same wonderful color changes here described can be seen through a simpler apparatus than Simler's erythro-scope. This consists of a sufficiently strong solution of the dye-stuff known as Methyl Violet 3B, enclosed within slips of glass; or, more conveniently, in the form of a gelatine film dyed to a certain depth with this coloring matter. Methyl Violet 3B solution is remarkably dichroic, transmitting readily those extreme red rays that are reflected by green leaves, and also the blue-green, blue and violet, but absorbing the bright yellow-green and green. It is worth while for colorists to prepare a colored film for themselves in order to see the beautiful color transformations.

It may be noted that this violet colored film is of interest not only in this respect, but as a valuable aid in examining dyed shades. As every intelligent dyer and colorist knows, there are many shades which in daylight appear perfectly similar to the eye, and yet appear all different when viewed under colored illumination. This violet film is often most useful for showing at a glance if certain pairs of green, blue, and drab shades possess similarly constructed spectra. But the object of this article is to describe a few of the remarkable color transformations observed by the writer through this simple form of erythro-scope.

On viewing the landscape illuminated by a summer sun, the sky keeps a deep cyan-blue, while the grass is a reddish purple color. When the sunlight is streaming through the fresh green leaves of foliage, as in a sunny wood or glade, the leaves assume a beautiful claret red, or dull magenta color. The play of light and shade under such circumstances produce some fine color effects, and to the beholder the scene becomes transformed as if by magic, into some fairy dell. The bright yellow green of the tender leaves, through which the light is transmitted, glows with magenta, while the shadows are of a deep purple. The sky, perhaps seen glinting through between the leaves, is a deep blue, and any white floating cloud is tinged with a delicate pink.

A remarkable property of this violet film is its power of showing up the slightest degree of yellowness or redness in any object, where it is not so readily perceived by the unaided eye. For example: One evening the sky towards the west showed at the horizon a somewhat yellowish daffodil hue, but it was quite impossible for the naked eye to locate exactly where the yellow began, as it merged gradually into the blue of the zenith. On viewing the sky through the violet film no such gradual merging from one color to another was observed, but the sky was divided into two distinct color zones. It was a deep cyan-blue from the zenith downwards, about half way, and then came a sharp decisive change in hue to a rosy pink, deepening into a crimson as it reached the horizon. In this way the exact locality of the yellow or orange part of the sky was more sharply and accurately defined. Browns and yellows, either in foliage or in flowers, glow with a most intense scarlet of unexpected brilliancy, and the laburnum tree, when in full bloom, is transformed into a wonderful sight. Through this violet film it simply glows in the ruby and scarlet like a tree on fire.—By David Paterson, F.R.S.E., in the Dyer and Calico Printer.

(To be concluded.)



DOMESTIC HANDICRAFTS.

It was in October, 1900, that the Montreal branch of the Canadian Women's Art Association held an exhibition of handicrafts, which succeeded in its object of arousing interest. A second exhibition, in the spring of 1902, was even more suc-

cessful as representative of the work of Canadian women, the country having been searched for examples of stitches and work which was fast being forgotten, only the oldest women remembering the secrets. Later, about eighteen months ago, "Our Handicraft Shop" was opened in Montreal, with Miss Edith Watt, an enthusiast on the subject, in charge, and this has become the headquarters of the work. The shop is in an interesting spot, and the visitors who come to the city in the hot months find it a source of unending delight. Here may be obtained Doukhobour work and that of the Galicians, with odd designs and harmonious colors; the Indians from east and west contribute baskets and characteristic bead work, the women from the Old Country who make their homes in the Dominion send laces of beauty and fineness; the French-Canadians contribute homespun woolens and linens, the couvertures having historic patterns woven in tufted style. Chairs, also hand-made, come from these cabins, and more baskets, one little cripple making a variety of shapes and sizes. The possibilities of rag carpet are not dreamed of until the shop is visited and examples seen; and the lace already mentioned, desirable as it may be, represents more than beauty to those who read between the lines. It means an interest to some lonely woman in the prairie land. It means that when her work is done, and in the stillness she would sit with folded hands, she now has a motive for occupation. She is making her lace to send away for sale. She is looking for a letter of encouragement and advice, and she feels that she has a part in the life of the outside world, with which she is now in touch.

To the distant mission schools for Indian children news of the movement was reached, and enquiries have come from the authorities, who ask not only for a market for the work done, but for instruction and advice. Indian work had been gradually deteriorating for years till much of it was a lost art. The kind of bead used was less beautiful and more common than of old, and the examples shown were a mere travesty upon the old Indian art. Now they have begun to improve, showing a desire to learn, and much of their work is beautiful.

The Toronto branch has given every encouragement to the scheme. Exhibitions of work are held from time to time, and orders taken for the homespun and other hand-work, besides which the Toronto Association not long ago showed sympathy in a practical manner by the loan of \$200 for the purchase of stock. It is hoped that a series of exhibitions will be held during the winter throughout the country, which will do much to arouse interest.

Down in the Maritime Provinces, people are asking for work to be sent for exhibition and sale, with the idea of encouraging the women of that part of the country to take up what they had almost forgotten. A market will soon be opened in Halifax.

In Winnipeg, a handicraft committee is working with enthusiasm, and hopes to encourage the Sioux Indians to revive their old arts.

The women are gradually improving in their work. They are learning lessons in good taste, tactfully given; they are following directions, and one triumph for their teachers is that the women are returning to the use of vegetable dyes, which had been abandoned for the crude fugitive aniline dyes.

In the past year the association paid in cash to women working in their own homes over \$1,300, and those who know how little money usually passes through the hands of women on the farms will realize that this is a boon to them; and as far as the young people are concerned, if they find themselves occupied with lucrative employment at home on the farm they will be less likely to join the procession which crowds to the city. Everything is done to encourage the workers. A circular was recently distributed offering prizes in money for the best work, to which it is hoped there will be many replies.

The interest taken in this question is gratifying to its promoters. Her Excellency the Countess of Minto, honorary handicrafts of the other women of the Empire. The Duchess of Argyll, who retains a friendly interest in Canada, bought a quantity of wool and linen homespuns not long ago, and public men, as well as prominent women, are adding their praise and encouragement.

But the women who are unselfishly working for the advancement of this big national scheme, need money, by means of which the undertaking can be placed on a solid footing. They are considering asking the Government for a grant, and have issued a circular calling attention to the work, ending with the significant appeal: "Now is the time to prevent our home arts—those brought in by immigrants, those pertaining to Lower Canada, and those distinctly aboriginal—all ready on the decline—from disappearing altogether. If the effort is not made within the next few years, Canada will be the poorer through the loss of artistic industries, which, preserved, may spread the fame of her craftsmen abroad."

The appeal should touch Canadians, because it is patriotic, and because it contains a warning. Once allowed to die out for lack of encouragement, these home arts cannot be revived. The gospel of the simple and the genuine and the characteristic is being preached, and fashion as well as good taste directs the mind from machine work to hand work of the best kind. This may be the beginning of a reform in decoration which is much needed, and with material aid and fresh inspiration the influence of a movement which commences with homespuns and basketry may be far-reaching.—Montreal Star.



CANADIAN MANUFACTURERS' ASSOCIATION AND THE TRADES AND LABOR CONGRESS.

The annual meeting of the Canadian Manufacturers' Association last month, in Montreal, was the largest and most representative in the history of the Association, which has now a firm membership of 1,511. Among the officers elected, the following were more or less associated with the textile trades: Vice-president for Quebec, George E. Amyot, Dominion Corset Co. Directors for Toronto: P. H. Burton, the Merchants' Dyeing and Finishing Co.; C. N. Candee, Gutta Percha and Rubber Mfg. Co.; J. S. McKinnon, S. F. McKinnon & Co.; J. P. Murray, the Toronto Carpet Mfg. Co. Directors for Montreal: D. L. McGibbon, Canadian Rubber Co.; R. C. Wilkins, Robt. Wilkins & Co.; S. W. Ewing, S. H. Ewing & Sons, Jos. Horsfall, Montreal Woolen Co.; John Baillie, Dominion Oilcloth Co.; J. J. McGill, Dominion Cotton Belting Co., Montreal. Directors for Quebec: George E. Amyot, Dominion Corset Mfg. Co. Director for Nova Scotia: H. L. Hewson, Hewson Woolen Mills, Amherst. Ex-officio member of the executive council being past president, B. Rosamond, the Rosamond Woolen Co., Almonte.

The Association passed resolutions re-affirming previous resolutions calling for a general revision of the tariff on the broad lines of adequate protection to all native industries, even including the agricultural interests and the fisheries and forests. The preference in favor of Great Britain and the British colonies is approved of as against foreign countries, but the Association does not favor a preference involving the extinction of a native Canadian industry; nor does it approve of a system of bounties as a substitute for protection. Whatever difference of opinion may exist among outsiders as to these questions, we fancy there will be a general endorsement of the resolution to organize a fire insurance company as a protest against the attempt of the regular insurance corporations to

make the merchants and manufacturers of Toronto and the province of Ontario pay for the fire of last April by an extra assessment that bears no relation to normal risks. We understand that steps will be taken to create this insurance organization at once. The proposal made for an Association trip to the Old Country next summer is one which, if carried out, may have important results by bringing British and Canadian manufacturers into closer touch, and leading them into co-operation instead of competition.

The woolen section of the Association presented the following resolution, which was adopted by the convention: "Whereas the slight increase made at the last session of the Dominion Parliament in the net tariff on certain lines of woolen goods is altogether insufficient to redeem the Canadian woolen industry from the serious condition into which it has lapsed, many of the mills being in a more hopeless and unsatisfactory condition to-day than ever before; and, whereas, the general conditions of the industry have not improved since the slight increase has been effected; the competitors of the Canadian mills are reducing prices, which more than counterbalances the benefit of the tariff change, and the importations, especially in lines of cheap cloths, continue to increase; and, whereas, a greater difficulty is experienced in securing and retaining, with the wages available, even a limited number of workers necessary to keep a part of the mill in operation;

"Therefore, resolved: (1) That the woolen section of the Canadian Manufacturers' Association request the Association assembled in annual meeting to bring the strongest pressure to bear upon the Dominion Government to grant a sufficient increase to afford relief.

"(2) That this increase should be made at once, if the industry would be saved.

"(3) That it should apply not only to certain lines of woolen cloths but equally to all classes of woolen goods manufactured in Canada."

The Association also passed resolutions asking for Government ownership or control of the telephone system, and a similar resolution, but recommending the municipal ownership of local lines, was adopted by the Trades and Labor Congress, which sat in Montreal at the same time. This congress of the trades and labor organizations was also the largest in its history, comprising 48 councils and 23 federal unions, with an aggregate membership of 22,000. The Canadian Engineer, in commenting on this congress, says:

"The leaders viewed the facts around them with a breadth of vision and a statesmanship that did equal honor to their heads and hearts, and is in most favorable contrast to some of the eccentric legislation of similar bodies abroad. The congress passed a resolution in favor of better observance of the Sabbath, and one calling on all the unions to urge their members to abstain from intoxicants. Another resolution was passed asking the Quebec Government to appoint competent boiler inspectors to prevent loss of life by explosions. Not the least hopeful sign of a broader and more tolerant spirit in trades unionism in Canada was the resolution proposing a conference with the Canadian Manufacturers' Association with a view to arriving at a peaceful method of settling disputes between capital and labor. Such a proposal not only shows that the labor men recognize the enormous loss to both sides involved in a dispute as to wages, etc., but it also implies a recognition that capital has a right to a fair return for its use and investment. If, as we hope, the Canadian Manufacturers' Association and others representing capital, such as the railway and street railway corporations, will meet the Trades and Labor Committee with a serious determination to adjust differences, each seeing the other's side of the case, a new era will dawn in the industrial history of Canada. Millions of money would be saved that is now worse than squandered in contests that leave nothing

but bitterness behind; and, what is more vital, the moral degradation of enforced idleness and the deprivations that innocent people have to suffer would be reduced immeasurably. But capitalists and employers of labor must remember that their responsibilities for the right use of money and position are heavy."

PREFERENTIAL TARIFF AND TEXTILES.

Great Britain has greatly increased her exports of cotton and other textile goods to Canada under the preferential tariff. The United States, on the other hand, has diminished her cotton goods shipments to this country. The figures for the last three years prove this fact. They cover the year to June 30th:

	Fabrics Bleached and Unbleached.		
	1902.	1903.	1904.
Great Britain	\$6,144,469	\$3,307,794	\$1,027,194
United States	226,670	193,240	219,452
Other countries	35,232	26,908	36,352
Total	\$906,371	\$1,050,942	\$1,282,998

	Fabrics Printed, Dyed or Colored.		
	1902.	1903.	1904.
Great Britain	\$2,739,071	\$2,866,144	\$3,002,354
United States	599,410	540,492	438,417
Other countries	150,385	148,968	98,608
Total	\$3,489,012	\$3,555,604	\$3,539,379

	Carpets.		
	1902.	1903.	1904.
Great Britain	\$1,062,725	\$1,449,481	\$1,490,235
United States	9,769	10,626	10,241
Other countries	8,887	20,348	13,311

	Clothing, Ready-Made and Wearing Apparel, Wool or Part Wool.		
	1902.	1903.	1904.
Great Britain	\$198,299	\$630,026	\$765,925
United States	158,715	179,107	234,125
Germany	366,081	386,681	452,359
Other countries	12,457	27,556	23,469

	Cloths, Coatings, Overcoatings and Tweeds.		
	1902.	1903.	1904.
Great Britain	\$3,411,660	\$4,564,780	\$5,221,052
United States	7,311	5,583	7,020
France	47,356	35,121	41,473
Germany	82,985	93,363	59,058
Other countries	11,260	16,858	18,820

	Fabrics, Whole or Part Wool, Worsted, Etc.		
	1902.	1903.	1904.
Great Britain	\$2,493,858	\$2,678,007	\$3,134,827
United States	63,422	69,913	96,110
France	644,993	703,186	681,121
Germany	168,647	254,654	141,220
Other countries	3,142	6,150	46,901

It will be seen from these statistics that Great Britain not

only has the great bulk of the export trade in woolens to Canada, but has of late years been increasing her lead in that respect. German imports have been falling off in all but one of the cases referred to.—Dry Goods Record.

BRITISH AND FOREIGN TEXTILE CENTRES.

Manchester.—The Textile Mercury reports: Spinners of American home-trade yarns have this week rather lost ground than otherwise, in twist at any rate, there being of this make of yarn a more abundant supply available, no doubt owing to the resumption of normal working hours. Manufacturers find plenty of yarn at their command, and because of this they buy for early needs only so much as satisfies them from day to day. Forward business of moderate weight has been done during the last day or two, and there are evidences of fair order books on this principle. West commands fairly full prices, owing to the fact that there is a healthy current demand and no plentitude. Ring warps are somewhat irregular when tested, but beams seem to be under order to a fair extent, and as a result are well held. Shipping bundles are improving under engagement for the Continent. Extra-hard yarns, too, have good order lists. India bids are often quite too low, but trade of a not unimportant extent has transpired. Egyptian carded yarns have moved more freely, though lately the firm and hardening tone noted has done much to prevent fresh bookings. Not much change for the better can be reported in combed numbers, demand for these continuing very meagre. The piece-goods market is in a healthy state. Order books in most directions are extensive, and full rates of quotation consequently are maintained. Some manufacturers are very difficult to deal with, being indifferent to further bookings at the moment. Others, however, who had missed the market when things were busy a little while ago, are now rather eager to partake of anything offered. The India enquiry is better, particularly as regards Bombay, which was slow when other markets in our Dependency were sending moderate orders a few weeks ago. China trade has quieted down distinctly, but makers have orders on hand covering the greater part of the first half of next year. Some specialties are indeed said to be booked into the second half-year. The minor outlets have done a quiet, yet not unimportant, miscellaneous trade. Printers keep firm, especially fine reeds; both Burnley and Glossop makers, speaking generally, have fair contracts. In bleaching and finishing cloths the market is stiff on the side of sellers. Heavy cloths, notably in the better makes, are improving in position, and during the past day or two fuller prices have been secured by manufacturers. The home-trade demand still keeps disappointing.

Huddersfield.—The demand for most kinds of cloth, plains excepted, continues to grow. A favorable season has been experienced in regard to summer goods, and, stocks being low in these descriptions, orders for spring cloths are coming in very well. On the other hand, there was not quite as good a demand for overcoatings of the approved stamp, and suitings were not much enquired for. Employment generally is rather better, more noticeably in the cheap woolen trade. The Continental markets were correspondingly active. The colonies remained unchanged. Wools were bought more freely.

Kidderminster.—A more cheerful tone pervades the carpet trade; the advance in carpet is readily paid for the few orders that have been placed, and it is thought that higher prices will not affect the season's trade. Stocks of carpet in retailers' hands are not large, and it is fairly obvious to the buyer that, with materials at their present values, there is no chance of a reduction in carpet. In yarn, the whole trade awaits further

proceedings in London and Liverpool. In the meanwhile, spinning mills are not fully busy.

Leeds.—Any change in the situation was mainly due to expectations regarding the London sales, and it was confidently asserted that values will harden, especially for the higher grades, which caused a disposition to do business prior to a rise. The home trade, however, was slow, although some firms are well employed on certain lines for women's wear, such as tweeds. A steady improvement is expected in the wholesale clothing trade, and there are already signs that buyers are operating with more freedom. Spinners generally are very busy, Australia and Canada being fairly active buyers. Trade with South Africa, however, remains dull.

Leicester.—The large deliveries and the increase in the new contracts offering imparted a very strong tone to the yarn market, and the general outlook was more encouraging. The hosiery trade was active and healthy and the turnover promised to be well up to the average.

Bradford.—The Bradford correspondent of the American Wool and Cotton Reporter writes: Gossip is loud about fashions having swung round on to merinos, but when asked to give ocular demonstration of the fact little that is tangible can be adduced. There is no doubt that of late more merino tops have changed hands, but then spinners have bought extremely little for many months back, and when a few hundred packs changed hands it is considered sufficient to suggest returning favor of botanies. There may be some truth in this. Many top makers have not found it to be a very easy thing to sell a super 60's top at 24d., and some have actually cleared for less. Cape tops, owing to their fineness, have been as good to sell as anything for a month past, and the reason why should be suggestive to Australian sheep breeders. Both last week and this some fair big weights of Cape 4's changed hands at 24½d., all due to quality and fineness of fibre. These have been lately used by spinners when extra fine yarns have been required, and the fact should suggest to Australian growers the wisdom and importance of keeping up quality in their flocks. In days gone by the rule has been for Australian tops always to be worth more money than Cape of the same quality, but now the table is reversed. I am rather inclined to think that spinners are trying all they can to substitute fine Cape 64's at 24½d. for Australian 70's at 27d., and if they can do this they will most assuredly continue the practice. However, responsible parties will do well to look at the subject from a practical standpoint and endeavor to produce good quality wools which the trade requires. I dare say the better feeling that has come over the market for merinos is due to a larger enquiry and a somewhat increased consumption, for it is certain that things must mend if there is any turn at all. There seems to have been a larger section of fine dress goods for next spring, and the initial orders have compelled manufacturers to buy more extensively of fine yarns than they have done for some time. There is also a slightly better demand for the finer classes of men's wear fabrics, while during the past month there has been a larger consumption of single Botany yarns for twisting purposes by woollen manufacturers in the production of fashionable rainproof coverts for autumn and winter wear. These goods are now consumed both here at home and abroad in very large quantities, and winter reports coming in for the goods mean, of course, the merino wool must be called into use. The outlook is decidedly better, and more is expected for the next year. Crossbreds continue to occupy a front rank position on the market, and as far as one can judge, they are not yet going to lose entire hold on public favor. True, there has not been anything like the show or shout there was in July, but all the while wool has been going into consumption, and stocks are not to be found anywhere. Some firms continue busy mostly on old contracts, but new business

is bad to get hold of and spinners complain that trade is bad to do. This is not the expression of simply one or two, but is to be heard at the hands of a very large number who seem to be doing nothing more than simply working out old contracts and waiting for yarn houses to come forward with more particulars. German manufacturers seem to have put up their backs against paying prices asked by Bradford spinners, but they have never yet been able to do any good with the wool they bought in London last July. I do not know a single top maker who produced a 40's prepared top under 14½d., and plenty changed hands for a few days at 13¾d., while to-day I can buy from the very best maker 500 packs at 14d. Now it is a question with the majority as to whether they are going to be able to buy any cheaper this year out, and judging by the outlook as regards stocks it does not seem as if there is going to be much relief on that score. The continuance of the Eastern War is good from the crossbred grower's standpoint, for it is certain that both Japanese and Russian forces will require some large kliaki supplies before long. Already enquiries are being made as to what manufacturers can do in certain lines, and there is every prospect at the moment of several large lines of crossbred goods being wanted at no very distant date. This means that crossbred wools will be wanted either by one section of the trade or another, hence it is as yet too early to say that the trade is off for crossbreds and that merinos are being substituted. It seems to me that there is ample room for both descriptions of produce, and what we want to-day is to see an increase of consumption both here, on the Continent, and in America, and then present prices will be fully maintained. The new Australian clip is coming to the market with nothing in the way to prevent any previous accumulated stocks clashing with the wools, and in the immediate future I do not see how crossbred values can be much affected in a downward course. I repeat that manufacturers and spinners are more concerned about being able to keep going their machinery, and if they can do that they will readily pay full current rates.

Dundee.—The final Government forecast of the jute crop is issued, according to which the area sown this year is 2,850,000 acres. This is a considerable increase even on the figures of the first forecast, and it would thus seem as though the supply of jute this season must be large. The estimated number of bales is 7,400,000—a moderate figure for the large acreage. The market has been quiet for a few days awaiting the receipt of official news. The tendency of jute has been easier, the great difficulty to cheaper jute being the continued advance in freights from Calcutta. The news from Calcutta is that jute is unsettled and the turn easier. Jute still remains very dear, and Dundee spinners hope for lower values soon. R.F.C. has been sold at £18 15s., September shipment, and any parcels on the spot bring a high price, "firsts," ex-warehouse, being quoted at £15. Jute yarns have sold freely at late prices. The demand is fairly brisk and spinners adhere to their rates. The production being restricted, values are quite firm; 8 lb. common cops are 1s. 5d., and ¼d. more is asked by some sellers; 8 lb. warp on spoons is in request, 1s. 6¾d. being paid for a favorite spin. Heavy wefts continue to find a ready sale at hardening prices. Twists are in demand; fine yarns are quiet, but unchanged in value. Jute cloth is in good demand, and most makers are busy for immediate delivery. The price of ordinary 10½ oz. 40 in. hesians is 1 10¼/12d. to 1¾d., and other makes are steady at late rates, bagging and sacking being especially brisk. Flax shows little change. Old crop is steady but business quiet, and any parcels sold are not large. New crop is being offered more freely, and reduced lists are issued this week. Best Opotschka is offered at £30 10s., Hoffs at £26 10s. basis. For Bejetsky £41 is named, but business could be done under this price. Spinners are not yet open to buy in quantity, and it is too

early to judge how values may go. A large sale of Perna D is reported, but outside of that anything done is for sample wagons. The spot demand is quiet, any enquiries being for medium tows. Flax yarns are the turn dearer, with business still restricted. Tow yarns are firm at late rates, 5 lb. being named at 2s. 3¹/₂d. to 2s. 6d., according to quality; 3 lb. to 4 lb. tow wefts are rather quieter, but values unchanged. In linen goods there is a shade more enquiry, and makers are more hopeful. The depression has been so long continued and severe that should the demand once begin a revival in trade is anticipated. In heavy goods there are some important tenders asked for Government purposes, and these should help to make manufacturers busy. The improvement is not yet important, but the tone of the trade is more cheerful.

Kirkcaldy.—The linoleum and floorcloth industry continues in an active state. The linen industry shows no signs of recovery, business dragging in all the departments, and manufacturers, who have all large stocks of goods on hand, feel very much the want of new orders. Production has been considerably curtailed of late, short time in some cases being adopted with this view.

Belfast.—The linen trade, says the Textile Mercury, has improved within the past few months, and the outlook is regarded as fairly hopeful. The ranks of mill operatives in the city were on Monday night weakened through the departure of twenty of their number for Liverpool, where they embarked on the Canadian Pacific liner "Lake Erie," for the land of the "Maple Leaf," having been engaged by a large linen concern at Bracebridge, Ontario. This is but the first batch of a series, as, in all, it is understood, about one hundred operatives have been offered employment by a representative of the mills referred to, who is an old Belfast man. There is no material change on the market. Buyers show a little more disposition to do business. Irish supplies of flax were trifling, but both quantity and quality are expected to show an improvement during the week. The spinning branch was a shade better, some fairly substantial sales being put through. Tow sorts received the bulk of attention. The manufacturing end of the market has gained a trifle, though looms are not fully employed. White goods for the home trade were in about an average request. On export account business was quiet all round. The Flax Supply Association, in their August circular, say: The imports of flax are decreased 41.7 per cent. and 22.0 per cent. in quantity and value respectively, and tow is decreased 69.1 per cent. and 66.5 per cent. Linen yarn imports, on the other hand, are increased 31.8 per cent. in quantity and 28.1 per cent. in value. Linen yarn exports, which showed decreases in June and July, now exhibit a moderate increase, namely: 4.6 per cent. in quantity and 5.7 per cent. in value. The shipment of linen piece-goods shows cross-reading, the yards having decreased 11.0 per cent. and the value increased 1.1 per cent. The leading countries stand as follows: Increases (quantities): Australasia, 7.0 per cent.; Brazil, 11.6 per cent., and British East Indies, 42.4 per cent. Decreases: Germany, 10 per cent.; Canada, 16 per cent.; United States, 16.7 per cent.; Foreign West Indies, 20.0 per cent., and France, 53.5 per cent.

RAMIE.

Thomas Barraclough states in the Journal of Society of Arts that the difficulties in connection with the preparation and manufacture of ramie have been successfully overcome, and that it is now a feasible matter to engage in the cultivation, degumming, spinning and weaving of this fibre without the loss of time and money which was inevitable a few years ago.

The nature and necessary treatment of the plant are now so well known that it is as easy to choose plots of land for growing ramie as it is to select locations for cotton, hemp or flax.

The first preparation of the stems consists in removing the woody pith by a decorticating machine and the stripping off the outer skin from the fibres. These operations must be performed while the ramie is green, or trouble is met in the subsequent process of degumming. The difficulty of producing a satisfactory decorticating machine meeting all the requirements retarded the ramie industry for a number of years, but there are now a few successful machines, notably the last one invented by the late Mr. Faure.

The principle of removing the gum, which constitutes about thirty per cent. of the weight of good decorticated fibre, is now well understood. Recent improvements in degumming have been mainly directed towards shortening the process and reducing the cost, with the result that good fibre can now be degummed at a cost of 2½ cents per pound, dry weight.

The fibres after degumming are carefully combed and sorted into various lengths, and are spun on different machines especially adapted to these lengths. The construction of these special machines has been one of the main causes of the progress made in the ramie industry in recent years.

The noils, or short fibres, are now sold for as much as 14 cents a pound to be spun or mixed with short wool in the manufacture of ordinary woolen cloths. The waste in the preparing and spinning operations has been reduced to one-third what it used to be, and is sold at the same price as the noils.

Mr. Barraclough concludes his article with an extended list of the many uses to which ramie may be put, both by itself and in conjunction with wool and silk, and says we have in ramie "a fibre in ever-increasing favor with the public, with the prospect of its becoming the centre of a very large and widespread boom."

HYRALDITE W.

A new discharging agent, Hyraldite A, for azo colors, was recently put on the market by Leopold Cassella & Co. This is a solid hydrosulphide of zinc, made stable by the addition of formaldehyde, as devised by Zundel. Now another new agent, Hyraldite W, similar in composition but containing zinc white. This gives to the product several advantages over the old brand; it is more stable, keeps better under all conditions, is stronger in discharging power, and more easily miscible with water.

To use Hyraldite W as a discharging agent it is only necessary to mix it with gum water in various proportions, according to the character of the color which has to be discharged. For deep shades and those which are rather difficult to discharge, such as the naphthol azo colors, para red, and naphthylamine claret, equal parts of Hyraldite W and gum liquor do very well. For pale and easily dischargeable colors a mixture of four parts Hyraldite W to six of gum liquor works well. When colored discharges are required, in which case a perfect discharge is not always necessary, a proportion of three of Hyraldite W to seven of gum liquor may be used. The steaming which follows the printing may be done as ordinarily, but the best results are attained by using the steam hot and dry. This is done by arranging the steaming chamber with separate heating pipes.

Hyraldite W may be used for discharging all kinds of dyed

goods in which hitherto tin crystals or other forms of tin discharge or zinc dust and bisulphate of soda have been used, such as the direct dyes and azo colors on cotton and azo colors on wool and silk, and over these there is the advantage of easier application, with no action on the fibre. Colored discharge effects can be got by adding basic direct, or mordant dyes that are not dischargeable to the paste.

Hyaldite W is a powerful stripping agent that will take color out without any deteriorating action on the goods, and the strength of the stripping bath may be proportioned according to the work it has to do. For heavy or full shades a stripping bath of 100 lb. of goods can be made from 7½ lb. Hyal-dite W and 5 lb. acetic acid, using 100 gal. of water. This bath is heated to 100 deg. to 120 deg. F.; the goods are worked in for one-half to three-quarters of an hour, then the heat is raised slowly to the boil; 3 lb. acetic acid is added, and when the color is stripped the goods are rinsed well.

For treatment of pale shades, or where dark colors only need partial stripping, only about half the above quantities need be used. Some colors, of course, strip more easily than others, and allowances must be made accordingly.



CANADIAN CARIBOU FOR YARN.

Editor, Canadian Journal of Fabrics:—

SIR,—Would like to know—so as to obtain specimens (which would be paid for)—if there is any party in Canada making up the rather coarse but light-weight cloth (woven or knitted), from the hair of the caribou, as is done in Lapland from the reindeer? Probably this is done at some of the farm houses; it is an undyed, unfinished, unscoured cloth, and the only way of possibly finding out the makers is by this enquiry through your Journal. If a few other papers would kindly copy this, it might help a Canadian industry, as there is a certain market here for caribou wool, knit or woven cloth.

Yours truly,

L. LODIAN,

94 Market, Manhattan, N.Y.

[We are not aware that any of this wool has been spun in Canada for the trade, but yarn has been made at various times and in a small way in Canada from the wool of beaver, buffalo, caribou, moose, deer, and other wild animals. As shown in an editorial in our August number, these things can be done and have been done, but the difficulty is to get a constant and sufficient supply of the raw material. Our wild animals are unfortunately getting scarcer year by year, and as far as the trade is concerned our manufacturers are not likely to devote much attention to any source of raw material other than that produced by domestic animals. To the Laplander, the reindeer is one of the most necessary of all animals, and it is not surprising that even its hair is turned to prime account. There are too many other resources for the yarn manufacturer here. Should any of our readers have information on this subject, we shall be glad to hear from them.—Ed.]



COTTON TRADE OF MANCHURIA.

According to the United States Consul at Niu-chwang, American cottons have made greater headway in Manchuria than in any other quarter of the East. Last year the volume of this trade was the greatest of any year since foreign trade with Manchuria began. The total imports of foreign cotton goods

at Niu-chwang amounted in value to \$5,562,255 gold, of which United States goods were valued at \$4,873,960, or little short of nine-tenths of the whole. In the trade in cotton goods America has four competitors in Manchuria, the most important being China herself. The goods known as nankeens, made from native hand-loom and from yarns produced in mills in China, were imported to Manchuria last year to the value of over \$5,500,000, and are the most severe competitors of American drills. Then follow Indian yarns worked up and dyed in Manchuria itself; next come Japanese yarns worked in the same way; and last of all Russian piece-goods. The last form a somewhat unknown quantity. The trade in Russian cotton prints is believed to have been important in Northern Manchuria, with Kharbin as the centre, and Russian drills and sheetings, which paid no duty, were said to be driving out American goods. The Russo-China Bank has assisted Russian trade greatly and financed Chinese merchants ordering goods from Russia; and American merchants desiring to retain their hold on Manchurian trade in cottons, kerosene, and other articles, must study banking facilities as well.

Another report from Boston states that prior to the closing by Russia of Manchurian ports to American trade, in 1903, about 36,000,000 yards of cotton cloth were made in the United States and sold in Manchuria and China every month. A month after Russia made her first breach in her treaty with China, in 1903, sales of cotton goods dropped to 15,000,000, and six months later down to 1,000,000 yards. It is stated that there has already been a perceptible increase in exports of cotton with the driving of the Czar's troops from Manchuria.



THE EXCELSIOR WOOLEN MILLS.

The Excelsior Woolen Mills, of Montreal, whose temporary shut down was referred to in last issue, will cease manufacturing on the 15th inst. In announcing this serious step, the following circular was issued on the 1st inst: "Owing to the death of A. F. Gault, in his lifetime proprietor of these mills, and in view of the very unsatisfactory condition of the Canadian woolen trade at present, the trustees have decided to close the mills. As we do not desire to in any way inconvenience our customers, fully appreciating the patronage we have received from them in the past, we have decided to accept orders, which we will endeavor to fill promptly, up to October 15th, after which date we shall be unable to do so. Regretting very much that we shall not have the pleasure of doing business with you, so far as this enterprise is concerned, in the future." The circular was signed by James Rodger, Henry B. Picken, and Stanley H. McDowell, trustees of the estate of A. F. Gault.

We understand that the Gault Estate are trying to let the building. They will dismantle the mill if they fail to let it to a woolen manufacturer. They have decided to abandon manufacturing themselves until the conditions of the industry are improved.



SULPHUR DYES.

Although by this time every dyer must have had some experience with the sulphur dyes, the methods of using them are subject to certain variations for which our defective knowledge of their chemical constitution cannot be held responsible. It is a colorist's question, pure and simple. With few exceptions, the sulphur dyes on the market are insoluble in water, or nearly so. Even those that can be dissolved take so much water that the bath is far too long. Hence the use of sodium sulphide

to dissolve the dye, ordinary marks requiring their own weight, the extra marks twice their weight, and the highly concentrated ones treble. If the solution is used without any addition, it gives good results in many cases, but in the majority the plain solution of dye in sodium sulphide has too little affinity with cotton to give dyings of any value. Hence, large quantities of Glauber's or common salt, and some soda, have to be added to the bath. No boiling is necessary during the dyeing. The goods should be put into the boiling bath, and the steam be at once shut off. A very important point with sulphur dyes is the use of comparatively short baths. The average cotton-yarn dyeing bath is twenty times the weight of the goods, but twelve to one is much better for sulphur dyes. The dyes go on worse from long than from short baths, and a long bath is far more apt to cause trouble by the precipitation of sulphur. This is also the easy oxidizability of many sulphur dyes, which makes it advisable that the goods being dyed should be kept, as much as possible, from the air, to be considered. To avoid contact with the air, Cassella recommends dyeing on yarn sticks made of bent gas pipe, and others keep the goods totally immersed while in the bath, and wring immediately they are lifted. Others rinse the goods in sulphide of sodium directly after wringing, to reduce any oxidized dye. Sulphur dyes vary greatly in oxidizability. Some are little acted on, and can be dyed on ordinary yarn sticks. Others oxidize completely on hanging the dyed fabric in the air, so that no after-chroming is required, and an air-oxidation similar to that recommended for Ratigen indigo occurs. This suggests that such sulphur dyes can be used like indigo, and that is the case. Some are reduced by alkaline solution of glucose, and give a grey vat which goes blue on oxidation by the air. Other blues, such as Immedial Blue, are developed by steaming or by treatment with peroxide of hydrogen. These after-processes are, however, not liked, and sulphur dyes not requiring them are preferred. Of late, there has been a constantly increased tendency to neglect dyes that want fixing in favor of those which give a fair amount of fastness to light and washing without such treatment. After chroming, even when it does increase the fastness—which is not always, although usually, the case—often makes a perceptible change in the shade, and greatly increases the difficulty of dyeing to pattern.—*Deutsche Farber Zeitung.*



CLOTH MILLING MACHINES.

The spout or conductor of milling machines is generally provided with a hinged and weighted lid to press upon the fabric during its passage through the machine, and in addition reciprocating blocks are employed to act upon the fabric after its delivery from the conductor. In this improved machine of J. Steward and O. owden, of Leeds, the conductor is constructed with loose sides projecting upwards so as to bear upon the fabric at each side as it passes through. These sides are pivoted near the feed end, and about the centre of their length are operated upon by a disc placed upon an eccentrically rotating shaft working upon runners attached to the side pieces so as to give a squeezing motion to them. By this method the functions desired are performed more efficiently than in the devices hitherto employed—*Dyer and Calico Printer.*



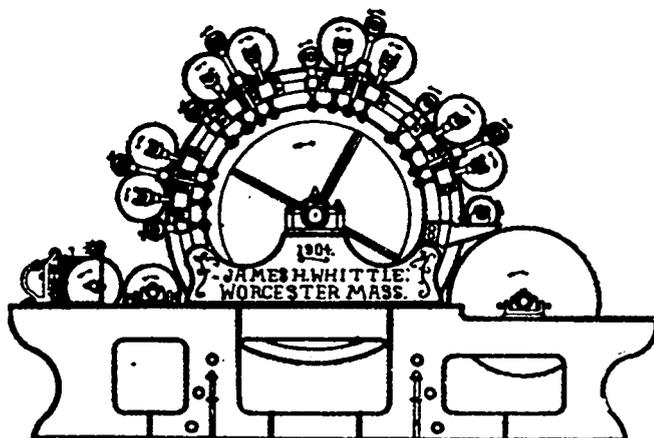
NEW CARDING MACHINE.

The *Textile Manufacturers' Journal* has a description of a new carding machine, which has some enthusiastic advocates, judging by the extracts here quoted.

This machine is the invention of John J. Henderson, sup-

erintendent of the Cordaville (Mass.) mills, but has been developed and adapted by James H. Whittle, of the Cleveland Machine Works, in Worcester. In describing this card, our contemporary says: In spite of the acknowledged benefits derived in the double carding of some classes of stock, a great many mill men even to-day will be inclined to say off-hand that such a system cannot possibly be successful in universal use. At the same time the adaptation of the principle in the card under discussion is so strikingly effective and ingenious that it has won converts even after a most casual inspection of it in operation. Mills in which this type of card was first placed on approbation and with considerable reluctance on the part of the management, and even suspicion on the part of the card-room help, have proven by a series of extreme tests that it is a factor to be reckoned with and bound to be of some moment in the future of the industry.

"Nothing succeeds like success," and the most conserva-



tive mill men in spite of preconceived ideas or theories as to the working of their product must take some cognizance of whatever bids to be an improvement, however radical in its nature the first suggestion may seem to them. As a matter of fact, there is not such a radical difference between this type of carding machine and those in common use as might be thought from either its title or the appearance of the machine itself. It is a logical carrying out, on what appears to be correct mechanical principles, of the theory of combing and paralleling the fibres in preparation for the subsequent spinning processes. The carding is done a little more thoroughly and a little more carefully, while the stock is travelling through a given space in a given length of time. The principle in short may be said to be that in its progress through the card the stock is held back by the first worker of a pair and combed out evenly onto the main cylinder. It is carded in the ordinary way by the second worker of the pair, is stripped from that by an overhead stripper, returned again to the first worker and is recombed by main cylinder, and recarded by second worker, whence it passes to the next pair of workers.

In appearance a set of Henderson cards differs but little from an ordinary set as in use in any woolen mill. Two cards, a first breaker and finisher card, make up the set. This set is built forty-eight inches in diameter and forty-eight inches face, thus producing a small and compact machine easy to get about and with every part within reach. The usual card feed, lickering, and feed rolls are used, the only difference in the mechanism being that the workers are arranged in pairs with a small stripper-roll running above each pair. As one looks over the circumference of the card in operation with reference to the carding done by each pair of workers, it is very noticeable that the stripper on each succeeding pair carries a less amount of

stock than the one preceding it, showing that the stock is being well carded and better carded by each succeeding pair. Another minor point of difference in the construction of these cards is that the first worker in every pair is driven by a chain drive, which is more positive and allows of exact speed regulation. The second worker of each pair is driven in the ordinary way by belt drive. The ring doffers on the last breaker or finisher card, are usually speeded up at least 16 per cent. in order to carry off the greater production of these cards. This greater production obviously is due to the greater carding surface obtained under this double carding system. These cards are equipped with a Fisher feed on the first breaker, a Bates diagonal feed on the finisher card, and a Cleveland rub motion.

The writer had the privilege recently of visiting the Huguenot mills of Herbert C. Wilson, at North Oxford, Mass., where this double carding system has been in operation on various classes of stock used in the ordinary business in the mill for the past three months or so. The stock running over these cards at that particular time was a mixture composed of 70 per cent. Idaho wool and 30 per cent. short cotton. The product was a five run yarn, clear, clean and strong, and said to be somewhat better than the same yarn made out of identical stock for the same consumer in another mill where it was being carded on a set consisting of four 60-inch diameter cards. The cards were running smoothly, without dirt, lint or fly, and apparently with considerable speed in reserve. There was a notable absence of dirt and waste under the main cylinder, and the carder told me this was a favorable quality which he had found in the double system and in no other. He also told me that he had to clean and strip but once a week on these cards, even though they were running on colored stock. Another characteristic he pointed out and claimed was peculiar to this system was that after cleaning and starting a new lot through the cards, it was not necessary to watch the roving as the cards got gradually filled up with the stock. The roving would not vary in weight more than five grains. Every carder knows this is an important point, for usually as the card fills up the roving is apt to gain considerably in weight and must be watched carefully until things get running smoothly. While I was there I noticed that the side drawing tube on the first breaker was not revolving. Yet the roving was soft and fluffy and of a strength sufficient to allow it to be carried up vertically to a height of six feet, whence it passed on an overhead traverse to the diagonal feed of the finishing card.

Silk noils are about as hard a proposition as any carder cares to tackle, but on the Henderson Patent Double Carding System, with breaker and finisher, it appears they give no more trouble than any ordinary stock. Yet it would seem that this type of card ought to do its best work on the finer grades of stock suitable for the most expensive goods. The action of the first worker of every pair holding the stock back while the main cylinder combs it out thoroughly, ought to make a Henderson card a very valuable adjunct to the worsted mill. Indeed, those who know it best claim that it may do away with the comb altogether. If such should be the case, it is indeed a revolutionary machine and will mark greater progress than has been attained in the card room for a generation. The principle is applicable to all other fibres as well as wool, where carding is an essential to subsequent spinning. Several of the most prominent cotton manufacturers in the country have investigated the Henderson card, seen it at work upon wool, shoddy, and various other materials, and have urged the builder, Mr. Whittle, to develop it as rapidly as possible into a cotton card. These practical men say that the best carding of the cotton fibre ever done was accomplished on the old Grammel or roller card, and that it was a mistake to replace this principle by the revolving flat. The Journal learns that experiments are

being conducted along this line, and before long that a logical application of this principle will be put before the cotton industry.

The increase in production claimed for the double carding system, together with the better work and the obvious saving in floor space, power and speed to accomplish that production, are certainly points which give the new card strong claims upon the attention of woolen and worsted manufacturers.



AN AFFAIR OF MANUFACTURERS.

We have heard more than enough in recent months of the alleged indifference of Canadian manufacturers to the proposals now before the British electorate for the creation of some form of trade unity between the component parts of the British Empire. Happily Canadian manufacturers have an organization which can speak authoritatively on their behalf, and, as we know, the president of the association, George F. Drummond, when in England recently, made quite clear to every Englishman who really desires facts that the attitude of the Canadian manufacturer towards the Imperial reciprocity movement is an attitude of entire sympathy. Of course, Mr. Drummond felt it right to remind the Englishman that Canada has industrial ambitions of her own—one would not think much of her future if she had not; and in pursuit of these ambitions her Ministers, whatever political party may be in power, can never fail to regard as their prime duty the encouragement of Canadian manufactures. But that is not for one moment to say that Mr. Drummond and the Canadian Manufacturers' Association are not sound Imperialists. They welcome any proposal which, while adequately protecting Canadian home interests, will give the manufacturers and industrial classes of the Mother Country a preferential position in Canadian markets over all their foreign rivals. The Textile Mercury may be taken as an authoritative exponent of the views of the British textile manufacturer, and in its last issue it discusses with perfect frankness and friendliness the attitude of Canadian textile manufacturers towards the new Imperial policy. The article is itself an indication of the keen interest with which British manufacturers are watching the developments of the new Imperial trade idea. These manufacturers have, during recent months, borne repeated testimony to the great advantages accruing to them from the operation of the Canadian preferential tariff. Their once profitable markets in the United States, France, Germany, Belgium, and so on, have been gradually closed to them by hostile tariffs, and only by virtue of the growth of their colonial trade have many of them been able to retain any foothold at all in the industrial world. What Canada has done so beneficially in the way of preference, other colonies are doing in due course, and naturally enough the Textile Mercury cordially welcomes this tendency of affairs. But there is to be reckoned with the natural tendency of Canadian manufacturers to safeguard their own interests, even though it be somewhat at the expense of their British rivals. Says the Mercury:

Changes are taking place in Canada that are likely enough to be paralleled in other colonies and in other industries, and the interests of home and Dominion manufacturers have come into direct conflict. Already the terms on which insular-made cloths were admitted into Canada have been made less favorable; and there is ground for a suspicion that Canadian trading in the Dominion may be made yet more difficult for English manufacturers, for those whose agitations succeeded in reducing the preference are not wholly satisfied with their handiwork.

Confirmation of this view is found in the recent utterances of Mr. Drummond, as president of the Canadian Manufac-

urers' Association, and of Mr. Younge, the secretary of the same body. In the view of this representative textile organ, the Canadian manufacturers' case may be put in a nutshell. "We have," says the *Canadian*, "never seen any good reason why a prosperous factory in Canada is not worth to the Empire just as much as, if not more than, a factory of the same magnitude and prosperity in the British Isles." This, in its essence, is a declaration of an official character of the Canadian mill-owner's right to live; and to traverse it directly involves a denial of their just claims upon existence.

Nobody would (says the *Textile Mercury*) care to assert that the colonial has not an equal right with the insular Briton to earn money by an honorable pursuit of the industrial arts; but nobody—not even a Canadian—should insist that internal manufacturers have a juster claim on the Canadian market than have those whose mills are located in another corner of the Empire. In all fairness, we and they, the English and the Canadians, should be put upon a level footing. As joint citizens of a great Empire, we should practise mutually the rule of "Live and let live."

Read aright the before-going is a fairly good working hypothesis for Imperial statesmanship, and it is both interesting and instructive to see how this journal of the British manufacturer works out the thesis. It urges Mr. Chamberlain and those who hold the Imperial idea to find a *modus vivendi* under which antagonism of rural and industrial interests in all parts of the Empire may be reconciled. It regards it as quite certain that woolen manufacturing in Canada is a more costly process than the same in the United Kingdom; and it has little doubt that the unchecked competition of the Yorkshire, Scottish, and the West of England mills would drive Canadian enterprise almost to extinction. This prospect Canada will not suffer; and England has not asked that she should do. Hence the point at issue between producers here and producers in British North America is limited to the degree to which import duties on British goods entering Canada shall extend. In equity, the *Mercury* urges, the Canadian tariff ought not to outbalance the advantages Britain on her side possesses; "it should be a handicap that gives both parties an equal opportunity; and the competitors on their part ought to reciprocate on similar conditions with respect to their own home markets." When prejudiced parties are endeavoring to put about false conceptions of preferential proposals, the *Mercury* thinks it well to bare the issues and make plain the rights of problems which are made to seem more tangled and complex than in their nature they are. To simplify the matter, however, to give due weight to all the conflicting interests and opinions which trade friction and political interference arouse, something further is necessary. These matters must be thrashed out by British and Canadian representatives in friendly conference.

The suggestion is one which we would commend to the careful attention of Mr. Drummond and his associates. It would undoubtedly be a great step forward in the Imperial Reciprocity movement were some *modus vivendi* of this character discussed, and, it may be, agreed upon, by the representative bodies of British and Canadian manufacturers—such bodies, as, say, the Canadian Manufacturers' Association on the one side, and the Bradford Chamber of Commerce on the other. Such a discussion could not fail to throw most valuable light upon the most effective method for Anglo-Canadian tariff co-operation. In the course of their discussion these representative men would bear well in mind the fact that Parliaments legislate for the community as a whole, and not for any one class, even though it be so important a class as the manufacturers; and it would greatly simplify the problem which is now before the electorate were it authoritatively made known on behalf of British and Canadian industrial associations that the

proposals for Imperial Reciprocity, which commend themselves to British and Colonial manufacturers do not contemplate any such measures for the exclusion of competing goods as would jeopardize the interests of the home consumer, either here or in Canada. Will Mr. Drummond and his associates make a beginning with the woolen and worsted industries, and get into touch with the Bradford Chamber?—*Canadian Gazette*, London, Eng.



BRITISH WOOL AND TEXTILE MARKETS.

(Correspondence of *Canadian Journal of Fabrics*.)

Bradford, Eng., 26th Sept. 1904.

From the time of our last letter until the opening of the London sales, on Tuesday of last week, all business done locally was of a hand to mouth nature, and, although there were both reductions and advances on individual lots, there was no change in prices generally. The decided stiffening tendency, shown in all grades for sound wools, though it has not yet produced any sensible difference in quotations here, has, nevertheless drawn to a head several fairly important transactions which have been hanging fire during the recent uncertainty. But, except for these, business remains very quiet.

There has been some attempt lately on the part of outsiders to induce speculation in this district among the users, on the strength of the evident shortage, but, as Yorkshire refuses to get excited, it has not met with much success.

Mohair and alpaca both continue quiet, especially the latter, though prices keep up fairly well.

About 30,000 bales of various classes of Eastern wools were catalogued for sale at Liverpool last week, and practically all was disposed of. There was some brisk bidding, but no change in values.

With regard to the piece and clothing trades, somewhat better reports come to us from Leeds and Huddersfield. The improvement is, however, only slow on home trade orders, the continued bright weather delaying the placing of many repeat orders for winter goods. Foreign business on the whole is good, in spite of the Far East being practically closed for the time being.

From Germany, we hear that manufacturers there are on the whole very well occupied, the demand running chiefly on finer grades of goods. The demand in France rather favors crossbreds at present, but trade there does not appear to be so brisk.



Construction is rapidly proceeding on the Singer Sewing Machine Co.'s new Canadian branch, at St. John's, Que. Over eight miles of track have been laid on the premises. Nine millions of bricks, and 100,000 barrels of cement will be used in the construction.

The *Toronto Evening News* of 30th September had a two-column sketch of Frederick Wyld, head of the wholesale dry goods firm of Wyld & Darling, whose business, after the fire, was bought by Gordon, Mackay & Co., except the woolen branch, which was disposed of to Thomas Ogilvie & Sons, of Glasgow. Mr. Wyld was born near Edinburgh, in 1832, coming to Canada in 1854. He first started in Hamilton in partnership with Henry W. Darling, but after being burned out came to Toronto, and some years later made an amalgamation with W. R. Brock & Co., as Wyld, Brock & Darling. Mr. Wyld afterwards withdrew, and the firm became Wyld, Grasett & Darling, finally ending in the original style, but with an Andrew, instead of Henry Darling, as partner.

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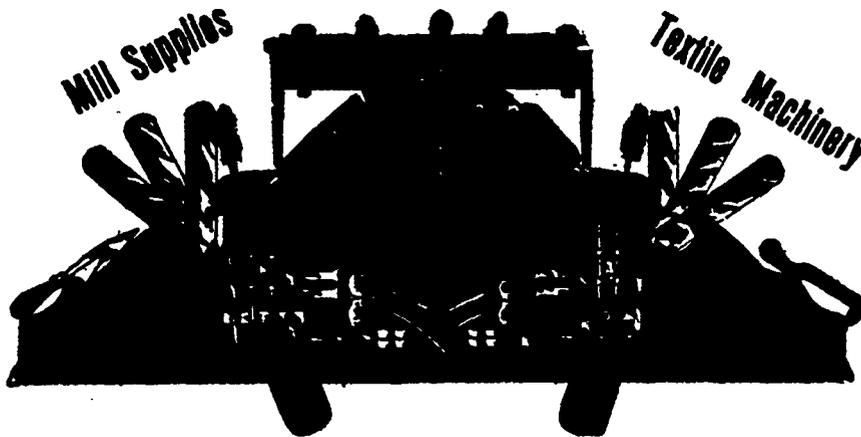
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Orders Promptly Filled

FOR SALE.—"SET WOOLEN MILL" favorably situated for general
 work, also for custom trade. Mill now going and doing a healthy business.
 Address "BROWN," c/o Canadian Journal of Fabrics.

—At a meeting of the Manchester City Council, on the
 5th inst., it was announced that, owing to the hard times and
 depression in the cotton industries, between forty and fifty thou-
 sand people in the poorer parts of that city were practically
 on the verge of starvation. Similar conditions prevail in Lon-
 don and other large cities of the United Kingdom, where the
 winter is expected to be one of the hardest in many years for
 the poorer classes.

THE NEW

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Toronto Woollen Machinery Company

118 DUKE STREET, TORONTO.

L. BREDANAZ, Manager

Sole Agents for Canada and the United States.

Prices on Application.

Prices on Application

Joseph Ainley, formerly superintendent of the Elmsdale flannel mill, of Almonte, has gone to Los Angeles to make that Californian city his future home.

S. S. Lagowitz, late of the Canadian Woolen Mills Company (formerly Boas Manufacturing Company), of St. Hyacinthe, is now with the firm of J. Frankenburg & Sons.

The new manager of the Nova Scotia Woolen Mills, at Eureka, N.S., is Allan Haigh, manager for several years of the Oxford, N.S., Woolen Mills. McGillivray Grant, of Springville, has charge of the blanket department.

J. Whidden Graham has succeeded L. Dexter as manager of the St. Croix (St. Stephen), mill of the Canadian Colored Cotton Mills Co. Mr. Graham has been in the mill since its opening, and rose from the ranks to his present position.

John Seigner, engineer at the R. Forbes Co.'s worsted mills, Hespeler, has been granted a pension of \$6 a week and back pension money to the amount of \$530, from the United States Government. He was bayoneted in the leg in the fight at Cedar Creek.

James Kendry, managing director of the Auburn Woolen Mills, Peterboro, has declined renomination in the Conservative interests in the forthcoming elections. W. R. Brock, wholesale dry goods merchant, of Toronto, and a shareholder in some woolen mills, has also declined renomination as one of the Conservative candidates in Toronto. A later report states that Mr. Kendry will accept re-nomination.

CHEMICALS AND DYESTUFFS.

As may be expected from the general condition of the woolen branch of the textile trades, the dyestuff and chemical market is very dull. The market is likely to remain dull till after the elections next month. In the New York market, gambier and aniline products are in fair request, while acids and bleaching powder have shown signs of improvement. The following are quotations in Montreal:

Bleaching powder	\$ 1 40 to \$ 1 60
Bicarb soda	1 75 to 2 00
Sal. soda	0 75 to 0 90
Carbolic acid, 1 lb. bottles	0 35 to 0 40
Caustic soda, 60°	2 10 to 2 25
Caustic soda, 70°	2 35 to 2 50
Chlorate of potash	0 07 to 0 08
Alum	1 75 to 1 95
Copperas	0 50 to 0 65
Sulphur flour	1 50 to 1 60
Sulphur rock	1 45 to 1 80
Sulphate of copper	0 06 to 0 06½
White sugar of lead	0 07 to 0 08¼
Sumac, Sicily, per ton	45 00 to 50 00
Bich. potash	0 07 to 0 08¼
Soda ash, 487° to 587°	1 15 to 1 25
Chip logwood	1 50 to 1 75
Castor oil	0 07 to 0 08
Cocoonut oil	0 07 to 0 08

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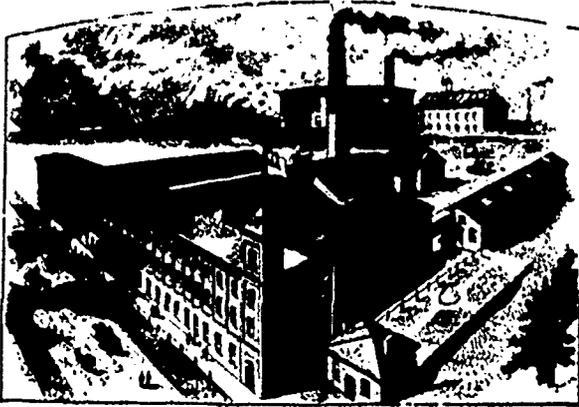
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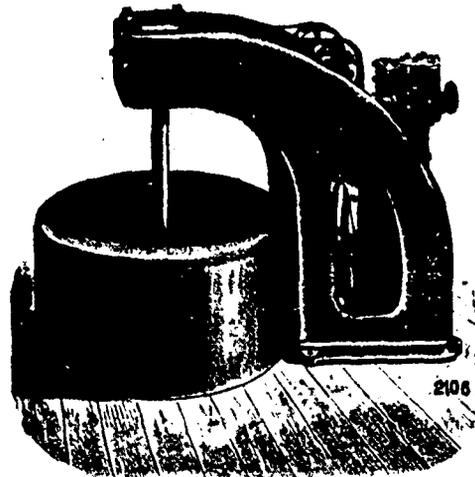
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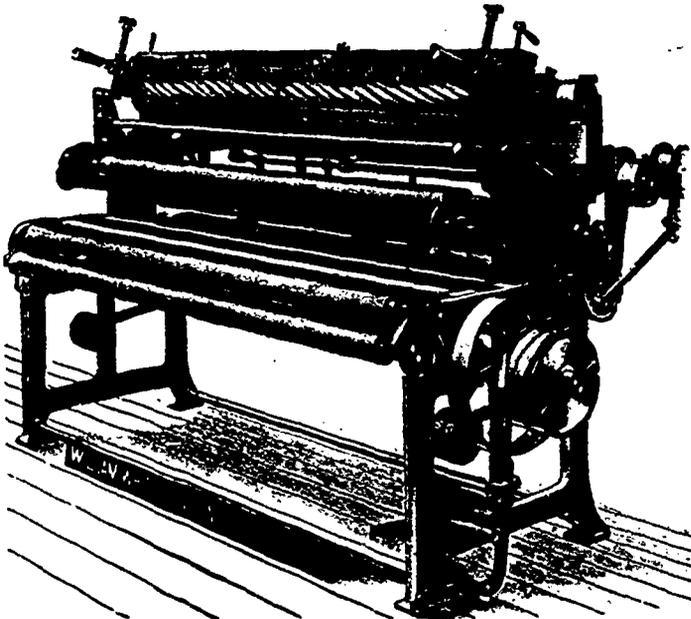
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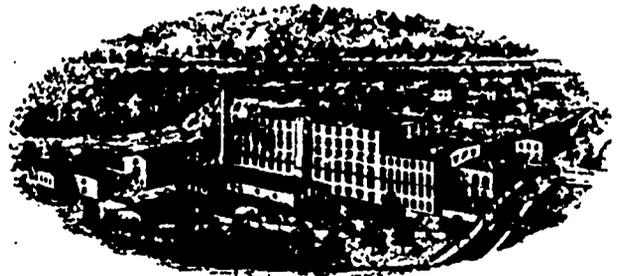
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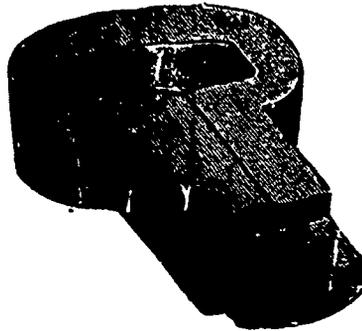
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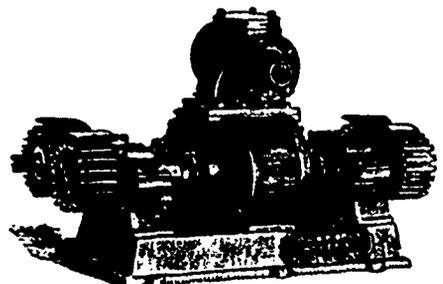
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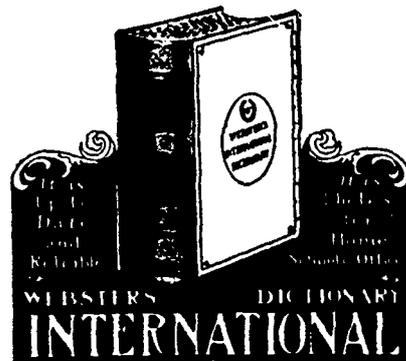
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UNITED STATES TEXTILES IN CANADA.

In a letter on trade with Canada, a correspondent of the Dry Goods Economist, writing from Washington, says.

While our exports to Canada of textiles have been heavily handicapped by the preferential rates in favor of Great Britain, they have nevertheless increased in very satisfactory volume in cotton, silk and woolen goods. In the decade ending with 1903, our export of cotton goods to the Dominion rose from \$1,922,680 to \$2,907,096. In the same period our shipments of silk manufactures increased from \$72,297 to \$238,315. The most notable increase, however, was in the manufactures of wool our exports of which rose from \$109,676, in 1893, to \$1,100,114, in 1903. This great increase is due almost entirely to Canada's fancy for our wearing apparel, of which was imported in 1903 to the value of \$862,779, as compared with \$59,229, in 1893.

The export movement to Canada of carpets, dress goods, flannels, and blankets, and miscellaneous manufactures of wool shows surprising fluctuations for the decade, but the volume of ready-made clothing shipped over the border has steadily increased, and in 1903 almost doubled the record of the year before.

It is not to be expected that the Canadian Government will permit present conditions to prevail indefinitely, and it is the opinion of the most impartial tariff experts here that nothing but a reciprocal trade agreement can prevent the adoption by Canada in the near future of more drastic measures of retaliation than any thus far invoked.



THE FALL RIVER STRIKE.

The great strike of the cotton mill operatives, at Fall River, involving over 30,000 people, has been on since July 25th, and it is not settled up to the time of writing. On the 3rd inst. a conference was arranged for, with the textile union, but the overtures were upset by a meeting of over 1,000 of the weavers, at which a resolution was unanimously passed deciding not to return to work unless an assurance were given that no weaver should be required to tend more than eight looms. It was intended by the mill owners that weavers should look after ten looms. A correspondent of the Canadian Journal of Fabrics, who has lived both in Lancashire and New England, says the condition of weavers in the United States is anything but hopeful. Twenty years ago New England weavers earned \$15 to \$20 a week, now they earn only \$8 to \$10. He gives the following comparative table of wages in the two countries:

	Lancashire.	New England.
Weavers	18s. to 30s. per week	\$ 8 to \$10 per week.
Loom pickers ..	30s per week.	\$11 to \$15 per week.
Spinners	50s. to 60s. per week.	\$15 to \$22 per week.
Slashers		\$12 to \$15 per week.

Considering the relatively high cost of living in the United States, he considers that weavers are actually worse off in New England than in Old England. The situation among the spinners is in strong contrast with that of the weavers. A commission lately appointed to investigate the situation reports that the average wages in 1903 were 197 per cent. higher than in 1890, and 27.2 per cent. higher than in 1894. That means that a spinner, who received \$2 a day in 1894, received \$2.55 a day last year. The frame spinners received last year 66.6 per cent. more than in 1890, 117 per cent. more than in 1894, and 85.9 per cent. more than the average for the ten years between 1890 and 1900. The advances in 1903 were made in face of the abnormal increase in the price of raw cotton and also in face of the fact that the price of the finished product could not be proportionately increased.

A few people are under the impression that Sea Island cotton is grown in the South Sea Islands, whereas it is those islands which form an archipelago on the southeast coast of the United States, extending from the mouth of the Savannah river northward along the coast to Charleston, that give their name to the special class of black, free-seed, long-stapled cotton so commonly mentioned. The four larger islands are James, Edisto, Wadmalaw, and John's, which occupy an aggregate area of some 100,000 acres. There are five smaller islands, severally named St. Helena, Lady's, Paris, Port Royal, and Spring. The climate is sub-tropical, and the average annual rainfall about 33 inches. The precipitation is greatest at the time the cotton plants are growing, between May and August; lowest when they are ripening, from September to November. The islands lie in about 33 deg. north latitude, the same as Bermuda. After the Civil War (1860-64) cotton from the Sea Islands commanded 6s. 3d. to 8s. 4d. per lb. Later on, in 1867, trouble began in the form of labor difficulties, excessive rains, and the appearance of the destructive cotton worm, and continued for some four or five years. As a consequence, the methods of cultivation had to be altered, the planting of large tracts being discontinued, and replaced by the intense cultivation of smaller areas. At present the Sea Island planters are enjoying the benefit of this new system, which was introduced first on James Island.



Efforts are being made at Bradford to reorganize the Yorkshire Wool Combers' Association. The scheme, if carried through, would assure the payment of all just claims.

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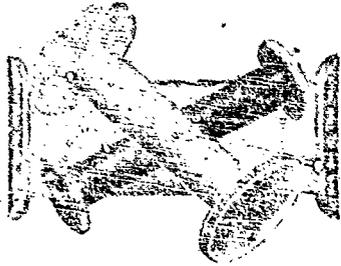
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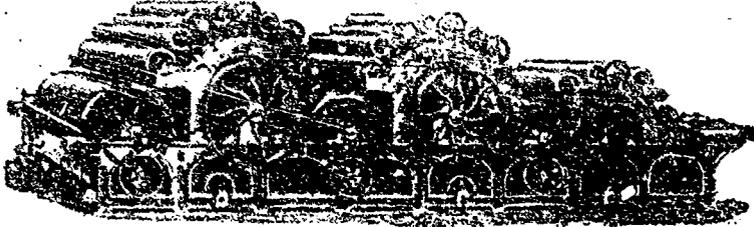
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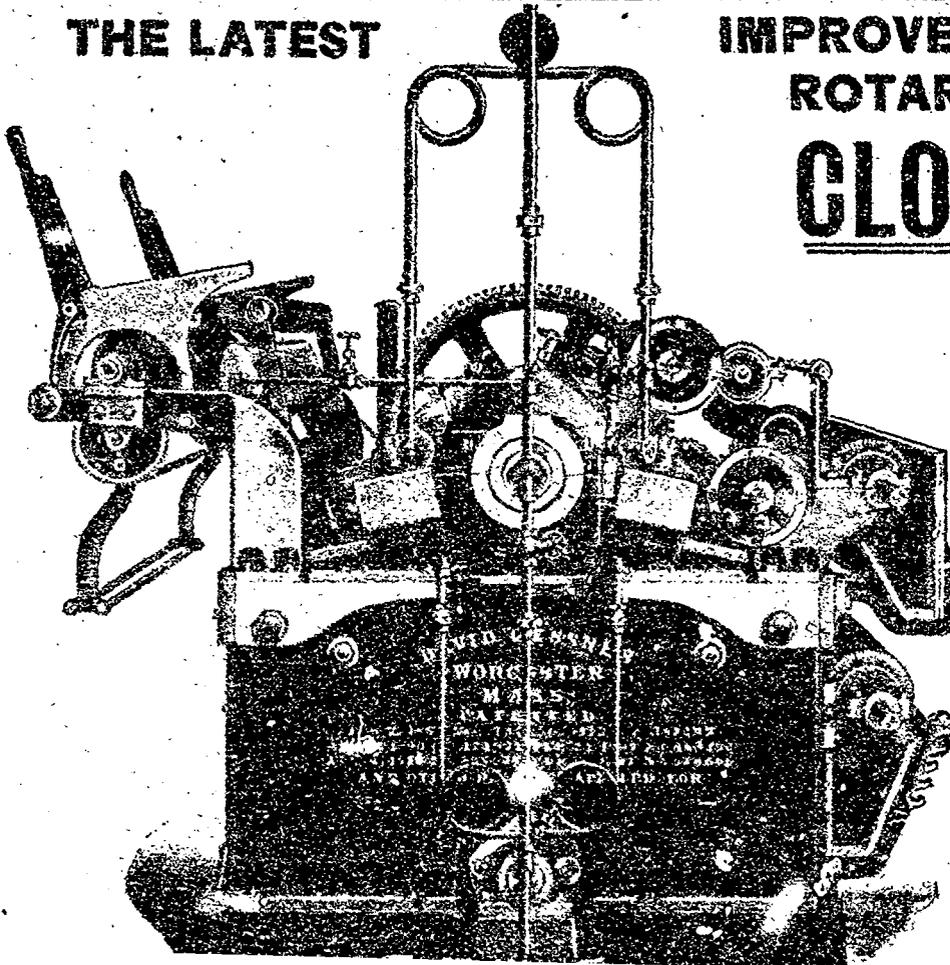
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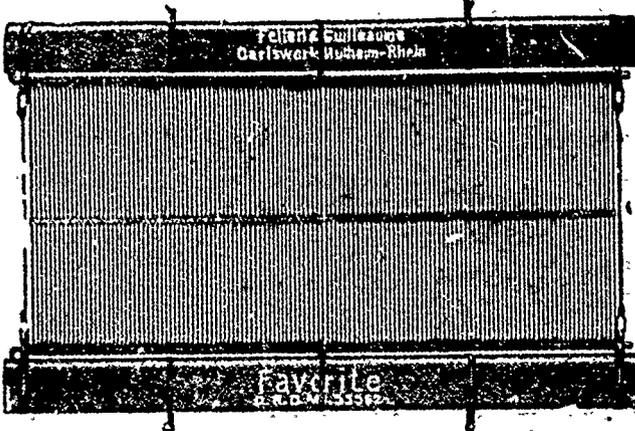
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