

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Bound with other material/
Relié avec d'autres documents

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

Includes index(es)/
Comprend un (des) index

Title on header taken from:
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments:/
Commentaires supplémentaires:

Pagination is as follows: 1-2, 89-112, 3-12.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XXI.

TORONTO AND MONTREAL, MAY, 1904.

No. 5.

WILSON, PATERSON & Co.

Board of Trade Bldg., Montreal,
REPRESENTING IN CANADA

The United Alkali Company of England.



OFFER TO THE TRADE—

Caustic Soda, 50° to 73°, Caustic Potash, Salt Cake, Salsoda,
Soda Ash (Ammonia and Leblanc processes),—Chlorate of Soda,
Chlorate of Potash, Hyposulphite of Soda (Curlew Brand),
Chloride of Calcium, Bichromate of Soda, Bichromate of Potash,
etc., etc.

McARTHUR, CORNEILLE & CO.

Importers and
Manufacturers of



OILS CHEMICALS

and DYE

810 to 816 St. Paul St.

MONTREAL STUFFS

ANILINES ALIZARINES

DOMINION DYEWOOD & CHEMICAL CO.
TORONTO

Direct Importers. Sole Agents in Canada for

Messrs. The FARBENFABRIKEN Vormals FRIEDR BAYER
& CO., Elberfeld, Germany.

WATSON JACK & COMPANY, MONTREAL.

ANILINES and DYESTUFFS.

Chrome Acid Colors. Excellent on Yarn or Pieces

Send for dyed Samples illustrating their
great utility.

New York and Boston Dyewood Co.

MANUFACTURERS OF

DYEWOOD Extracts

Importers of INDIGO AND ANILINE COLORS.

SELLING AGENT IN CANADA:

A. W. LEITCH, 16 Hughson St. South, Hamilton, Ont.

CASSELLA COLOR COMPANY.

(American Branch of
Leopold Cassella & Co.)

Dye Stuffs

NEW YORK, 182-184 Front Street.

BOSTON, 68 Essex Street.

PHILADELPHIA, 126-128 South Front Street.

PROVIDENCE, 64 Exchange Place.

ATLANTA, 47 North Pryor Street.

MONTREAL, 86-88 Youville Square.

W. T. BENSON & CO.

ANILINE COLOURS
DYEWOOD EXTRACTS
CHEMICALS, &c., &c.

Specialties:

Logwood for Cotton and Wool.
Fast Onedip Cotton Dyes.
Alizarines & Azo-Alizarines.

164 St. James St., Montreal

Logwood Extracts

IN PASTE AND POWDER

Purest and Cheapest in the Market.
Manufactured right on the ground.

The West Indies Chemical Works, Limited,
Spanish Town, - Jamaica.

Bellhouse, Dillon & Co.

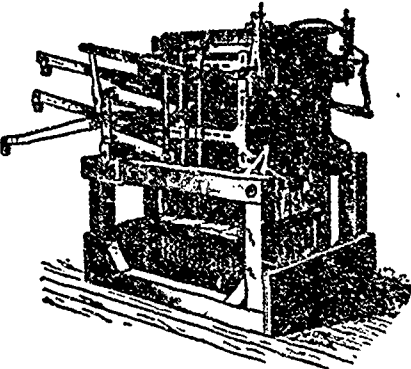
Sole Agents

MONTREAL. TORONTO. NEW YORK. PHILADELPHIA.

USE THE
"Halton"
 Jacquard

BEST MACHINE ON THE MARKET

Single Lifts
 Double Lifts
 Rise and Falls
 Double Cylinders
 Cross Borders
 Brussels



"1304" Fine Index
 Double Lift.

The only
 Reliable
 Fine
 Index
 Machine.

Thomas Halton's Sons

Alleghany Avenue and C. Street, - PHILADELPHIA

New York Boston Philadelphia Providence Chicago Montreal

C. BISCHOFF & CO.

IMPORTERS OF

Aniline Colors and Alizarines

Dye-Stuffs and Chemicals

Main Office, 88 Park Place, - - New York.
 Canadian Branch, 416 St. Paul St., Montreal.

YARNS

W. M. CROWE,
 28-30 Wellington St. W.,
 TORONTO

Sole
 Agent
 For
 Canada

Specially representing -

Messrs. John Smith & Sons, Ltd., Bradford, Eng., Worsted Yarns.
 Messrs. Wm. Hollins & Co., Ltd., Nottingham, Eng., Worsted and
 Merino Yarns.
 Mr. J. C. Horsfall, Cross Hills, Eng., Knitting Yarns.
 Mr. J. H. Willey, Bradford, Eng., Fancy Loops and other effect
 Yarns in Worsted and Mohair.
 Messrs. Aylroyd & Grandage, Ltd., of the Bradford Dyers' Associa-
 tion, Mercerized Cotton Yarns.

Knitting Manufacturers will find great satis-
 faction in using

HORSFALL'S RENOWNED HAYFIELD KNITTING YARNS
 FOR SWEATERS AND HOSIERY.

**Mechanical Draft Apparatus,
 Heaters and Fans,
 Blowers and Exhausters.**

GARLAND MFG. CO.,

SACO, MAINE.

(Formerly Loom Picker Co., Biddeford, Maine).

H. P. GARLAND, TREASURER.

MANUFACTURERS OF

Rawhide and Leather Loom Pickers,
 Loom Harnesses and Reeds,
 Duck and Ticking Lug Straps,
 Tape Picker Loops, Leather Strapping,
 Black Oak-Tanned English Picker Leather,
 North Carolina Hickory Picker Sticks.

Illustrated Catalogue sent on application.

PEROXIDE OF SODIUM BLEACHES

**"White
 Without
 Weakening"**

THE ROESSLER & HASSLACHER
 CHEMICAL CO. 100 WILLIAM ST. NEW YORK.

ROBERT S. FRASER

**Wools, Peruvian Cottons,
 Noils, Tops, Yarns, Etc.**

Tetlow's Card Clothing.
 (STOCK IN MONTREAL).

Manufacturers of Wastes and Shoddies.

17 Lemoine Street, - - - MONTREAL

Drying Apparatus for all Textile Materials.
 Heating and Ventilating for Mills and Factories.

For Catalogues and Prices write-

SHELDON & SHELDON,
 GALT, Ontario, Canada.
 Formerly McEachren Heating & Ventilating Co.

THE CANADIAN JOURNAL OF FABRICS

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XXI.

TORONTO AND MONTREAL, MAY, 1904.

No. 5.

Canadian Journal of Fabrics

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

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

Office: 18 Court St., cor. Church, Toronto, and the Fraser Building, Montreal

BIGGAR-SAMUEL, LIMITED, Publishers

TRAVELLING REPRESENTATIVE: A. W. SMITH.

Toronto Telephone, Main 4310 | Montreal Telephone, Main 2589

Business correspondence should be addressed to Montreal, but cuts, news items and editorial correspondence to Toronto; cuts from abroad should be sent by post wherever possible, not by express. Changes of advertisements should be in our hands not later than the 1st of each month to ensure insertion.

THE CANADIAN TEXTILE DIRECTORY

A Handbook of all the Cotton, Woolen and other Textile manufactures of Canada, with lists of manufacturers' agents and the wholesale and retail dry goods and kindred trades of the Dominion; to which is appended a vast amount of valuable statistics relating to these trades. Fourth edition. Price, \$3.00.

BIGGAR-SAMUEL, LIMITED, Publishers.

CONTENTS OF THIS NUMBER.

Acid Blacks and Logwood in the Same Bath.....	112	Literary Notes	94
Among the Mills	93	New Companies	112
Halbriggan Shirts	101	Oil Test, a Comparative..	102
Ray Weavers of Persia..	111	Personal	95
Business Notes	110	Power Loom Inventor, Honor to	102
British Wool and Textile Markets	103	Quillais and Its Uses....	100
British Textile Exports to Canada	99	Ramie Manufacturing	109
Burned out in the Toronto Fire	94	Reindeer Hair as Fibre..	107
Canada Woolen Mills, Ltd.	101	Silk, Artificial, in Canada	90
Canadian Cordage Co.	100	Silk, Raw, New Canadian Factory	107
Cotton Overcoats	111	Stockings with Pockets ..	107
Cotton Imports, Canada's.	101	Textile Design	111
Dominion Cotton Co.'s Annual Meeting	106	Thick and Thin Places..	101
Dyeing Works, The World's Great	111	Water, Its Importance in Dyeing and Printing ..	97
Fabric Items	102	Weights and Measures, Our Woolen Situation	89
Foreign Textile Centres..	99	Woolen Industry, Canadian, Ruin of the	92
Flax Industry in Canada..	96	Woolen Situation Graphically stated	95
Fire, the Great Toronto..	91	Wool Market	95
Gloves, Rough, Money in..	101	Yorkshire Wool Trade and the Tariff	104
Immedial Black or Mercerized	92		

THE WOOLEN SITUATION.

If there had been any real grounds for the statement bandied about in Parliament and in some of the newspapers that the calling of the creditors of the Canada Woolen Mills and their decision to restrict production was a mere bluff, intended to influence a revision of the tariff, we should not have blamed the Finance Minister for declining to be scared. Looking on the surface only, the circular sent out in the name of the company offering to take orders as usual had the appearance of bluff attributed to it. The issue of the circular was certainly not approved of, nor intended by, all the directors, as it had been decided but the day before to manufacture only for a month up to the 12th May, and no wool which left the wool room much later

than the 12th April could issue as finished cloth before the 12th May. Such a circular might have been of advantage in some way to the selling agents in the pending reorganization of the company, but if so, it should have gone forth in the name of the selling agents, to whose sphere of work it related. This and other circumstances in the history of the company ought to convey a moral to other textile manufacturers who may be tempted to allow their policy to be controverted by the wholesaler or the selling agent.

The first misconception regarding the circular having been cleared away, the woolen manufacturers expect that the Minister of Finance will review the case with a better perspective than at any time in the past three years. The statistics furnished by his own department ought to have some meaning. The trade returns show that the imports of manufactured woolens into Canada in 1898, by which time the preferential tariff was in full swing, amounted to \$7,985,866, while in 1903 they had mounted up to \$13,890,304, or an increase of \$5,904,438. That is the story of foreign importations, and the story of home manufacturing is to be read in the closing, or restricted operations, of many of our best equipped mills, and in the striking fact that the imports of raw wool have diminished from 11,785,800 pounds in 1898 to 7,004,702 pounds in 1903. We would ask our responsible rulers to connect these few facts with the statistics quoted in another column from the Textile World-Record, comparing the situation of Canada with the United States. We find that the imports of woolen goods into the United States are now only 25 cents per head of population, while the imports of woolens into Canada are \$2.49 per head of population, or almost ten times those of the United States per capita. The history of what happened to the immense woolen industry in the United States during the Wilson tariff is before us, and is now being repeated in an aggravated form to-day in Canada. In comparing the situation of the two countries we should not lose sight of the fact that the duties imposed by the United States are largely specific, and that those duties are prohibitory of low-priced goods, the only goods now brought into the States from abroad being high-priced fabrics used by the rich, who can afford them. The Canadian preferential tariff admits the shoddy goods of the most expert shoddy manufacturers in the world, and these cheap goods are being palmed off on the consumer as Canadian goods, while the better grades of pure wool Canadian goods are being sold to a

greater extent than ever as foreign goods—the Canadian manufacturer thus bearing the burden of a double fraud.

The fact that some woolen mills have closed down in the United States is quoted by the *Globe* as an argument. We do not see that this bears on the situation in Canada, because, in the first place, a presidential election year is always a year of dull trade there; and in the second place, the figures just quoted show that such of the United States mills that are short of orders are not short in consequence of the foreign competition, which does not exist, but because of over-production in the home market, a condition which is found in all countries and under all sorts of tariffs.

Some party politicians have freely suggested that if the Canadian woolen manufacturer would improve his plant he could meet British competition more successfully. We can only repeat that the disability lies chiefly in the sphere of wages and not that of machinery. Most of our large mills and many of our small mills have the very latest machinery to be had in the world, though they have a heavy duty to pay on such machinery. It is true that many Canadian plants are much behind the times, and the *Journal of Fabrics* has never sought to conceal or minimize the fact, but has lectured on the subject more than once. But exactly the same condition exists in Great Britain, the premier woolen manufacturing country of the world. Read the concluding part of an article in the *Textile Mercury*, of Manchester, sarcastically taunting those English "woolen manufacturers who oppose education in all its branches, whose whole attitude towards secondary and technical education is one of hostility, and who would not vote a penny of public money towards the advancement of knowledge among those who most need it." Our contemporary says:

"The pessimist will say that the only remedy is to clear the old ones out where they are antagonistic to progress, and to allow younger and more scientific ones to take their places. In many cases, however, this is not possible; and where the manufacturer turns his back on new ideas, there is no help for it, though it is a pity he should be allowed to drag an industry down with him. On the other hand, manufacturers are often ready to accept new conditions, and yet are defeated in their aims by the unwillingness of the workpeople; and such obstinacy has been evinced since the commencement of the woolen industry itself. The power-loom, the combing machine, and almost every other invention that has ultimately benefited the workpeople, has been stubbornly and systematically resisted. We have to-day a case of similar character in the refusal of the Huddersfield weavers to work two looms instead of one, though manufacturers are prepared to give them more wages for doing so, while the change would undoubtedly bring more work into the mills. Americans tell us we are not fond enough of the scrap heap, and there is no doubt a good deal of truth in the accusation. Much of the machinery in many mills is not worth the space it occupies; the amount of waste the obsolete machines make, and the time they lose in production, would pay

for new ones in a comparatively short time. A certain manufacturer was heard to boast that one set of carding engines he had in his mills were a hundred years old, and that he turned out some of his best work from these! One hardly dare imagine what the others must have been like. Makers of woolen machinery could tell some queer stories of the mills they visit, and the antiquated machinery they contain, much of which would be admirable in a museum. When an old mill is being closed down, and the effects are offered for sale by public auction, some of these strange survivals come to light, to the astonishment of other manufacturers, who know how hopeless must have been the struggle to have continued with such a plant, when they, with every facility in the way of the latest machines and methods, have all they can do to pay dividends or profits."

Our critics will see by this that there are plenty of ramshackle mills in England as well as in Canada, and that they have overlooked how important are the elements of cheap labor and a large market in determining the advantages of the British manufacturer.

ARTIFICIAL SILK IN CANADA.

The first production of artificial silk in Canada by a factory which commenced operations in Toronto Junction in February last, is an event of more than passing interest to the textile trades of the country. It is now twenty years since it was demonstrated that a material chemically identical with the silk spun by the silk worm could be produced on a commercial scale, and in fact somewhat cheaper than the true silk. In 1885 the first patent was issued for the process, and in 1889 the product was exhibited at the Paris Exhibition. It was long known to chemists that the delicate fibre spun by the silk worm and by the spider was composed of cellulose, and cellulose is present to some degree in all woods, but in large proportions in such fibres as the mulberry, spruce, cotton, etc., but no successful attempt had been made to imitate the substance evolved in the miniature laboratories of these tiny creatures, and so prepared that when ejected from their spinnerets it instantly hardened into the lustrous, strong and elastic fibre that goes to make up our beautiful silk fabrics. Even when the chemist had laboriously worked out his processes by a long series of separate operations it was found that the artificial fabric was deficient in some of the admirable qualities of the real silk. It was found that it was not so strong as the true silk, nor so elastic, and, moreover, it was highly inflammable.

Other chemists besides Chardonnet, the pioneer, set to work to remedy these defects, and since 1885 a number of patents have been issued for different processes, improving the product more or less, and now a number of factories are in operation on these patents in France, Germany, Great Britain, etc., some of these establishments employing several hundred hands. No reliable statistics are available as to the extent to which

chemically made silk has displaced the real article, but the production is now larger than the public would believe, and is increasing from year to year. A factory is in operation in the United States, and the present year sees the introduction of its manufacture in Canada. The factory at Toronto Junction is a branch of the General Artificial Silk Co., of Philadelphia, operating the Stearn process developed in England. It produces a class of silk suitable for dress goods, laces, tapestries and braid. There are two large concerns and less than half a dozen small ones which may form the Canadian clientele of such a factory, and, of course, for many years to come, and unless the present conditions of trade change greatly, the Canadian factory is not likely to gain customers abroad, where labor and the cost of chemicals are less than here. The only advantage Canada might have is in one of the raw materials, which are spruce and cotton waste, but this does not cut a large figure beside the paper industry, since a ton of spruce would go a long way to supplying raw material for a silk factory. The spruce of Canada is equal to the best in the world, and superior to that of most spruce-growing countries, but for the purpose of this individual process the pulp manufacturers of Sweden appear to be able to prepare a more suitable article. As this is only a question of the method of preparation, no doubt the Canadian and United States factories will soon be getting their pulp from Canadian mills. As already stated, the processes for making artificial silk have been greatly improved, but the imitation, except in point of cheapness, is still below the real silk in strength, elasticity, and in non-inflammability, though it has now been rendered less inflammable than cotton. There are several ways by which the chemist can readily distinguish between the two kinds of silk, but a simple means of testing is by burning. The artificial silk burns quickly in a flame, leaving but little ash, whereas the true silk carbonizes, or chars, when burnt. Further reference to the subject will be found in our news columns.

* * *

THE GREAT TORONTO FIRE.

The 19th of April, 1904, will long be remembered in the annals of Toronto as the date of the greatest fire which has ever visited that city, and the most disastrous, so far as the value of property destroyed is concerned, which has ever occurred in Canada. Between 8 o'clock on the night of the 19th, when it broke out, and 5 o'clock on the morning of the 20th, when it may be said to have been got under control, fourteen acres of buildings, containing valuable stocks, in the wholesale section of the city, on Front, Wellington West and Bay Streets, were swept away, involving a loss of about \$13,000,000, on which there was insurance amounting to about \$10,000,000. In this destruction the textile trades suffered heavily. Every wholesale dry goods establishment in the city, with one exception, was burned out, and in many of these manufacturing was carried on, so that besides the direct loss a large num-

ber of hands were thrown out of employment. Some eighty-five firms, exclusive of a number of smaller manufacturers' agents who deal in dry goods or accessories, were deprived of their business homes. Four large wholesale dry goods houses, eight millinery, two fur manufacturers, about a dozen clothing and six hat and cap houses were included in the disaster, and lost almost their entire stocks, for so rapidly did the fire spread before a high wind, and so difficult were the circumstances for saving goods, that it was well nigh useless to attempt to remove stocks. The interruption to business has, however, not been so serious as might have been expected. Most of the burned out firms secured temporary accommodation without delay, and one firm at least, the W. R. Brock Co, was in a position to fill all orders at once from its Montreal warehouse. Though a shortage was expected in some lines, with an advance in prices, such does not seem to have occurred. Most of the firms will rebuild without delay—some of them have already let their contracts and operations have commenced—and we are not aware of a single textile firm which is going out of business as a result of the fire.

This disaster carries with it some important lessons. One is that Toronto (and other cities are probably in the same position) with an efficient and fairly well-equipped fire brigade, is not in a position to cope with such a conflagration. A lesson which Toronto has learned, and it is emphasized by the recent Baltimore fire, very similar in its character to that at Toronto, is that the water pressure for such an occasion is not adequate. It stands to reason that with a large number of streams in operation the pressure is reduced, and the firemen, even with water towers, cannot reach the upper stories of high buildings. In cities with a water front, such as Baltimore and Toronto, separate mains for fire purposes only are required, with stationary engines on the water front. Such have been installed in some places already, and the Toronto city council has asked the chief of the fire department for a report on such a system, which, it is a foregone conclusion, will be in favor of it. Automatic sprinkling systems, stand-pipes and hose on the different flats of large warehouses, the enclosing of elevators and stairways within terra cotta or brick walls, the use of iron for window frames and sash, with possibly wire glass, and iron shutters, and close supervision and inspection of electric wiring are precautions which should be observed. It is thought the Toronto fire originated from an electric wire in the premises of the E. & C. Currie Co., but the fact will probably never be known.

The firm of A. A. Allan & Co. were fortunate in one respect. They had converted the area under the sidewalk, usually employed as a place for coal, into a storehouse, and had there a large quantity of valuable furs which were saved without damage.

Some of the firms which were burned out lost their books and papers, which were in their vaults, the latter having proved to be anything but fireproof. Among these was the Wyld-Darling Co., wholesale dry goods, whose books were completely destroyed.

Efficient aid was rendered by the fire brigades from Hamilton, Buffalo, Brantford, London, Peterboro', Toronto Junction and East Toronto, who sent detachments when appealed to after it was found that the fire was beyond the control of the Toronto brigade.

The business people who have suffered from this great disaster have shown great pluck, and, though it will be a long time before the city recovers fully from its effects, the wholesale district of Toronto will rise from its ashes in better form, though it may be on very different lines.

Elsewhere we give a list of the textile establishments burned out, their present business addresses, and their plans for the future so far as can be ascertained.

* * *

—It was a happy idea of Queen Alexandria, when preparing for a visit to Ireland, which she has just made with the King and Princess Victoria, to include in her outfit a number of costumes of Irish goods. She recognized that nothing would give the Irish people so much pleasure as to know that when she visited the Emerald Isle she was attired in cloths of Irish manufacture. She, therefore, chose an unusually large supply of the national fabric, Irish poplin, and a large quantity of Limerick and Carrickmacross laces to wear during her visit.

* * *

RUIN OF THE CANADIAN WOOLEN INDUSTRY.

(From the May Textile World-Record, Boston.)

The Canadian preferential tariff on British woolens is but 23 1-3 per cent., the rate on woolen goods from other countries being 50 per cent. higher or 35 per cent. The result of this preferential rate has been an avalanche of attractive cotton and shoddy goods from England, sold at ridiculously low prices. Ninety per cent. of the woolens imported into Canada come from England. These cheap fabrics have invaded all parts of the Dominion, and merchant tailors, accepting the fact that the goods were imported from England as a sufficient guarantee of their quality, have been duped with cotton worsteds, shoddy woolens and slazy fabrics loaded and stiffened with weighting materials.

The Canadian consumer has become imbued with the desire for cheap clothing, and the Canadian manufacturers find themselves unable to sell the better grades of goods they have been making or to reduce the quality so as to compete with the imported rubbish.

The ruin of the Canadian mills is still more clearly explained by a comparison of the conditions there with those in the United States. Canada, with a population of about 5,500,000, and a woolen duty of 23 1-3 per cent., imports yearly woolen goods valued at \$13,702,000, or \$2.49 per capita. The United States, with a population of 80,000,000, and a woolen duty of 90 per cent., imports yearly woolen goods valued at \$19,500,000, or 25 cents per capita.

With a population sixteen times as large as that of Canada the value of the woolens we buy abroad is less than one-half more.

Even under the Wilson tariff bill the imports of woolen goods into the United States did not exceed 64 cents per capita, the total value reaching \$49,740,000 in 1896. Under the operation of the preferential tariff the imports of woolens

into Canada have grown from \$9,707,518, in 1899, to \$13,702,469, in 1903, an increase of over 40 per cent.

As a result of the low preferential tariff the people of Canada are clothed in foreign goods, while the domestic industry is ruined. As a result of the high Dingley tariff the people of the United States are clothed in domestic goods, the high-priced imported fabrics being a proof of the purchasing power and prosperity of the people.

The value of the woolen goods consumed in the United States is estimated at \$316,000,000, of which \$297,000,000, or 94 per cent., is made in our own mills. If woolens were coming in at the present per capita rate of importation into Canada, the total imports for the United States would amount to \$200,000,000, or nearly two-thirds of the total consumption, leaving but one-third to be supplied by the mills at home. The contrast between the two countries shows the efficiency and value of our high tariff.

There is another important consideration. Our high tariff, specific and ad valorem, is prohibitory on low grade goods, and allows only the high-priced fabrics to pass in, while the low ad valorem rate in Canada means practically free trade in cheap goods. For this reason the disproportion in the wool imports of the two countries is still greater when rated by quantity instead of value.

Even in the United States woolen manufacturers are finding it difficult to keep their mills in operation, and it is plain that the condition of the Canadian industry must be without hope. The crisis there caused by opening the gates to foreign goods should carry to the United States the same lesson learned here at such fearful cost from 1892 to 1898. Experience is a good school and the experience of others is just as good as our own and a great deal cheaper.

* * *

IMMEDIAL BLACK ON MERCERIZED.

The Cassella Color Co., of New York, are sending out samples of their Immedial Black, applied to mercerized cotton, by the following method:

Dye in a jigger provided with squeezing rollers and charge the starting bath with:

2.5—3 lbs. Immedial Black NB.

2.5—3 lbs. sodium sulphide cryst.

0.5 lbs. soda.

15 —19 oz. dextrine.

4.5—8 oz. common salt.

and in addition with

8—9 per cent. Immedial Black NB.

8—9 per cent. sodium sulphide cryst.

calculated on the weight of the goods to be dyed and considered as the quantity of dyestuff actually absorbed by the fibre.

Give the goods 6 to 8 ends at the boil and after having squeezed off, rinse thoroughly in the second jigger containing rinsing water.

For dyeing subsequent lots in the standing bath same requires an addition of

8—9 per cent. Immedial Black NB.

8—9 per cent. sodium sulphide cryst.

1 per cent. soda.

2 per cent. dextrine.

calculated on the weight of the goods.

* * *

—The Edmonton Wool and Wood Co. has been incorporated in the North-West Territories.

Among the Mills

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

New machinery for the Edmonton Tent and Mattress Company will shortly be installed of the latest and most improved American type.

The Ravine woolen mill, at Hampden, Mass. owned by Phoenix Spinning Company, of Rhode Island, has been destroyed by fire. The loss is \$35,000.

John McDonald, of Carleton Place, has sold his woolen mill, with water power and adjoining property, to H. Brown & Sons, but he will continue to occupy the woolen mill as tenant of the new proprietors.

The two big mills of the Canada Colored Cotton Co., at Cornwall, were closed down the last half of April, the water being let out of the canal for repairs. The mills took advantage of the stoppage to make necessary alterations and repairs.

Employees in Japanese cotton factories get only eight to fourteen cents for a day's work of eleven or twelve hours. The work, however, is much less strenuous than in this country, and much time is wasted in loafing, talking, laughing and drinking tea.

David Ward, on leaving the Clyde woolen mill, at Laurark, where he has been employed, was waited upon by his fellow-employees in the finishing room and presented with a beautiful rug. The congregation of Zion church also presented him with a valuable kit bag and a purse of money.

Two men fell nearly one hundred feet at the mills of the Toronto Carpet Co., recently, and escaped with a few bruises. They were being hoisted on a platform to the top of a chimney they were building, and had not hooked their stage to the top when the men at the hoist ropes let go. The platform struck some guys in its descent, which helped to break the fall, but the bystanders expected to see them killed. Instead of that they were at work again in a few minutes.

The mills in British Columbia and also those in Washington Territory obtain most of the cordage they use from the Portland Cordage Company. This company has begun the construction of a mammoth plant at Smith's Cove, which will ultimately employ about 600 men. The company owns a site comprising about fifteen acres, most of which is tide lands. The filling in of this site is about to commence, and before the summer is past the plant will be in operation.

Woolen garments will be manufactured shortly in Vancouver if negotiations, now in progress, are successfully concluded. A recent arrival from Australia, who is the owner of a large sheep ranch, came to Canada for the purpose of looking into the question. He was invited to Vancouver by a well-known citizen, who was convinced that there was a splendid opening there for such a factory. The Canadian Pacific steamship line is, it is stated, anxious to carry freight from Australia, and the rates quoted, particularly on wool, which in bales takes up little room and weighs practically nothing, are very low indeed. This first cost of laying the wool down in Vancouver for the manufacture of garments, would, it is said, enable the wool to be manufactured and quoted in British Columbia, Manitoba and the North-West so far under Ontario-prices as to make those markets sure. It is stated that the factory will be built at an early date.

The Almonte Gazette states that the Rosamond Woolen Co.'s mill has started up again with a full force.

The Chicago Hosiery Co., Windsor, Ont., has resumed operations after an all-winter close down. The company manufactures socks, leggings, and mitts for the North-West trade.

The Windsor, Ont., Board of Trade is in communication with representatives of a carpet establishment of Birmingham, England, with a view to having a branch established at Windsor.

The Alaska Feather and Down Company is installing some new machinery in its mattress factory, at Winnipeg, which will increase its capacity considerably. This company purchased, a short time ago, that part of the factory of Bromley & Co., which was devoted to the manufacture of mattresses.

The new knitting factory of the Brantford Hosiery Co. is now in operation, and its first samples are being presented to the trade. Mr. Strauss, late of the Chipman-Holton hosiery mill, of Hamilton, is superintendent of the factory, which is operated by electric power, and which will manufacture fine hosiery.

The Williams, Greene & Roome Co., manufacturers of shirts, collars, etc., at Berlin, Ont., have purchased a lot 250 by 219 feet, near their factory, for an athletic ground, the employees undertaking to put and keep it in order. The company has already a coffee room, library, flower mission and other organizations for the benefit of its employees.

The Woodstock, N.B., Sentinel fears the woolen factory in that town will be removed in consequence of inducements of free site, free water power, and exemption from taxation for a long period held out by another town, where the factory would be more in touch with lumber operators, who take most of the goods manufactured.

Williams, Limited, boot and shoe manufacturers, Galt, propose to commence the manufacture of felt boots in addition to their present business. William Silver, Jr., superintendent of the Rumpel Felt Factory, Berlin, has entered their employ and will be put in charge of the new factory. Waterloo County has already three felt boot factories, said to be the only ones in the Dominion.

The proposed knitting factory, at Morrisburg, will not materialize. H. H. Lang, of Ottawa, who had an option on the Miller foundry property, owned by the Molsons Bank, has notified W. S. Connolly, the local bank manager, that it is not their intention to locate in Morrisburg. The capitalists associated with him wish to go to a city, where they would be less likely to be hampered by a scarcity of help, a thing that in the event of strikes would be serious.

The case of Ineson vs. the Hamilton Cotton Co. has been disposed of by the Court of Appeal. The plaintiff brought action against the defendants under the Workman's Compensation for Injuries Act. He was working at a carding machine, when the machine became clogged and the plaintiff pulled off a belt, and began removing the cotton waste which caused the clogging. While doing so the belt slipped on the pulley and set the machine in motion, crushing the plaintiff's hand so badly that it was necessary to amputate three fingers. Plaintiff alleged that the appliances were defective, and that there should have been a guard to prevent the belt slipping on again. In the first trial the jury found no defective machinery, but negligence on the part of the plaintiff. The appeal was dismissed with costs.

As stated in our last issue, the Walkerton binder twine factory will not be operated this season. In explanation of the situation, the following circular has been issued to the shareholders, over the signature of David Trill, the

president: "The directors, owing to unforeseen circumstances, brought about by the bad management of the late board, are forced to inform you that it will be impossible to operate the mill to make twine for the harvest of 1904, further than to put on the market the 100 tons of twine, in the warehouse here, and 57 tons in Manitoba, left over from last year. We trust that shareholders using twine will make it a point to use Walkerton twine and thereby assist the directors to get the mill into operation this fall for the harvest of 1905." The Telescope explains further that the company is indebted to the bank, and although the amount is not large, the bank does not care about advancing any more money until this old score is wiped out. It is informed that money for twine sold during the past year is coming in quite freely, and that the indebtedness to the bank is becoming smaller every day. The company hopes to be able to make twine as usual for the harvest of 1905.



BURNED OUT IN THE TORONTO FIRE—PRESENT ADDRESSES.

The following is a list of the firms in the textile trades burned out in the Toronto fire, with their present business addresses, as far as could be ascertained, and other information:

- W. R. Brock Co., wholesale dry goods, 8 and 10 Wellington street E. Have bought Harvey & Van Norman's warehouse, and will rebuild on larger scale.
- Wyld, Darling Co., wholesale dry goods, Standard Bank building. Have sold woolen branch to Thos. Ogilvie & Sons.
- Gordon, Mackay & Co., wholesale dry goods, 10 and 12 Front street W. Are rebuilding on enlarged scale.
- A. Ansley & Co., hats, 91 Wellington street W.
- Atkinson & Co., dry goods.
- Allan, A. A. & Co., furs, 18 Wellington street W.
- Brereton & Manning, furs, Carlaw building, Wellington street W.
- Bradshaw, William, dry goods, wholesale.
- Cockburn & Rae, millinery.
- Currie, E. & S., neckwear mfrs.
- Continental Costume Co.
- Darling, Robert & Co., woolens, 13 Wellington street E.
- Dignum & Monypenny, dry goods, wholesale.
- Debenham, Caldecott & Co., silks, 122 Wellington St. W.
- Gale Mfg. Co. Have bought out Crown Whitewear Co., 13 Colborne street.
- Home, C., tailors' trimmings, 67 Bay street.
- Hutchison, R. B., & Co., woolens, 11 Front E.
- Irving Umbrella Co., temporary building, corner King and Duncan streets.
- Merchants' Dyeing and Finishing Co., 18 Front St. E., are rebuilding on York St.
- Minerva Manufacturing Co., ladies' underwear, premises damaged.
- Novi-Modi Costume Co.
- New Idea Pattern Co.
- Ontario Neckwear Co., Old Upper Canada College.
- Sanford, W. E. Co., (branch), wholesale clothing.
- Tooke Bros., shirts, etc., 117 King St. E.
- Chas. Cockshutt & Co., wholesale woolens, etc., 144 Front W. Have sold woolen branch to Thos. Ogilvie & Sons.
- Caulfield, Burns & Co., wholesale clothing, etc., 20 Front St. E.
- Belding, Paul & Co., silks, 28 and 30 Wellington street.

Hachborn & Co., clothing manufacturers, 46 Colborne St. Greenshields, Limited, wholesale dry goods, sample rooms, 30 Wellington W.

- Gutta Percha and Rubber Mfg. Co., 15 Wellington E.
- Canada Weaving Co., 93 York street.
- H. E. Bond & Co., wholesale clothing, 111 King St. W.
- N. L. Garland, clothing manufacturer.
- Mark Fisher Sons Co., woolens.
- Eslward Musgrove, dry goods jobber, Carlaw building.
- D. Morrice, Sons & Co., manufacturers' agents.
- G. H. Hees & Co., window shades, curtains, upholsterers' goods, etc.
- Flett, Lowndes' Co., wholesale trimmings and linings.
- G. Goulding & Sons, wholesale millinery and fancy goods.
- Jas. Stanbury & Co., manufacturers' agents.
- Prime & Rankin, wholesale dry goods.
- Jenner, Sauer, Bannerman Co., wholesale dry goods.
- Stewart, Howe & May Co., skirt bindings.
- L. B. Kleinert Rubber Co., rubber goods, dress shields, etc.

- Toronto Flower and Feather Co.
- Standard Cap Co.
- Embroidery and Quilting Co. Premises damaged.
- R. Simpson Co., manufacturing department.
- Johnston & Sword, neckwear manufacturers.
- G. E. Boulter, rubber goods.
- J. T. B. Lee, laces.
- E. T. Corset Co.
- Stewart, W. B., manufacturers' agent, 11 Front St. E.
- Rothschild Bros. & Co., button manufacturers.
- Hoskin, Thos., manufacturers' agent.
- Anderson, MacBeth & Co., wholesale hats.
- Toronto Knitting Mills Co., sample room.
- Truro Knitting Mills Co., sample room.
- Toronto Cap Mfg. Co.
- Fowke, Singer Co., wholesale dry goods.
- Lowndes Co., wholesale clothing.
- Mann, Byers & Co., woolens.
- Paquet, Z. A., furs.
- Slingsby Mfg. Co., blankets, sample room.
- J. Adams & Co., linens.
- Slater & Co., wholesale dry goods.
- Boulter & Stewart, ladies' underwear.
- Nisbet & Auld, wholesale woolens.
- Taylor, Robert, wholesale millinery.
- Mercantile Mfg. Co., clothing.
- Nelles, H. W., manufacturers' agent.
- In addition, there were some other manufacturers' agents with sample rooms whose location we are not aware of.
- Most of the losses of stocks were total or nearly so.



LITERARY NOTES.

The American Cotton Manufacturer is the name of a new textile journal published at Charlotte, N.S., by the American Cotton Manufacturers' Publishing Co. It promises well.

Stevens, Dockham & Co. (formerly C. A. Dockham & Co.), the well known textile directory publishers, of Boston, have made a new departure in their line of publications by issuing a handy list in paper covers of the jobbing dry goods trade and the departmental stores of the United States and Canada. It makes a book of 56 pages; 6 by 9-in. and gives the names and addresses of 2,200 jobbers and 750 department

res. It is published at the moderate price of \$1 a copy. Stevens, Dockham & Co., 6 Beacon street, Boston, Mass.

The Cassella Color Co., 88 Youville Square, Montreal, has issued a series of samples of dyeings for carpet yarns and for union-melton cloths, in the form of two books, and very interesting volumes they make for the dyer. The carpet yarn book contains 168 shades, and the melton book 88 shades, some of which are remarkable for their delicacy. Instructions for the use of these dyes, which are chiefly of the alizarine class, are given in each book.

PERSONAL.

John Reid, who has been ill at his home, in Ottawa, has returned to Lanark to resume his duties as super of the Aberdeen Woolen Mill.

John Bain, Sr., one of the oldest and most prominent residents of Elora, who died April 14th, was for many years a woolen manufacturer. He was born in Paisley, Scotland, in 1842, and when quite young accompanied his parents to Canada, settling in the town of Dundas. Forty-six years ago he moved to Elora, and two years later engaged in the manufacturing of woollens, from which he retired in 1897. In 1900 he had a stroke of paralysis, which, a year later, was followed by a second stroke, that left him in a feeble condition. Mr. Bain took an active interest in municipal matters. He was for years a councillor and reeve of Elora. In 1864 he was married to Helen Grant, daughter of the late John Grant, of Harriston, who, with one daughter, Margaret, and three sons, John and William, manufacturers, Paisley, and Dr. R. C. Bain, of Lorimor, Iowa, survive him.



—From the Textile World-Record.

THE WOOLEN SITUATION GRAPHICALLY STATED.

The piece of goods on the left represents the per capita imports of woollens of the United States; that on the right, the per capita imports of Canada.

WOOL MARKET.

The London wool markets have shown great strength in raw wool. At one large sale recently merinos were $\frac{1}{4}$ d. higher, fine crossbreds and combings $\frac{1}{8}$ d. higher, and medium and lower grades $\frac{1}{2}$ to $\frac{3}{4}$ d. up.

The third series of colonial wool sales for this year opened on May 3rd. The total available for the sales was 183,053 bales, including 14,000 bales held over from the second series. A large number of buyers attended the opening. The offerings were mainly crossbreds. The buying was chiefly by

the home trade, but Americans secured several lots of medium and fine crossbreds, and also suitable parcels of good Romney wools at full rates. The offerings of merinos were light and they sold well. Cape of Good Hope and Natal fine grades were unchanged, but heavy greasies were somewhat easier. Punta Arenas were in fair demand at unchanged prices. As the sale proceeded, the competition was animated. Faulty and inferior merinos sold somewhat below the March price. Merinos were strong and showed a hardening tendency. Coarse crossbreds were eagerly taken by home and German buyers. Cape of Good Hope and Natal sold well to the home trade and Germany. The following are prices at closing of our report: New South Wales, scoured, $10\frac{1}{2}$ d. to 2s. $\frac{1}{2}$ d.; greasy, 6d. to 1s. $1\frac{1}{2}$ d. Queensland, scoured, $10\frac{1}{2}$ d. to 1s. $9\frac{1}{2}$ d.; greasy, $6\frac{1}{2}$ d. to 11d. Victoria, scoured, 9d. to 1s. 7d.; greasy, 1s. 2d. South Australia, greasy, 6d. to 8d. West Australia, greasy, $10\frac{1}{2}$ d. Tasmania, greasy, $7\frac{1}{2}$ d. to 1s. 1d. New Zealand, scoured, $7\frac{1}{2}$ d. to 1s. $7\frac{1}{2}$ d.; greasy, 6d. to 1s. 1d. Cape of Good Hope and Natal, scoured, $7\frac{1}{2}$ d. to 1s. 8d.; greasy, 6d. to 9d.

In a review of the market, Eug. Troost & Co., of Melbourne, Australia, refer to a decline in prices at the end of November, to a subsequent hardening in December, to substantial advances at January sales, and to the sales in February, which practically closed the season. At the latter, prices were almost on a par with October and early November sales. During the season American buyers operated freely in all merino and the lower grades of crossbred wools, suitable for their requirements. Export statistics show an increase for the year of 2,441 bales, and this in the face of the maintained assumption that the number of sheep shorn was 6,000,000 to 7,000,000 short of the previous year. This is explained to some extent by the heavier weight of the clip, but not altogether, and the only way to account for it is probably that the wool reached the coast and was sent out earlier than last year. Troost & Co. still believe that the final export figures at the end of June will show some deficiency on last year's production. A bountiful supply of grass and water seems now secured in nearly all the great sheep districts of Australia, and an increase in production may be confidently looked for next season.

The Boston wool market is very quiet. Manufacturers are not optimistic, and the interior markets are dull, as a reflex of the larger centres. New York and Chicago markets are also quiet.

Montreal reports very little enquiry. Prices are firm, and may be quoted as follows: Washed fleece, scarce; prices up to 19c., and unwashed to 15c. Nova Scotia fleece, 23c.; greasy, Cape, 16 to 19c.; B.A., 30 to 40c.; pulled, extra, 23 to 24c.; North-West, 17c.

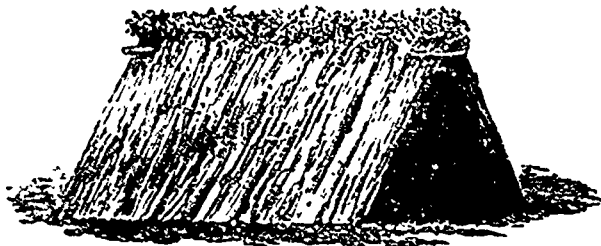
Toronto.—Market continues quiet, with little or none offering. Unwashed brings 9 to 10c. per lb. Pulled supers sell at $19\frac{1}{2}$ to 20c., and extras at 21 to 22c. A little new clip, Ontario unwashed, has been coming in, and has been selling at 9 to 10c., the same price as paid for the old clip. The new washed clip will begin offering soon, and there is some discussion as to the prospects for it. Stocks of foreign wool, which were accumulated in the United States markets before the imposition of the present duty, have been pretty well cleaned up the past couple of years, and there is a better demand now. Basing their opinion on current prices in the outside markets, local dealers believe that the market for the new clip in Canada will open at about the same prices as last year. New washed wool is probably worth 17 to 18c.

THE FLAX INDUSTRY IN CANADA.

ARTICLE I.

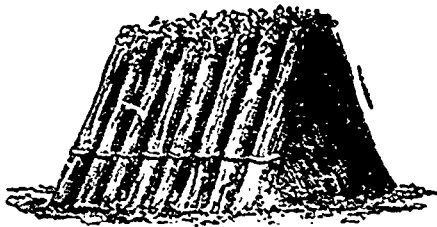
In view of the projected establishment of four linen factories in Canada, a sketch of the history of the flax industry, the present position of the linen trade of Great Britain and Europe, and the prospects of developing this branch of textiles in Canada, will prove of interest to our readers.

Linen is one of the oldest textile fabrics of which we have any knowledge, and was apparently the first in the history of man to take the place of the ruder dresses of skin with which he clothed himself. In old Egypt, where the arts of civilization were first well developed, flax was extensively grown for the manufacture of linens, and became one of the chief items of export. Linen formed the clothing of the wealthy, and in linen the bodies of her kings were wrapped when they died. We find traces of this fabric on the mummies in our museums, and on many a monument explorers



Dutch Stook.

have found pictured the weaver flying his shuttle and the farmer working in the flax field, in much the same style as is found to-day in that and other countries. Flax and its manufacture went from Egypt to Palestine with the Israelites, and became one of the leading industries of the East. In the Proverbs, Solomon portrays the virtuous woman as one who "seeketh wool and flax, and worketh willingly with her hands she layeth her hands to the spindle and her hands



Stook of Flax.

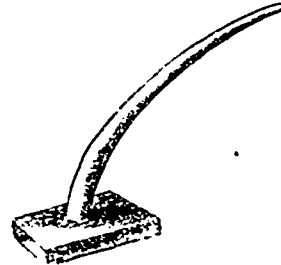
hold the distaff," and the mention of flax and linen occurs in almost every book of the Old Testament. Linen was worn by the High Priests and other dignitaries, and it was the most important fabric used in the offices of the Tabernacle and the Temple. The Phœnicians were skilled in the arts of



Bundle of Flax.

weaving and dyeing linen, and it is claimed that they imparted this knowledge to the Egyptians. In later days the maids of Athens prepared flax yarn and wove it by the same primitive methods as were used in Egypt, and from Greece the industry goes to Rome, where it survived even among the barbarians, who broke up the Empire and destroyed so many of its arts. The industry is of very ancient date in Ireland,

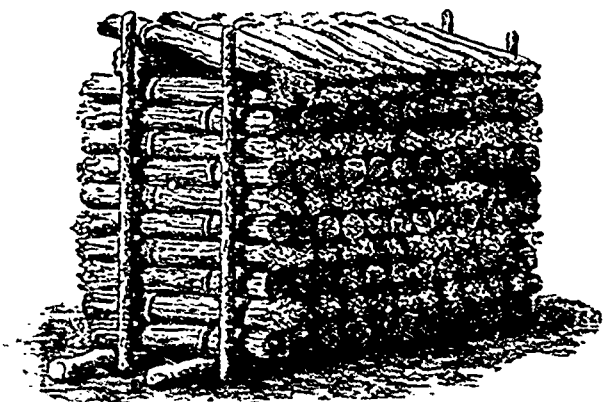
Germany and Russia. Tradition has it that the Hibernian got their knowledge of it from the Phœnicians. It was one of the Brehan laws that the farmers must be acquainted with the working of flax, and the yellow linen shirt was at one time an Irish national dress. But the Irish are largely indebted to the exiled Huguenots for making the manufacture of linen the successful and permanent industry it now is. One of these exiles, in particular, Lewis Crommelin, imported from Holland looms, implements and spinning wheels of the most improved kind, and did much to advance the Irish



Threshing Mallet for Flax Seed.

weavers in making the finer fabrics. In France, we find that as early as 1296 the Countess Beatrice de Laval had founded a model farm for cultivating flax, and the government in later days started factories at Lille, Rheims, Rouen, and many other towns, some of which are still celebrated for the delicacy of their linen fabrics. In Germany flax was known from time immemorial. Tacitus tells us, in describing these ancient Germans, that they dressed in rough linen cloth; and weaving was largely done by the serfs down to the 13th century, when it became the occupation of free citizens.

Silesia had an important trade in the Middle Ages, and Saxony and South Germany became celebrated for their products in this line. By the way, this very word line, so commonly in use, is derived from *linea*, a thread of flax. Turning to Russia, we find flax one of the oldest, as it is now one of the most important, crops grown in that territory. Peter the Great introduced the weaving of linen, and then prohibited the export of flax and flax seed. Catherine II. cancelled this interdict, and the export of flax dates



A "Hedge" of Flax.

from the present century. At times the flax crop of Russia has been of more value than all the grain crops together, and has developed greatly in recent years.

To use the words of Ward, in his work on flax cultivation: "The flax plant, through every stage of man's mingled career of civilization, has ministered to his natural wants; it has supplied him with clothing in the palmiest days of his social existence, and it is capable of being converted into the humblest garment he can possibly require. The physical

stamina, however, of the plant is of the most enduring nature; it grows to great perfection amid the snows and cold of northern latitudes; it maintains a healthy condition in a warm climate of Southern Europe, and even in the sultry lands of Egypt it stubbornly survives." For coolness and comfort in hot weather, a fine linen garment is not excelled by any fabric made of vegetable or animal fibre; while in the sick room it has been traditionally valued from the time of Moses. No textile has been in so regular demand, and kept up its value so well the world over. So much for the permanency of the industry.

If flax is grown for seed only, it is sown thinly, so that when the stalks are up they will branch out and develop a greater quantity of seed bolls, but the fibre of such branchy stalks turns largely into tow when handled. If sown for the express purpose of fibre, put in from two to three and one-quarter bushels of seed to the acre. Let the seed be clean, and if it is changed every year it is all the better. In Belgium and Ireland farmers buy seed from some foreign country, largely from Riga, Russia, fresh every season. Generally speaking, a soil that will grow a good crop of turnips will grow a good crop of flax. It will do well to follow oats or wheat. The ground should be well drained and plowed deep so that the roots may penetrate well and draw moisture and strength from a considerable depth below the surface. The land, however, should not be ridged up, but plowed flat. When grown in ridges, it is of uneven length and often needs two pullings. Sow when the danger of spring frost is over, and when sown harrow in. When the flax is 3 or 4 inches high it should be weeded. The Belgian farmer weeds on his knees, and works against the wind, so that the wind may raise the tender plant up again after he has passed. Weeding should be done when the ground is damp. A warm, showery climate is best for the growing flax. The proper time for pulling is when the stalk near the ground has become a pale yellow, and leaves have fallen off eight or ten inches above the ground, the higher seed bolls have turned brownish, and the seed itself has a pinkish shade. If pulled too young, the fibre will be tender, and there will be loss in scutching, and if allowed to stand too long it will make a coarse fibre. To pull, take a handful of stalks just below the bolls and give it a jerk. The handful should be of stalks the same length, and where there are different lengths, they should be kept in separate "beets" or sheaves. As each handful is laid down to form a beet, it is slightly crossed over the last to prevent entangling.

In Belgium, where flax raising is carried out to great perfection, and a remarkably fine fibre is produced, much economy is observed in all the details, and it is this economy and their patience in weeding, etc., much of the work being done by women and children, that enables them to produce the material so cheaply. There all the seed is saved, while in Ireland it is allowed to waste.

The beets being bound up the seeds are taken off in a comb, the teeth of which are generally of round iron spikes, bolted to a plank. This is called rippling, and can now be done by improved machinery. If it is desired to save the seed, it should be dried in lofts or in gently heated kilns. In Belgium, when the flax is taken off it is put in shocks or "stooks," as here illustrated. This is done instead of first tying it into sheaves, as in Ireland. After it has dried enough, it is then put up into "hedges," where it remains till sufficiently dry to be stored in barns to be retted in the following spring.

In the district here referred to—Courtrai, which is famous for the fineness of its fibre—the seed is taken off by means

of a mallet, with which the beets, being placed on the floor, are pounded.

After threshing, two beets are tied together, which is bound with straw bands, the tops and butts being reversed. The bundles are placed in crates of wood, lined with straw to modify the current, and these crates are floated in the river and tied to the bank by stakes. The crates are submerged by stones put on boards over the straw lining. When the flax has reached a certain stage of fermentation, it is taken out and dried in cones.

Then it is repacked and put in the river till the fermentation or "retting" is completed. These stages are determined by delicate tests, which can only be thoroughly understood by experience. Previous to scutching, it is sorted by a manipulator, who opens each beet and sorts out what is perfectly retted, that which is over-watered being scutched separately, and that under-watered being put in the water again till properly softened. In Holland the process is carried out with the same care as in Belgium, but the flax, as pulled, is tied in beets and stooked, as here shown, and the retting is done in stagnant ditches as in many parts of Ireland. This is afterwards dried on the grass or in cones. For the steeping of the flax in Ireland, the secretary of the Flax Supply Association gives the following tests: "After a few days the flax must be examined. Take a beet or two and examine. If glit appears in the middle of the beet, and it feels soft when grasped, it is an indication that great watchfulness is necessary. Take three or four reeds, which will be found covered with a slimy substance, and if this can be removed from the surface by delicately passing it through the finger and thumb, it is in condition to leave the dam; or bend the reeds gently over the forefinger, and if the woody part separates freely from the fibre and starts up, it is time to throw it out. If the middle of the stalk yields to the latter test, it may be safely considered watered. When you commence to examine do so daily or twice a day. When you are satisfied it is retted, take off the stones and throw it on the bank, allow it to drain out, then cart to the spread ground." Here it is spread in layers that slightly overlap each other, dried, made up into beets and stacked for the scutch mill.

(To be continued.)

WATER: ITS IMPORTANCE IN DYEING AND PRINTING.*

Water is one of the most important factors of the dye-house. Not only in washing and bleaching, but also in the operations of dyeing and printing, is successful work more or less dependent upon the quality of the water employed. Years ago, when the woods were the sole coloring matters, and before the science of chemistry was thoroughly understood, it was the custom to wash or scour goods directly in the river, which, of course, on account of the impurities often present, had a very injurious effect both on the dyeing and bleaching, and it became a well-known fact that a dyer learning his trade in one town would result in a total failure in another where different water was used.

Every dyer, even those who profess to have but little knowledge of chemistry, should at least be able to make such few simple tests as are necessary to determine the character and approximate amount of impurities present in the water he uses. The lime salts in 1,000 gallons aqua will destroy 1.7 lb. of the best hard soap for every degree of hardness, which is all clear waste; besides, the insoluble curd, on ac-

* A paper by D. L. Malcolm, read at the Philadelphia Textile School.

count of its greasy nature, sticks to the fabric and cannot be removed even by rinsing with hot water. Not only on this account, however, is hard water injurious, for some colors precipitate insoluble impurities with the alkaline earths and may be precipitated altogether. When hardness is due to earthy bicarbonates, such water is not suitable for the solution of many of the coal tar colors, because a portion of the color base is precipitated as a tarry mass and the dyestuff is wasted. Iron is also very objectionable in the dyehouse operations. Being usually present as bicarbonate, it acts upon soap solutions, causing wholesale waste. In wool scouring, cotton bleaching, and other operations, ferric oxide is precipitated upon the fibre, and the goods acquire a yellowish tinge, which is a poor bottom for the dyeing of bright colors. For washing cloth, the importance of soft water is very great. The cloth washed and rinsed in soft water is soft and smooth to the touch and dyes evenly, while that treated in hard water is harsher, and the grease remaining from the soap prevents the dye from being properly absorbed. It is well to remember, however, that hardness of water is in some cases beneficial and even necessary. It causes no harm when acid dyes are used, or when mordanting wool, since in these cases acid baths are used; only when mordanting with cream of tartar does the water require to be corrected beforehand, for otherwise a portion of the tartar would be precipitated as calcium tartrate and lost. No harm is caused by hard water in mordanting cotton and silk; in fact, it is preferable to soft for fixing the basic ferric sulphate, aluminum, or tin mordants on the latter. There are many other cases where the use of hard water is beneficial, as in the dyeing of alizarins, logwood, weld, etc., but no hard-and-fast rules can be laid down and each case must be left to the judgment of the dyer himself.

The most common impurities to be looked for are carbonates, sulphates, chlorides, nitrates, and silicates of calcium, magnesium (sodium and potassium), aluminum, and iron. Hard water contains one or more of the salts of calcium, magnesium, iron, or aluminum in solution, and is usually defined as one which precipitates soap from solution. It is of two kinds, temporary and permanent. The temporary hardness is usually due to the bicarbonates of lime and magnesium, and is so called because prolonged boiling will, by driving off part of the combined carbonic acid, cause the precipitation of the greater portion of the above impurities, leaving the water proportionally softer. The permanent hardness is due to the neutral sulphates, chlorides, and nitrates of lime, iron and aluminum, and is not diminished by boiling at atmospheric pressure.

Saline or alkaline waters are those in which large quantities of soluble sulphates, chlorides, and carbonates occur. They are frequently met with in districts where the supply is derived from wells which penetrate the lower beds of coal measures. This alkaline condition is determined by means of red litmus paper. On the other hand, we have acid salts and free acids as impurities. Water derived from shale beds containing pyrites and situated near the surface becomes contaminated with ferrous sulphate. On exposure to air this salt oxidizes, ferric oxide is deposited, and the waters contain free sulphuric acid. Blue litmus is used in its detection.

The dangers of using waters containing iron have already been spoken of. They are to be looked for in water which is derived from disused coal pits, iron mines, iron and aluminous shales, etc. All such water should be rigorously avoided, and this impurity can be detected in small quantities by evaporating nearly to dryness, with the addition of a drop or two of nitric acid and hydrochloric acid. If potassium ferrocyanide

be then added, a blue coloration will be produced, and with potassium thiocyanate a red color.

Organic matter in quantity gives to the water a brownish color, and in some cases rises to the surface as a brown scum (especially if a little alum be added) when the water is boiled.

The quantitative tests and the correction of waters containing iron and bicarbonates and sulphates of lime and magnesium are given below, but in the absence of iron for most purposes of dyeing all that is necessary is to carefully neutralize the earthy and alkaline carbonates which may be present with acetic acid, but great care must be taken not to use too much, otherwise bad results will be obtained. The amount of sulphuric acid required for neutralizing 1,000 gallons of water may be readily ascertained in the following manner: One litre of water is poured into a white basin and a few drops of methyl orange added. From a burette, with constant stirring, a solution containing $6\frac{3}{4}$ grms. sulphuric acid in 1 litre of distilled aqua is added until the color of the liquid changes to red. The number of cubic centimeters thus required corresponds to the number of ounces of sulphuric acid to be added to 1,000 gallons of water.

Gardner, Rawson, and Laycock give the following quantitative estimation of iron by color titration with potassium ferrocyanide. A dilute standard solution of iron containing 0.0001 gm. of Fe per cubic centimeter is prepared thus: 0.7 gm. of pure ferrous ammonium sulphate is dissolved in water acidulated with sulphuric acid, oxidized by the careful addition of a drop of dilute potassium permanganate, until the liquid is just pink when it is diluted to a litre. 100cc. of this solution are further diluted to a litre, and the solution is then of the strength mentioned above. 10 to 50cc. of the 100cc. to be tested are placed in a Nessler tube, 1cc. of strong hydrochloric acid (free from iron), and 1cc. of a solution of potassium ferrocyanide are added, the liquid made up to the 50cc. mark with water, and well stirred. A quantity of the standard iron solution judged sufficient to produce the same depth of color is run into a similar tube, the same quantity of acid and potassium ferrocyanide added, and the liquid made up to 50cc. After allowing five minutes for the color to develop, the depth of color in the cylinders is compared carefully, and the experiment repeated until a similar depth of color is obtained.

Example.—The precipitate of oxides of iron and aluminum from 1 litre of water was dissolved in acid and diluted to 100cc., 10cc. of this solution produced the same depth of color with potassium ferrocyanide as 6cc. of the standard iron solution. 1 litre of this water, therefore, contained $0.0001 \times 6 \times 10 = 0.0006$ gm. of Fe.

Calcareous or magnesian impurities are the most frequently occurring and injurious of all, and their presence is indicated thus: A solution of ammonium oxalate added to the water in question will throw down a white precipitate of calcium oxalate, if lime is present. If, then, on strongly evaporating until turbidity is produced, and adding hydrochloric acid, effervescence ensues, followed by a perfect clearing of the solution, it is an indication that the lime is present as the bicarbonate. No effervescence and no clearing denote the sulphate, while effervescence and partial clearing indicate the presence of lime as both sulphate and carbonate.

The separation of lime and magnesium is of little consequence to the dyer, and will not be treated of here. The acidimeter test is a good one for the quantitative analysis of lime present as carbonate and as sulphate. Temporary hardness is estimated directly by titrating a previously noted volume of the water with N/100 acid, methyl orange being used as the indicator. In the estimation of the total hardness, sodium carbonate is added, and the solution evapor-

ted to dryness. The calcium sulphate is thus changed to carbonate, which is washed and dissolved in a known amount of normal acid. The solution is then titrated with normal alkali, and the excess of acid over the amount necessary to exactly neutralize the lime salts present in the water is ascertained. The permanent hardness is found by deducting the temporary hardness from the total. The correction of temporary and permanent hardness may briefly be defined by three processes; the lime process, the soda process, and the combined lime and soda process. When lime is used, the free carbonic acid unites with it to form calcium or magnesium carbonate, which is thrown down from solution. When caustic soda is used, sodium carbonate is formed; which remains in solution. This process varies in action according to whether sulphates, or both sulphate and carbonates, are present as impurities. In the absence of carbonic acid, it produces no effect upon water containing calcium sulphate, but magnesium sulphate is precipitated as the hydrate. When carbonic acid is present, calcium carbonate is formed, as shown by the following reaction: $CaSO_4 + Na_2CO_3 = CaCO_3 + Na_2SO_4$. The combined lime or soda process is used for the correction of both temporary and permanent hardness. Hummel states that if the number of degrees of hardness is divided into 130 or 150, the number obtained will approximately represent, as a rule, the number of litres of water which can be softened by the addition of one litre of lime water. This is very important, as an excess or deficiency of precipitant, though added as a cure, may prove a cause for greater hardness.

Since many difficulties are to be encountered in the above methods for purification, it is necessary that constant care and foresight be displayed in their manipulation. The operation for which the water is to be used must be taken into consideration, although for most purposes of dyeing impure water (in the absence of iron), may be readily corrected by the addition of the proper amount of acetic acid. For scouring, bleaching, and many other purposes, however, this method would of course be absurd. The discretion of the dyer must therefore be used throughout the entire analysis, especially remembering the function the water is to play after correction.

Foreign Textile Centres

Belfast.—Market steady. Production absorbed by current buying. Spinning end shows a trifling improvement. Manufacturing department looms kept busy. Prices without change, but stiffly maintained.

Dundee.—Slightly better feeling on the market. Reports of new crop favorable, so prices of new jute easier. Yarns a turn firmer. Cloth, no large demand, but prices steady. In tarpaulins large business doing, and makers find trade brisk. Linens in fair demand, but home trade not as desired.

Kidderminster.—Trade tending upwards and repeat orders coming in. The demand for Wiltons, instead of Axminster and Brussels, is the present feature of the trade, and a good deal is being done in special designs. The spinning trade is gaining ground and yarns are selling more freely with prices advancing.

Leeds.—Trade unsatisfactory, but prices for better classes of goods, such as merinos, no easier. Wholesale dealers' orders generally for better class goods. Canadian market shows animation, but trade much below average for this season.

Leicester.—Yarn market steady and improving in both

home and export business. Hosiery industry improving, and business brisk.

Manchester.—Yarn market a shade better, but production still exceeds demand. Cloth market improving in some sections. Shirtings for India are more in demand. Home demand is more for specialties than staples. Prices better, but not yet altogether satisfactory. Raw cotton fluctuating so as to render future somewhat uncertain.

Rochdale.—Flannel market unsatisfactory on account of high price of wool, with continued upward tendency, while no better price can be obtained for flannel. Many manufacturers are working only part of their machinery.

BRITISH TEXTILE EXPORTS TO CANADA.

The following are the values in sterling money of the exports in textile fabrics and wool for March, and the three months ending March of this and last year:

	Month of March,		Three Months Ending March,	
	1903.	1904.	1903.	1904.
Raw wool	£3,122	£2,239	£10,395	£8,611
Cotton piece goods.....	71,308	73,397	274,768	286,972
Woolen tissues	41,361	51,223	159,367	219,507
Worsted tissues	71,587	67,240	310,839	284,240
Carpets	44,748	44,221	134,979	138,680
Haberdashery	28,406	39,044	73,721	126,685
Jute piece goods	14,050	15,813	51,037	46,866
Linen piece goods.....	18,615	20,087	65,095	64,492
Silk, lace	993	413	3,182	1,622
Silk, articles partly of..	8,305	6,657	24,945	16,522
Apparel and slops	40,412	37,984	111,155	107,840

DYERS AND DYES.*

By J. K. Gass.

At the present time, there is a tendency among the unformed to discredit the practical ability of the young dyer coming from the textile school. This is in some cases due to the fact that he is not familiar with the common phrases used in the dyehouse, and in others to the suspicion that he has but a few recipes, got in an experimental way with a 10 gm. skein; and while rightly demanding more than an experimental knowledge, they often underestimate or overlook the specific qualifications which he usually possesses for the successful handling of material to be dyed. Having studied chemistry, as applied to dyeing, he knows for what purpose each chemical is used, and to what extent it may be employed without injury to the fabric, while his knowledge of the dyestuffs and their classification by groups gives him the key to the best methods of applying them to the various fibres. A few recipes in a note book, guides to some particular shades, are no criterion of a dyer's ability; if by these alone his equipment was judged there would be no lack of competent dyers, for it is now well known that the dyestuff firms stand ready to furnish any recipe, match any desired shade demanded of them, and this regrettable practice is too often resorted to by a class of dyers who have but a hearsay knowledge of dyestuffs. To the uninitiated, the practice of having shades matched by the dyestuff firms may seem a convenient way to save time in the dyeing, but the fallacy of this view is ascertained when the firm is asked to guarantee results, to warrant the recipe. No; it must be taken "without guar-

* A paper read before the Alumni Association, Philadelphia, U.S.A.

antee," a phrase never omitted from their sample cards. Why this caution, this persistent insertion of that saving clause, prudence on guard, "without guarantee?" It is not that the samples have been dyed on 10 grm. skeins, for the shades are none the less reliable on this account; the success of the dye business depends largely on experimental research, and having proved the trustworthiness of these sample dyeings, the firms are naturally loth to use larger lots, to let their dyer experiment with £10 when results may be proved with a threepenny-piece. No, the above prudent clause in their representations is a delicate expression of their limited confidence in the average dyer's ability. Shrewd business men that they are, they would not for the world wound the sensibilities of the dyer; and, as the writer knows from experience, it is an awful shock to one's conceit to be told that his knowledge of dyestuffs does not warrant a guarantee; still it is a fine tonic, and when taken in the proper way helps him along to a better knowledge of his trade.

There are difficulties to be met with in the dye-house that are embarrassing to the student and the practical man, which the manufacturer might remove with profit to himself; difficulties that are the cause of much of the mystery with which he has to contend. The multiplicity of names for the same dyestuffs is especially referred to. It is confusing enough when one finds them under their legitimate variants in a dictionary of dyestuffs, but when every conceivable means is resorted to obscure the character and to give fictitious names to the most common dyes, it is time that the manufacturer insisted on knowing what he is purchasing.

It would be a great benefit to the art of dyeing and increase the knowledge of the dyer if there were a law compelling manufacturers of dyestuffs to put a uniform name on products of the same constitution. The lack of some such statute leaves the condition of the dyestuff trade discreditable to a country which prides itself on its modern methods. The remedy is easy and ready if manufacturers' associations would but take a keener interest in this branch of the textile industry. It will be generally admitted that it is harder for the manufacturer to get competent dyers than it is for him to hire men with equal intelligence to take charge in other positions of similar responsibility in the mill, and this is largely due to the neglect or inability of the practical man to make himself familiar with the proper names of the dyes. In justice to him, however, it must be said that he can scarcely do so without the co-operation of his employer, who should insist on knowing the proper name of the dye he is buying. By shortening the label of titles under which dyes are sold he can materially increase the ability of his dyer in making a judicious selection of the dyestuffs adapted to give the best results with the material to be dyed, since by lessening the number and confusion of his dyes he increases the facility of their use and the familiarity of his dyer with their properties.

Anyone who has entered the drug rooms at the various mills and seen the tiers of shelves stocked with cans three and four deep, has had an object-lesson in a serious difficulty of the dyer, a difficulty which would disappear if by a rational system of commercial classification a common name would be adopted for dyes of the same constitution. The dyer would thus be as familiar with the application as the painter is of his paints, for the name of the dyestuff, if its proper one, would be an indicant of the character of the process by which it should be applied; what mordants, if any, are used with it, and the fibres to which it might be applied.

On taking charge of the dyeing at one mill, the writer encountered dyestuffs in cans and kegs of all sizes, many of which had been unused or unopened. Some of the stock had

lain in the mill for five or six years, while a few, variously labelled, proved, on testing, to be the same dye. The unopened cans and kegs contained for the most part alizarins, and this class of dyes was not adapted to the use of the mill, nor likely to become so.

It is ill-spending of this sort that eats up the profits of a mill; the group of dyes represented but a small portion of the drug-room stock, and the writer also learned that there had been periodical streaks of color in the adjoining river, not accounted for by the waste liquor coming from the dye-house. It is not purposed to discredit the man who is trying to do his best under an adversity of circumstances, which not he, but business laxity, has caused. When, however, ignorance becomes a license for extortion, when confusion is fostered and exploited for profit, it is to the manufacturers to make such abuses impossible. They, not the dyers, are the losers by the malpractices of a trade, which would cease if a uniform name for each dye were insisted on, with a market quotation comparable to a standard sample precisely as in the case of any other staple.

It does not require a great number of dyes in any branch of the trade to give all the shades sought for, and the success of the dyer depends entirely on his selecting those best suited for the material furnished. Were such a law as has been suggested put into effect, he would have a familiarity with dyes he could get in no other way, and in the event of a change of place he could start with the confidence of the mechanic who is familiar with his tools, no matter in what workshop they are encountered. The name upon a dyestuff would then tell him more in a minute than he could securely know in a year, under present conditions, and he could go to work confident of his ability to do it right, and to earn his hire.

It is only fair to state that dyestuff firms are not in all instances solely responsible for the use of fictitious names. In one instance with which the writer is familiar a mill requested the agent to ship the dye under a different name. The identity of the dyestuff was already sufficiently obscured under the name it had been offered, so that what good purpose, if any, was in the request was difficult to determine. It may have been deemed a new dyestuff which the mill expected to secure the proprietary use of by the simple process of re-christening. That the agent was not selling dyes for the mill's special benefit seems never to have been thought of in this case, although it is usually painfully obvious.

It sometimes happens that the young dyer from the textile school takes sufficient interest in his work to make a simple analysis of a dye to determine how much adulteration his employer is paying for, and the results very often astonish both. In one case, where an adulteration of 75 per cent. was discovered, the agent was called upon to explain, and he had the unmitigated assurance to say that the dyestuff was a sodium salt, that the high percentage of residue on ignition, which is usually a fair proof of adulteration, was due to normal constituents and not to adulterants, and by ridicule he tried to secure a silence which he could not purchase.

CANADIAN CORDAGE CO.

The annual meeting of the Canadian Cordage and Manufacturing Co. was held at Peterboro, May 3rd. There were shareholders present from various parts of Ontario. They make a thorough inspection of the company's plant, and, the Examiner states, were unanimous in agreeing that they were

NOT FOR
PUBLIC
BY

interested in the most modern and best equipped cordage factory on this continent. They were particularly pleased with the new and up-to-date machinery and labor-saving devices which the company have installed. They were all loud in their praises of the splendid quality of rope and twine which the company manufactured from day to day, in such large quantities. They were particularly struck with the hum of industry that is produced by the electrical motors installed in the various departments of the factory, which operate the extensive machinery. They regarded as a high tribute to the successful management of the company the fact that 500-h.p. could be supplied to the factory at such a low cost as \$10 per horse-power per annum, in the face of the fact that the most modern steam engines of similar capacity can only supply such power for the same purpose at a sum not less than \$12,500 per year in excess of the amount paid for electrical power.

The reports of the directors to the shareholders shows that the company now have a paid-up capital of \$498,455.60, and that the net profits, down to the 7th of February, 1904, are \$36,170.30.

The company last year sold for delivery in the United States 1,200 tons of twine, and have this year sold and delivered in different parts of the United States over 1,500 tons of standard twine. The trade of the company in binder twine, rope, and lath yarn has extended from the Atlantic to the Pacific.

The directors elected for the ensuing year are: Adam Hall, president; John Lang, M.P., and W. H. Meldrum, vice-presidents, and John A. Bennett and James S. Latimer.

MONEY IN ROUGH GLOVES.

The Winnipeg Commercial remarks that although fine gloves are imported, the article of domestic manufacture is not to be despised. Canadian staples are good quality gloves and mitts for workmen, such as miners, drivers, mechanics, telegraph linemen and others. There is an impression abroad among some retailers that this class of trade is not worth consideration because the goods must be rough and of no particular value as profit producers. The idea is quite mistaken, as there is more money in these lines than in fine kid gloves. Lines that are selling well this year are made from calf, horse and elk skins. There is a good profit in high grade workmen's gloves and mitts, and an established reputation for first-class goods brings its own reward.

A boot and shoe dealer in a Western Ontario town has built up a good trade in this line. His store was situated near the railroad works, and railroad men learned that this man kept first-class gloves at reasonable figures, and came from all parts to patronize him. Wherever there are miners, telegraph linemen, railroad men or machinists, there should be a field for workmen's gloves and mitts.

CANADA'S COTTON IMPORTS.

A return laid before the House of Commons, at Ottawa, May 4th, shows that in 1898 there were imported into Canada 58,203,847 pounds of raw cotton, and last year 67,942,139 pounds, valued at \$5,068,333. Manufactured cotton imports had increased in 1898 from \$5,250,437 to \$8,966,434. Great Britain in the period named increased her exportations to Canada of manufactured cotton from \$3,308,654 to \$5,768,640. Last year Canada only exported manufactured cotton to the value of \$678,940.

CANADA WOOLEN MILLS, LTD.

The sequel to the meeting of the creditors and shareholders of the Canada Woolen Mills, Limited, reported last month, was a demand of assignment made by Long & Bisby, wool dealers, Hamilton; W. T. Benson & Co., wool dealers, Montreal, and Estate of E. T. Carter, wool dealer, Toronto, followed by an application on the 26th April, by the Dominion Bank, for a winding-up order. The bank is a creditor for \$246,403, Long & Bisby for \$82,000, E. T. Carter for \$30,000, W. T. Benson & Co. for \$25,000, Oelrich & Co., wool dealers, of New York, for \$20,000, while other smaller creditors total between \$15,000 and \$20,000, making the company's aggregate liabilities about \$420,000. Judge MacMahon granted the order and appointed the company's secretary, George Davidson, to be provisional liquidator. The bank's petition stated that the nominal capital of the company was \$2,000,000, divided into 20,000 shares of \$100 each, of which it was understood that 7,510 shares were fully paid up. By supplementary letters patent of April, 1902, the capital was decreased to \$1,954,000; that of the amount for which the bank was creditor, \$240,472, was past due; that it was important that the mills should be kept running under authority of court for a reasonable length of time, and that James S. Cartwright be empowered to appoint a permanent liquidator. After discussing matters at Osgoode Hall, W. D. Matthews, Geo. T. Benson, W. D. Long, H. J. Carter and Reuben Millichamp were appointed a board of inspectors, and it was decided to go on manufacturing for one month dating from April 12th, using up the stock of raw material on hand, an endeavor being made, meantime, to form a new company or reorganize the present one, so that such of the mills as were running at the time of the assignment might be kept running still.

The mills originally comprised in the company were the Markham woolen mills, the Lambton mills, the Gillies and Hawthorne mills, at Carleton Place, the Brodie mills, at Hespeler, and the Waterloo, Ont., mill. The Lambton mill was destroyed by fire and not rebuilt; the Markham mill, which had proved a thorn in the company's side, was surrendered back to R. Millichamp, its former owner, who received \$10,000 cash; the two mills at Carleton Place had been closed for some months, and the Hespeler mill, which formerly employed 500 hands, was running with only 150, and these working short time. The Waterloo mill was also running only 40 hours a week with 175 hands at the time of the assignment. This was the situation when the crisis in the affairs of the company came.

Before the assignment, an offer was made by Mr. Long to pay off all the liabilities at 100 cents on the \$1, and keep the mills running, but this offer was opposed by Messrs. Matthews, Eaton and Millichamp, and the affairs of the company were thrown into court.

Millichamp, Coyle & Co., commission merchants, are selling agents for the company, and Reuben Millichamp of that firm, has been intimately connected with the company's finances, as well as the general management of the company.

One of the incidents since the meeting of creditors on the 12th ult. was the issue in the name of the company, of the following circular, dated April 13th, and addressed to the trade:

"To avoid misunderstanding, we take this means of informing you that our company are still taking orders, and all orders accepted by us will, as heretofore, be filled on the terms and at the date agreed upon without fail. Any repeats of present orders should be with us as soon as possible."

The Montreal Herald published a photographic reproduction of the circular, and it was taken up by the party press

and in Parliament, where it was quoted as a proof that the calling of the creditors was a mere bluff to influence tariff. This notion was exploded by the logic of subsequent events.

A further hearing of the case was held in Toronto, on Friday, 6th inst., when Mr. Davidson was appointed permanent liquidator, and it has also been decided to continue manufacturing up to the 25th inst.

HONOR TO POWER LOOM INVENTOR.

A building costing \$275,000 has just been opened in Bradford, England, which is intended to commemorate the services of Dr. Cartwright, the inventor of the power loom and of the wool-combing machine. The structure, which is known as the Cartwright Memorial Hall, was practically a gift to the city by Lord Masham.

In the course of his remarks, on the opening of the hall, Lord Masham spoke of the world-wide importance of the power-loom, as follows: But there was something which he (Lord Masham), did not see when he first thought of this memorial. He was at that time thinking of combing as the thing which he (his Lordship), had been most interested in. But there was yet another industry, which was perhaps of more importance. At any rate, it would be known for all time throughout the world. Wool-combing was a local occupation. The loom was an instrument that would be used over the whole world. From the earliest beginnings of history weaving existed; it was the first art. In China, Japan, Egypt—in all the ancient nations of the world—there had always been more or less weaving. When they cast their eyes over the expanse of 4,000 years and saw what that meant, and thought of the millions who had lived and died in that time, it was a proud thing to know that it was at last an Englishman—he would have been prouder still if he could have claimed him as a Yorkshireman (hear, hear)—who converted the hand-loom into a power-loom (applause). Of all the millions of men who had lived in Europe and in the whole of the nations of the world, the one to invent this machine was an Englishman and a clergyman. He did not think he was traversing much out of the way when he pictured in coming times—even in so short a time as a hundred years, and a hundred years was a short time when they were thinking of 3,000 or 4,000 years—that this power-loom should have travelled East. The power-loom was now our power and our strength, but he was not sure it would be so in the coming time. He was not sure that at the present time the power-loom was equal to supply the East with cloth. He was not so sure that the East, when they got the power-loom, would not be disposed to supply England. Was he far out of the way when he pictured a smart little Japanese coming to England to find out who invented the power-loom, and he came to Bradford and said, "Here stands the monument" (hear, hear)? That was a possibility (hear, hear). He did not doubt that in the coming time that building would be more sought after for that purpose than any other. Wool-combing was comparatively nothing; but the power-loom must cover the earth. Who invented the power-loom? An Englishman (applause). He did not think he need detain his hearers any longer. He was pleased and proud that day. It was indeed a great day to him, and the kind way in which he had been received quite overcame him. He could not say any more.

Dr. Edwin Cartwright was born in Nottinghamshire in 1723. He took out his first patent for the power loom in 1775. The machine is described as a somewhat rude contrivance, and it was greatly modified by various improvements. As is usually the case, Cartwright did not make money by

his invention. A manufactory which he started in Doncaster was a failure. This was largely due to the prejudice which then existed against the introduction of machinery. A large mill erected in 1792 and designed to utilize the invention was destroyed by incendiaries, and though the power loom gradually made its way, the inventor received no royalties. In 1807, Cartwright received a grant of \$50,000 from the Government, about one-fourth of the fortune he had spent in perfecting his invention. Nor did his wool-combing machine bring him any return. Unlike the power loom, it was not a practical success, though the principles which its invention had enunciated were developed by others. Cartwright died in 1820, after bringing before the world many inventions, including a motor carriage to go without horses.

An interesting feature of the exercises at the opening of the Memorial Hall, in Bradford, was the proposal of the health of the Mayor by George Cartwright, a great-grandson of the inventor. Still more interesting to Americans is the presentation made to the Hall by Mr. Cartwright of an original portrait of his ancestor, painted by Robert Fulton, the inventor of the steamship.

A number of personal souvenirs will be placed in the building by members of the Cartwright family.

Fabric Items

H. F. Bailey and R. C. Crawford, of Regina, are seeking a patent on a waterproof recently invented.

Word has been received from leading carpet mills in England that owing to the increased cost of worsteds, carpet prices must be advanced. The advance is general and ranges from 2d. to 6d. a yard.

Alex. Maclean, Canadian trade commissioner to Japan, who has been visiting trade centres before setting out for his destination, mentions woollen, cotton and rubber goods as among our productions which can find a market in Japan.

Sample fabrics, arranged in book form, provided with a neat cover, and a price list inside, to be distributed gratis among dealers, is a novel idea conceived by a firm of unshrinkable underwear manufacturers, who do business in Canada.

Twenty of the corporations in Fall River, Mass., engaged in the manufacture of print cloths, controlling sixty-five mills, have entered into an agreement to curtail production by shutting down two days a week. The action is due to unsettled conditions in the cotton and cloth markets. Ten thousand employees are affected.

The Gale Manfg. Co. manufacturers of whitewear, Toronto, whose factory was destroyed in the great fire of last month, have purchased the plant and business of the Crown Whitewear Co., on Colborne St., Toronto. The Crown Company's salesmen, office staff and plant will be retained, and new machinery will be installed in the same building for the new business. Meantime, a warehouse has been secured in the Long Building, Front St.

The International Harvester Company is now completing its twine contracts for 1904, and the season's prices have been announced. They are: Sisal, 10¼c.; standard, 10¼c.; standard manila, 11¾c.; manila, 12¼c.; pure manila, 13¼c. All of these prices are for twine f.o.b., Chicago, and are subject to a reduction of ½c. on orders for 10,000 pounds and less than car lots, and of ¼c. on orders for full carlots of 20,000 pounds or more. The International Co.'s prices pretty well regulate the market.

Quotations in linen are firm.

A new fabric is known as wooltels. It rivals French flannels in popular favor.

Japanese silks are about 5 per cent. higher than last season. The war has made them popular.

Canadian dealers in United States rubber goods have been notified of an advance in rubber footwear of from 7 to 10 per cent.

Samples have been received from London, Eng., of a new cloth called newtonette. It is a rainproof material and promises well. It will soon be placed on the market.

Grey cloths are still very fashionable among mantle goods. In shower proof garments, the navy hair line stripe is the proper caper and gun metal buttons are de rigueur.

Raw cotton shows signs of retiring to its proper level. After Sully's failure remarkable strength was shown, cotton going as high as 15.50. It is now down to 13.75 with signs of further retrogression.

Some of the silk mills in New Jersey and Pennsylvania are likely to close down. The silk men ascribe the dullness to the presidential election, the unfavorable weather and the reduction in the demand for high-priced goods on account of financial depression.

The corset factory of Belcher & Snider, 469 Queen St. W., Toronto, is to be disposed of at auction on the 18th inst. as a going concern. The machinery and plant is valued at \$1,200, stock in hand, \$7,000, and interest in the patent of "B. & S." corset at \$2,500, with office furniture, \$500.

There has, during the past month, been a determined effort of the knitted goods manufacturers to catch up to their orders, and wholesalers are making less complaints. The backward season has helped the retailer very much as the demand for light weight underwear has been delayed.

The German surtax has turned the supply of cotton hosiery from Germany to our home factories. Canada has long manufactured a first-class article, but Germany continued to keep a great part of the trade until this year. Wholesalers report themselves well satisfied with the qualities that are being shown and the prices quoted by Canadian houses. This benefit to the home knitting mills is one of the principal beneficial results of the surtax.

Advances in the cheap cotton lines of hosiery have been continual, and since the first of the year they are some 25 per cent. higher. Though all lines of underwear are dearer, there has been no slackening in the demand. Fleece-lined goods for fall are certain to be considerably higher in price. The price that wholesalers are paying was figured on a basis of 11c. cotton, whereas cotton now is around 14c. The advance which retailers are asked to pay is about 25 per cent. The advance in fleece-lined goods is making a better demand for Scotch knit woolen garments. These to retail at 50c. are expected to be excellent property for the fall and winter seasons, 1904-05.

About the 1st of February last, a seizure was made at Brockville of eleven bales of upholsterers' plush, which had been smuggled. Communications between the customs department, at Ottawa, and the local customs officials have been going on, and the goods are now to be sold. Shortly after the seizure, D. J. O'Grady, of Montreal, was detailed to investigate the case and with the assistance of two Brockville customs officers, the facts of the smuggling have been probed to their very bottom. The officers visited Morristown and going over the books of the freight agency there, got the date of every consignment which arrived there from the manufacturers in New York, the price paid for the freight, the way bills, and to whom addressed. It was found that the oper-

ations stated in July, 1902, and continued until a day or so before the goods were seized in February. Altogether about sixty-eight or seventy bales were smuggled across, the total value of which is placed in the neighborhood of \$5,000. The goods after being safely ferried across the river, a good many of which were brought over in row boats during the summer months, were taken directly to the Grand Trunk station and from there shipped to the owner in Montreal, a former resident of Brockville. With the exception of the eleven bales seized, these goods are beyond the call of the customs department, but the investigation was made to show how much had been smuggled and to whom the goods were consigned. The goods seized are valued in the neighborhood of \$685, and if the sale price comes near to the valuation, the three officers who made the seizure will each receive about \$50.

BRITISH WOOL AND TEXTILE MARKETS.

(Correspondence Canadian Journal of Fabrics)

Our market still continues in a similar position to that reported last month, coarse qualities and crossbreds being firmly held, and botanys showing a slight weakness.

The market at Roubaix, which is the seat of the French woolen manufacture, has been and is at present very disorganized on account of a general strike amongst the weavers; a settlement, however, is expected very shortly. The cause of the strike was that by a law recently passed, ten hours is made the maximum day's work. The operatives claim the same wages for the present ten hours' day, as for the former eleven hours' day, and in addition struck for the recognition of their union. The manufacturers have met them on the wage question, but decline to recognize the union.

From Mazamet, we are informed that the market is practically exhausted of crossbreds and low wools.

In Germany, business seems to be improving a good deal, and advances are being more readily paid.

The news from Buenos Ayres is contrary to what might have been expected, as it appears that the holders, instead of selling at current rates, are accumulating stocks.

A cable just arrived from Brisbane states that the number of sheep in Queensland has increased by over one and one-half millions during the last year. The statistics issued by the Board of Trade show an increase during the last six months of one-half million pounds sterling on wools, with a decrease of over one-quarter of a million on worsteds. In fact, the exports of wools have been larger than those of worsteds. The exports from the United Kingdom, as a whole, are far from satisfactory, still decreasing, whereas imports are increasing.

The exports to Canada of woolen tissues show an increase of over 100,000 yards, against February, and for the three months ending March, of 500,000 yards, against the three corresponding months of last year. In worsted tissues the decrease, on the other hand, is 100,000 yards and 440,000 yards for the three months.

A great event in Bradford during the last week has been the opening of a Memorial Hall, erected by Lord Masham at an expense of over £50,000 to the memory of Dr. Cartwright, inventor of the circular comb and power loom, which have had such an immense influence on the textile trade. This Memorial Hall has been erected in Manningham Park, it is a very imposing stone structure and will be used mainly as an art gallery.

To commemorate the opening of this edifice, it has been

arranged to hold a Textile Exhibition, which is to be opened on the 31st of May by the Prince and Princess of Wales. We understand the exhibits will consist mainly of textile machinery and products, and that the principal local firms, as well as others, are exhibiting.

Bradford, April 20th, 1904.

YORKSHIRE WOOL TRADE AND THE TARIFF.

The following letter from Lord Masham is a sample of the lively literature that is circulating in Great Britain on the fiscal question, this communication having special reference to the textile trades:

The Statistician of the Free Trade Union, Chiazza Money, has in a letter to the Times put forward anything but honest figures. For 1902 he puts 613 millions of wool as being retained for home consumption, whereas it should be: 1901, 613 million pounds; 1902, 562 million pounds, or a drop of 51 millions! This he conceals, and then proceeds to argue that the consumption of wool for goods made for home use had largely increased, which I am pleased to say is true. But the consumption of wool for goods made for foreign—mark, for foreign—export has decreased more. This also he takes care to hide. With such a flagrant attempt to mislead the public, we may well refuse to believe any free trade figures.

We had in 1850, and more so in after years, a considerable foreign export trade in wool goods, but after fifty years of free imports and hostile tariffs we have lost it altogether, and instead of exporting, we are now importing! Not very pleasant.

In 1890, we exported £20,418,000 of wool goods. Of this amount the foreigner took eighteen millions and sent us back nine millions, so that he took nine millions more than he sent us in exchange, and the colonies took two millions. About twelve years after, that is, 1902 (last year), we exported 15,271,000, of which the colonies took six millions, and the foreigner nine millions. But he sent us ten, or a million more than we sent him! No one in the trade has known this! How could they, as they had never had the figures? Nor indeed had I until a few days ago.

So that now we are no longer exporters of wool goods to foreign countries, but importers. This must astonish the Yorkshire manufacturers, but it is absolutely true.

But in spite of our loss of foreign trade, Yorkshire, and the nation generally, may be said to have been fairly prosperous. No one appears to know why, but there is not the slightest doubt as to what is the cause. Yorkshire, and the nation generally, has largely made up for it by developing the colonial trade, as we now export to the colonies and British possessions six millions of wool manufactures, which, although less in amount, is far more profitable, because instead of exchanging home goods for foreign, they give us just the things that we want, and must have—food and raw materials, viz., wool.

Much the same reasoning applies to the trade of the whole nation. We have now a colonial trade of 109 millions. The official figures show that we have lost our foreign Yorkshire trade to the extent of ten millions in the last twelve years, or at the rate of about a million a year. But we made up for it by gaining in the same time four millions of colonial, and six millions home trade; and this is confirmed by the fact that our consumption of wool during the last ten years has not diminished, but has been stationary.

Honest but benighted free-importers, and otherwise capable men, like Sir Swire Smith, who has opposed me all his life, have never ceased to contend that our loss of trade was

caused by lack of education. It is all nonsense to say anything of the kind, and it is quite easy to prove it. For, let the foreigner admit our goods free, as we do his, and then we should see whether Yorkshiremen were not still the best manufacturers, not of course excelling in all things, but in by far the greatest majority.

It is not the want of education, although we could well do with more, but it is having to fight hostile tariffs with free imports that is handicapping the country, and that applies to every industry in England.

But the Bradford, and I may also say the Yorkshire, free importers, have been so benighted and so blind, that they have for years protested against our making any change, and have persisted in saying that it might and probably would cause a tariff war and so endanger our foreign trade. Might I ask them, with the figures before them, have we any foreign trade to lose? Certainly and undoubtedly not. The foreigner does not now employ so much as one Yorkshire loom or spindle, for instead of giving us employment, he sends us his manufactures, and so deprives the workers of it to the extent of a million a year. And more, if this is allowed to go on, he will in a short time ruin the country. With such plain, positive and undoubted facts to guide them, there should not be, and I hope there will not be, a single workman in Yorkshire who will not support the Chamberlain policy.

But it is not new, or his own policy. It was discussed and formulated twenty-two years ago, by the six conspirators who met at Derby with closed doors, and three of them besides myself are still alive. It is not only not his policy, but he bitterly opposed it, as I have his speech now before me—and a wonderfully clever one it was for those days. He has gathered wisdom with unique experience, and has probably now a greater knowledge of colonial and British figures than any other statesman to-day. As head of a great business firm, as a leader in municipalities, as financier, as statesman, and as the greatest of Colonial Ministers, he has profited by unparalleled opportunities, and having exhaustively studied both sides of the question, offers the naked truth for his country's salvation.

Let me again warn the workers against being seduced by the cheap loaf cry. Let them remember the universal law of the world, no work no bread, and when the election comes, and it may be any day, let them vote solid for Chamberlain and the Empire.

MASHAM.

OUR WEIGHTS AND MEASURES.

Editor, Canadian Journal of Fabrics:—

Sir,—Two distinct and independent questions are involved in the present discussion of the Metric System.

First. Is the Metric System better than the English?

Second. Can our weights and measures be changed?

If the English system is as good or better than the metric, a change is plainly absurd. If the change is impossible an attempt to change is equally absurd, irrespective of the merits of the two systems. The metric advocates must prove not only that the change can be made, but also that the new system is better than the old one. If they fail to do either their case is lost.

In the extract you quote, the editor of the Canadian Engineer attempts to befog the issue by mixing these two independent propositions not only with each other, but with the Christian religion. If we must accept his views on theology, let it be with the hope that he is better informed on that subject than on French metric law. He says:

"Although the Metric System was proclaimed in 1793, it was not till 1840 that it was made compulsory in France."

Since Robespierre established the Metric System by a compulsory decree at the height of the Reign of Terror, in 1793, there has been no shadow of turning from the settled purpose to make the meter the single standard of France. The decimal despotism proved to be more than French flesh and blood could bear, and in 1812 the Government was forced to give back to the people the common fractions of their weights and measures. The metric basis was not changed. In 1837 a law was passed restricting, but not abolishing, the use of common fractions, and to-day French weights and measures are a standing proof that, to use the words of John Quincy Adams: "Decimals are not adapted to the wants of man in society." The earliest of the metric decrees are still in force in France. One illustration, the textile decree of 1810:

"Art. 1. On and after March 1st, 1811, all proprietors of spinning mills shall make the hanks of cotton, linen, hemp or wool, each 100 meters long, so that a skein shall measure 1,000 meters in length.

"Art. 2. These yarns shall be ticketed with the number of such skeins in one kilogram.

Art. 3. Violations of the foregoing provision shall be considered breaches of the police regulations and punished by a fine of not less than five nor more than fifteen francs for the first offence; the fine may be increased for a repetition of the first offence."

The following extract from the discussion at the Paris Metric Yarn Congress, in 1900, shows that this law of 1810 is a dead letter. The French authorities dare not try to enforce it.

Discussing the following resolution:

"Resolved: That the law of 1810 be enforced throughout France.

M. Isaac: I ask the suppression of that resolution.

A Member. Coercion has had no more effect than persuasion.

M. Cousin: It seems to me useless to stir up the Government to take up arms.

M. Isaac. Granted. It is necessary to maintain silence as to this article."

Here is a plain confession that the French can neither be driven nor coaxed into using the Metric System in textile manufacturing.

You bring forward the decimal currency to prove the superiority of the Metric System. The inherent differences between the uses of money and a system of weight and measure forbids any direct comparison between the two. Money measures that intangible and almost indefinable thing we call value, and for which numbers alone are sufficient. Its uses consist of adding, subtracting, multiplying and dividing numbers based on a decimal system. The measurement of value is made by counting numbers. That is why a decimal system is well suited for currency.

A system of weights and measures serves a totally different purpose, that of measuring length, area, cubic capacity and gravity of material objects. Here the measurement is made by manual operations, for which units of suitable size must be used. Standards of length, approximating our inch, foot and yard, are found in the oldest systems of weights and measures. The fact that these standards have been adopted by natural selection proves that they are the best for the daily wants of man. There is an innate relation between these standards and human needs, and they cannot be obtained by any decimal system. The meter and the English yard are ap-

proximately the same, but dividing the meter by 10 gives a length of 4 inches (decimeter). The foot is lost and there is no unit of length between 4 inches and 40 inches. Dividing the decimeter by 10 gives a length of $\frac{1}{10}$ -inch (centimeter). The inch is lost and there is no unit of length between $\frac{1}{10}$ inch and 4 inches. This is why a decimal system is not suited for measuring material objects.

The experience of Continental Europe confirms this conclusion. The inch is to-day the French weaving standard for counting the picks in cloth, and is found in general use in the so-called metric countries, Germany, Austria, Italy and Spain. The centimeter is too short, the decimeter is too long. The two-foot rule is superior to the meter for many daily measurements. It can be folded easily for carrying in the pocket and it is evident that many measurements, such as carpenters, masons and others are called upon frequently to make, can be made more easily with the two-foot rule than with the meter (yard) measure.

Moreover, each of our natural English standards can be and is divided decimally for calculations when desired. Thus we have now all the advantages of both a natural system and decimal divisions without the disadvantages of an exclusively decimal system. The English system gives us liberty; the French decimal system, like the government that founded it, is a despotism.

The metric cause must be in dire straits when it is necessary to use Messrs. McLennan, Blair & Co.'s book of yarn tables as evidence of British opinion. Those tables were compiled and prefaced by Matthew Blair of that firm with the official approval and collaboration of the Paris Metric Yarn Congress. They represent British opinion about as accurately as that Congress does. Mr. Blair has stated his views on the metric question in words too plain to be misunderstood. In April, 1895, he wrote as follows to the Textile Mercury:

"The Manchester Chamber of Commerce lately declared for the 'cotton count,' apparently for no other reason than that they were accustomed to it, and now the Associated Chambers declare for the French Metric System. No one who has a desire for a uniform system, and has studied the subject, would ever propose to introduce the French Metric System. That system is not adapted to express accurately the counts of heavy yarns, such as are used for rugs and carpets; and it is wholly inapplicable to yarns made up of strands of different thicknesses, such as eccentric, knop, and loop yarns, which are coming constantly into greater use. A system which is not adapted for every kind of yarn is manifestly undesirable. The 'decimal count,' as proposed by me is, as far as I know, the only one which fulfills the required conditions."

Look at the book from the preface of which you quote. Its twenty-four pages of yarn tables are a perfect wilderness of equivalents that make the head whirl and in which No. 40 English cotton yarn is reduced to such an impossibility as No. 67.72 metric.

In a recent letter to a prominent metricite in Washington, D.C., Mr. Blair says: "You in America will not get the full benefit of this book until we have the Metric System adopted. The book will no doubt conduce to that desirable result."

The Blair yarn tables are a foretaste of the chaos that will surely follow the introduction of the Metric System into English-speaking countries. Shall we sell our English birth-right for this mess of pottage?

You state in your editorial that: "The very confusion of

yarn counts, so well set forth by Mr. Dale, is the best argument that can possibly be used for a universal count based on the Metric System. If it were adopted by Great Britain and the United States, the largest textile manufacturing nations in the world, it would in a comparatively short time become practically universal."

All the confusion is found in metric countries. We have no confusion now. Our systems of yarn numbering are based on the English yard-pound. Each is used for a particular kind of yarn—cotton, worsted, linen, woolen or silk—and no confusion is possible; whereas, a century of the Metric System has left Continental Europe with over 34 systems of numbering yarn, based on a medley of aunes, ellis, canes, meters, pounds, livres, kilo and half-kilo, a condition that paralyzes the mathematical faculties.

Resolutions by the British Silk or any other association in favor of the Metric System are of but slight importance. French associations and chambers of commerce have been "resolving" in that direction for more than a century with the result, to quote M. Chedville, a French textile manufacturer, that "we (the French), scarcely comprehend each other when we talk of spinning at Reims, Roubaix, Elbeuf, Sedan, and Vienne."

There is probably not one French textile manufacturer who does not desire to use the Metric System. Why don't they use it then? Because they cannot make the change.

Your quotation from the Textile Mercury is a fair sample of the metric fallacy. Take the reference to the retail buyer, for instance. We are asked to adopt the Metric System because it is decimal. I answer that we cannot use an exclusively decimal system, and support my claim by pointing to the purchase of cloth by retail, in which the purchaser naturally divides the yard by successive halving and would never call for 5-10 of a yard, when she wanted $\frac{1}{2}$, or for 875-1,000, when she wanted $\frac{3}{4}$. Oh! exclaims the Mercury, these cumbersome decimal fractions are not used with the Metric System. We shall still continue to use halves, quarters, etc.

This is the abandonment of the decimal basis which is the very thing for which we are asked to change. Cannot the Mercury writer see that this is the collapse of the Metric case? If we are to retain our common fractions what is the use of exchanging the yard for the meter? Is it because it is French?

The Mercury writer expresses his confidence that our knowledge of the Metric System is purely abstract, and then exhibits his own lack of even abstract knowledge of either system by this statement: "The centimeter being equally as good a measure for the number of picks in a cloth as an inch."

Every weaver knows better than that. Franz Donat, professor of weaving at the Royal Weaving School, at Reichenberg, Austria, admits the inferiority of the centimeter: "The threads in warp and filling are gauged by the number per decimeter. The use of the centimeter is unsafe (unsicher), because from $\frac{1}{2}$ to 1 thread (even more in silk goods), may easily be overlooked."

The Mercury writer says that under the Metric System we shall use the meter and the kilo in place of the yard and the pound. But, when? If at once, what have the Matthew Blair yarn tables been compiled for? His reference to weighing cotton by cwt., qrs., and lbs., is mere trifling. Why does he not weigh by pounds as every one else does?

He attempts to smooth over the absurd metric names of textile units. In place of the common sense yard, inch, pound, ounce, dram and grain, we are asked to adopt such absurdities as meter, decimeter, centimeter, millimeter, kilogram, gram, decigram, centigram. Some Englishman has put

the case in a nutshell by saying that "the metric names resemble a party of foreigners in uniform; they all look alike and jabber alike."

The chaos of French weights and measures proves the impossibility of changing our English standards. All the conditions in France were in favor of success—a primitive industry, a small area, a small and stationary population, national pride, a habit of obedience to arbitrary law. In English-speaking countries, all the conditions are adverse—highly developed industries, a vast area, a large and rapidly increasing population, attachment to English institutions, hatred of arbitrary power.

Can you doubt that a greater failure awaits the attempt here?

The answer to both the vital questions is adverse to the Metric System. The metric case is thus reduced to the absurd proposition that we attempt the impossible and exchange a good system for a poor one.

In an English shipyard, two hundred years ago, Peter the Great hired half a dozen ship carpenters to go back to Russia with him and teach their trade to his people. One result of that apparently trifling incident is that to-day the English inch is the basis of all linear measurement throughout the Russian Empire. The Russian duim is the English inch; the Russian archin is 28 English inches; the Russian sajen is 84 English inches or 7 English feet; the Russian verst is 3,500 English feet.

This magnificent uniformity followed naturally the journey of a few humble English carpenters from their native shores. Compare it with the chaos following the attempt to introduce the artificial Metric System by force into the rest of Continental Europe. The French meter is the single standard of no country on earth and is firmly established only in over-populated Continental Europe with no chance for expansion.

The English inch is the standard for the world's work. It is in possession of the northern half of the Western Hemisphere, and reaches out toward the South. It is supreme on the steppes of Russia, rules the African veldt, the Valley of the Nile, and has no rival on the island Continent of Australia. It has invaded the mainland of Europe and forced imperial Germany to bend the knee. On the ruins of a metric failure, it makes two oceans one, and accomplishes the dream of Columbus. It moves on Asia with resistless power and dominates the islands and shores of the Pacific. It encircles the globe. It is no longer national. It belongs to the world. It is above temporal power. It rests upon the everlasting foundation of natural law. It measures progress. To debase it would be an offence against humanity.

"What fates impose, that man must needs abide,

It boots not to resist both wind and tide."

SAMUEL S. DALE.

Boston, Mass., April 26th, 1904.

DOMINION COTTON CO.'S ANNUAL MEETING.

The annual meeting of the Dominion Cotton Company was held at Montreal on April 28th. The principal business besides the annual report, was two motions by G. E. Amyot, of Quebec, to have a complete report of the operation of each of the company's mills separately prepared and submitted to the stockholders. He alleged that some of the mills were being run at a loss for the benefit of other mills. He moved that the meeting be adjourned until May 10th, in order to give time for the preparation of such a report. The motion was

seconded by Hon. Peter McSweeney. Several stockholders, who were dissatisfied with the lack of information provided as to the company's operations, joined in the discussion, and among other things, it was suggested that some of the directors used the knowledge which they kept from the shareholders to get rid of most of their stock just before the crash of a couple of years ago.

Senator McMillan said that the company's troubles were due, not to bad management, but to the preference granted to British manufacturers, the natural advantages of Lancashire being so great that they could pay the present 16-2-3 per cent tariff and still make a profit. Hon. Peter McSweeney replied that the company had made more money in 1901, under the present tariff, than in any year since 1896; also, that the company had done more business in the last year than ever before.

Mr. Amyot's motion was then put, and it was decided by a majority that it would do more harm than good to give the public too much information about the company's affairs.

The financial statement showed the net profits for the year as \$297,546. Out of this sum \$101,000 went to pay interest on bonds, etc. The sum of \$81,000 was written off for depreciation, and \$195,000 was added to the profit and loss account, making it \$864,000. During the year the sales amounted to \$3,942,000. The wage account amounted to \$806,000, and over three thousand hands were employed. The liabilities were reduced \$800,000 during the year, mainly by reducing stocks.

The assets of the company are given at \$9,798,822.05. The current assets are \$213,049.57, while the floating debt is over \$2,000,000. Deducting interest from the year's profits, the company appears to have earned about six per cent. on its stock, but officials state that if depreciation had been allowed for, it would have almost wiped out the profit.

In answer to a question, the secretary said that the bonded indebtedness amounted to \$3,300,000, and that the company owed the Bank of Montreal \$1,659,000.

The following directors were elected: Hon. L. J. Forget, James Wilson, Jacques Grenier, S. H. Ewing, C. E. Gault, A. B. Mole, and S. Carsley.



STOCKINGS WITH POCKETS.

Ladies' pockets, says the Hosiery Trade Journal, have so long been the source of wit in others and frantic misery in themselves, that their inaccessibility seems to be accepted with the resignation of despair. Some two or three years ago, the question was debated as to whether women should have pockets at all. It was the time of the tucked-in handkerchief and the purse carried in the hand—when purses were left on shop counters or even posted for letters in a despairingly pocketless effort to get rid of them. Things had reached a crisis. Woman declared that, as she had to go out, like man, to battle with the business of the world, she must have pockets like man. And she did. Woman, in fact—or at any rate the American woman—is no longer to have her pockets in her skirt and coat; she is going to have one capacious pocket in her stocking. For a New York contemporary, who shows an illustration of stockings with the new feature, says so; and further says: "Are hosiery pockets for women to supplant the dainty purse or reticule? Hosiery, who have made a long study of women's needs for pockets have introduced; under the guise of St. Louis Fair souvenirs, a big variety of women's stockings with pockets knitted near the top. As a rule, the pockets are done in bright colored silk, the designs being the Stars and Stripes, crossed flags or St. Louis

Fair inscriptions on pink or red silk. The pockets are three and a half inches in length and one and three-quarter inches broad, and are made, ostensibly, for the safeguarding of railroad tickets. Hosiery gravely announce that the new creations are the forerunners of a modified pocket-stockings, which will be fastened or buttoned, and is destined to contain the money or trinkets which madly carries about with her. These manufacturers, who are accustomed to study the needs of women in wearing apparel, even prophesy that skirts will be made, eventually, with apertures so as to render the pocket easy of access. The importers admit that neither they nor anybody else can venture to say how capricious woman will regard them. She may prefer the discomforts of searching through a muff for car-fare, or continue to worry about the contents of a chain purse on shopping expeditions."

There is certainly more novelty about the pocket-stockings than some other stockings which have come under our notice, such as the following: A new stocking has been introduced of a superior fabrication. First of all the seam on the side instead of down the centre, which is an advantage to people having delicate feet. This stocking at present is only seen in ecru and in white, and is known as the *semelles d'or*, but we shall soon have it in the new shades.



REINDEER HAIR AS FIBRE.

The United States Consul-General, at Frankfort, Germany, draws attention to the woolly hair of the reindeer as being suitable for the manufacture of a certain class of textile fabrics. From time immemorial, the Laplanders have known how to manufacture coarse blankets from the hair of this animal, which gives excellent protection against moisture and frost. In the markets and stores of Norway, Sweden and Russia, garments and blankets of reindeer wool are to be had at lower prices than other fabrics. In Vienna, there is a factory which manufactures garments of reindeer wool, especially bathing costumes, for which latter purpose the wool of the reindeer would seem peculiarly adapted. The reason for this is that the hair has not a hollow inside space throughout its whole length, but is divided or partitioned off into exceedingly numerous cells, like watertight compartments. These are filled with condensed air and their walls are so elastic and at the same time of such strong resistance that they are not broken up either during the process of manufacture or by swelling when wet. The cells expand in water and thus it happens that a man clad completely in garments made of reindeer wool does not sink when in water, being buoyed up by means of the air contained in the hundreds of thousands of hair cells. In England, too, attention has been directed to this peculiar property of reindeer wool, and it is proposed to take up its manufacture and possibly improve it.



NEW CANADIAN RAW SILK FACTORY.

The new Canadian raw silk factory, briefly referred to in a recent issue, is located at Toronto Junction, in the old Wagner building, off Dundas street. It started operations on the 3rd February, and at present employs about a dozen hands, but it is intended to enlarge the works later on. There are a number of patents for the production of artificial silk, the process adopted in this case being the invention of C. H. Stearn, an Englishman, who has a factory at 32 South Broad street, Philadelphia, under the name of the General Artificial

Silk Co., of which this is the Canadian branch. The Canadian factory, which is operated by steam power, is under the local management of G. O. Hamlin, and manufactures goods suited for silk dress goods, laces, silk tapestries, braids, fringes, etc. These two factories are said to be the only ones in operation yet in America, but a number are turning out artificial silk in France, Germany, Austria, and Great Britain, under various patents.

The Toronto Junction factory, we understand, will be able to turn out 100 lbs. of skein silk per day. It is prepared for the market in skeins of 500 yards, and a pound is worth about \$5. The raw material of artificial silk is cellulose, which is present in vegetable fibres, such as cotton, wood pulp, etc. The silk at the Junction factory is made from spruce pulp, the pulp being at present imported from Sweden. When the requirements are understood by Canadian pulp manufacturers no doubt the material can be furnished here, as Canadian spruce is equal to any in the world.

The process of manufacturing silk from cellulose has been described in this journal on several occasions within the last few years, and though each of the patents extant have different processes, the general principle of all is the same. The cellulose is dissolved in chemicals, and when the material has become gelatinous, it is filtered and pressed through tubes one-tenth of a millimeter or 1/250th of an inch in diameter or smaller. When the threads are formed out of these tubes they are hardened, and the chemicals washed out in various ways, and the thread is then reeled for the market.

The following from the Textile Mercury will be of interest in this connection, as showing the present status of the industry in Europe: The idea of looking for a cheap substitute for the natural silk is not so new as is generally supposed. Over 160 years ago Réaumur—of thermometer fame—wrote: "Seeing that silk is only a liquid gum dried, would it not be possible for us to make silk from gum or its preparations? This idea, which at first may appear somewhat chimerical, will cease to do so when it is thoughtfully examined. We have already arrived at the point of making certain gums possessing the essential properties of silk, and if we could obtain threads of gum it would be possible to manufacture fabrics which would imitate silk in substance and lustre. The difficulty would perhaps be in getting threads sufficiently fine, though in face of what has already been achieved in the various branches of industry, even this might not prove impossible." Nearly 150 years elapsed before the idea thus expressed took practical shape—for it was not until the year 1885 that Chardonnet made known his experiments in the production of artificial silk. Later came Vivier, Lehner, Cardoret, and others, but their processes varied only in detail, the underlying principle being the same in all. At the present time, however, there are, generally speaking only two systems employed—Lehner's and Chardonnet's—the principal difference between them consisting in the varying character of the collodion from which the artificial silk is produced, and the different methods employed in spinning. In the case of Chardonnet, the collodion is spun in a dry state, while Lehner adopts the method of spinning in the wet.

The largest factory in France for the production of Chardonnet's silk is in Besancon, where about 300 workpeople are thus employed, with a daily output of about 400 kilos. (880 lbs.) of silk. In Germany, too, there are several mills working very successfully; and these, in consequence of an increasing demand for this class of goods, are being continually enlarged.

In order to form an opinion of the extent to which artificial silk can be substituted for the natural product, it is necessary, first of all, to compare their physical and chemical

properties. Examined microscopically, artificial silk can be at once recognized by its great thickness. Tussah silk alone approaches anywhere near it in breadth of fibre, but even in this case certain characteristics peculiar to each become apparent under a more minute examination, making it possible to distinguish one class of fabrics from the other. Artificial silks without, exception, immediately swell on being immersed in water, whereby their volume is increased by one-third to one-half. On the other hand, the cultivated and wild natural silks do not swell to any appreciable extent. This property, which artificial silk possesses, is undoubtedly the reason why, when wet, it loses so much in the firmness of texture.

The silk produced after Lehner's method approaches very nearly in character to real silk; indeed, in some respects it excels. In color it is of an even white, is soft to the touch, and makes a noise very similar to that made by the real article, while as regards lustre it is much superior. Though the foregoing remarks apply generally to the other kinds of silk, Lehner's has the advantage in being only 7 to 8 per cent heavier than natural silk, while on the other hand the usual "collodion" silk has a somewhat heavy specific weight, varying indeed from 12 to 20 per cent. higher. This fact no doubt accounts for the considerable advance which Lehner's silk has made, while the offset which other imitations have had in a lower price have been counterbalanced by the greater weight of fibre.

It is only recently that artificial silk has been successfully produced of such fineness as 30 deniers—which means 260,000 meters per kilo. For purposes of comparison, it may be added that not long ago the finest artificial silk produced was 100 deniers, or 90,000 meters the kilo. This is certainly an important advance, and it will lead, there is no doubt, to a very extended use of this product in the manufacture of so-called silk goods, and more especially in regard to its use as weft.

Silk ribbons, with weft entirely composed of artificial silk, while being more than satisfactory in point of lustre, fall somewhat short so far as "feel" and evenness of texture are concerned. For several reasons the use of this artificial product is not recommended for necktie material. One is that it cannot be weighted—except in the case of black, which can be weighted from 15 to 20 per cent. Real silk weft, on the contrary, even in colors, can be weighted up to 40 or 50 per cent. The case is quite otherwise, however, when we come to consider weft for purposes of embroidery and designs, and of materials in which brocade effects were required, where weighting is undesirable or unnecessary. For passementerie, artificial silk is now even preferred to the real thing, and for embroidery work it is an excellent substitute, being much brighter in lustre and more pliant in texture. The designs, too, stand out in much better relief, no matter whether the ground-work be of silk, wool, or linen.

The most important question now remaining is: Can this artificial silk be used for the warp of silk fabrics? As far as experiments have gone at present, it has been found to be deficient in elasticity and firmness, and consequently cannot stand the strain to which warps are necessarily subjected when a fabric of close texture is required. In the case of loosely-woven materials, however, artificial silk is already being used as a warp, especially in goods which are mixtures of silk and wool.

As in every new discovery, the introduction of this silk as a practical factor in textile manufacturing encountered many obstacles, which have only gradually been overcome. It was not until the Paris Exhibition of 1889 that artificial silk may be said to have been placed before the public, and even

then it was of a very indifferent quality. Afterwards, French and Belgian firms took up this new industry, and devoted large sums of money to its development. In Germany, one firm introduced it with success in the manufacture of embroidery silks and trimmings, though for a long time little real headway was made, partly because the quality left much to be desired, and partly because manufacturers were unwilling to take up something which necessitated a change of machinery. The last was, of course, necessary on account of the fundamental difference in the real and artificial fibre, and it is only in the weaving and embroidery departments that no such alteration is needed. Another great difficulty was encountered in obtaining the necessary shades in dyeing—but this, for the most part, has been overcome, though the quality is still capable of improvement. The large merchants have, from the first, been very enthusiastic regarding this new material, and have expended large sums of money and encountered keen competition. Many companies also were formed for its exploitation, some of which to-day can barely exist, while others have already been wound up. It is very difficult for the buyer to perceive defects in the raw material, and it is only when dyed that the faults can be properly detected. So long, however, as inferior qualities are put upon the market, so long will lack of confidence in this new material interfere with the development of what might otherwise become a prosperous industry.

RAMIE MANUFACTURING.

In an article on the present status of the ramie fibre industry, the Indian Textile Journal says that in the process of degumming the greatest difficulty of dealing with rhea (ramie) up to within recent years, and the stubborn nature of the gums and resins in which the fibres lie embedded has baffled the chemist and the machinist. The process of degumming is one of a bleaching character, and is an acid and alkali one, but the use of too strong drugs or of certain drugs for too lengthy a period will damage the strength of the fibre and cause accumulated stocks of filasse, and the yarns and fabric to go "weak" or "rotten" in course of time. After leaving the hands of the degummer, it passes to the bleacher for bleaching or washing, preparatory to dyeing and printing, but here again if it has been over-treated in degumming, the silky lustre of the fibre is destroyed. To these causes are to be attributed the many failures to work rhea profitably. When rightly degummed, rhea filasse is a material closely resembling "fine flax," but more soft, rich and silky, creamy in color and glossy naturally. Under a right process, no polishing to secure a silky gloss is necessary. This is costly and the silky lustre artificially put on soon wears off. A degumming process must succeed in extracting all the fibre contained in the stems of the plant and do this cheaply, and the working of the process should be accomplished at a cost of bark ribbons, $\frac{3}{4}$ d. per lb. for fibre treated, or $1\frac{1}{2}$ d. per lb. for filasse produced, and China grass and decorticated fibre at half these prices. This means producing the filasse ready for preparing and spinning at about £22 per ton, and the article is equal in all respects to flax costing £45.5 per ton. There are several processes in existence at the present time which perform this operation of degumming satisfactorily, and the oldtime difficulties of the fibre going weak or rotten in the course of time, and of materials manufactured from ramie breaking, cracking or cockling under strain on the surface of the fabrics, and falling into creases which re-

main permanently in the cloth, are no longer met with. The brittleness and harshness of the fibre also is removed by a very successful process, the material produced being fine, soft and silky. The machinery to degum with is not costly, and the plant to treat several tons of ramie per week can be laid at a cost of £800 to £1,000.

In the spinning department as in the problem of degumming, the difficulties of working ramie profitably have arisen, but it is now thoroughly understood. The machinery most suitable is a combination of machines used for flax, silk and worsted spinning, but the fibre will spin well on flax, worsted or silk machinery, when subjected to certain alterations which can be cheaply and readily made, and yarns have within recent years been produced by all these systems. The fibre will not spin on a cotton ring frame on account of its high speed, nor is it right to card or willow it, as the latter breaks the fibres and destroys their lustre. After degumming, it is termed filasse, and in this condition it is passed into gill spreading machines, and worked into what are termed slivers. These pass through a further set of gill machines, by which they are opened out and levelled, in which condition they are ready for the combing machines by which they are combed and separated into three qualities—first, second and third. The first quality is used for plushes, velvet dress materials, damasks and fine goods; the second for handkerchiefs, middle class linens, hosiery, sewing threads, fishing lines and nets, hose piping and belting; and the third, for heavy goods, such as tent canvas, sail-cloths, cordage, etc. Each quality should be passed through a special set of drawing, roving, and spinning machines adapted to that particular quality. This produces the particular yarns for which each quality is most suitable. Special care should be exercised in the selection of the machinery for combing. These machines should not break or shorten the fibre, but clean it thoroughly and remove all "noil" or waste. A good machine should produce about 300 lbs. per day. The fibres then go through a process of drawing, which is effected by passing through a series of gill drawing machines, care being taken that the slivers are delivered as straight as possible from one machine to the other. Slivers for the best yarns are passed through a second combing and then through a special set of re-gilling machines.

This renders them fit for spinning into high class yarns, for artificial silk goods, expensive fancy fabrics, etc. After drawing, the slivers are transferred to the roving frames, and the roving passes to the spinning frames, where it is spun into yarns. When rightly degummed, no difficulty will be experienced in regard to breakages, knots, or tangles, and in spinning the fibres give about eighty-one per cent. of good quality fibre, and nineteen per cent. of noil or waste is saleable for the manufacture of shoddy goods, blankets, etc. The fibres can be spun into very fine yarns as high as 168's.

These fine yarns rival silk in beauty of appearance and wearing qualities. Female labor can be largely used in preparing and spinning of the fibre. Manufacturers can now purchase the requisite machinery easily on the open market and strenuous efforts are being made in various directions to still further improve on what has already been done. The cost of spinning ramie is the same as the cost of spinning flax. Care should be taken in selecting any mill for ramie spinning that it is compact, the cost of haulage not too high and the plant used should be new and thoroughly up-to-date. Any slight tendency which the fibre has to brittleness, harshness, and non-elasticity does not

interfere with its successful spinning when the right plant is employed, and controlled by an experienced over-looker. The yarns may be counted on the silk, worsted, cotton, or flax scale, according to the views of the spinner.

The weaving of ramie presents no difficulty. It will weave on any loom, and it mixes well with other vegetable fibres and silk. Care should be taken in this department as well as in all operations leading up to spinning to keep the ramie materials under process of manufacture separate from other goods, as special dyes being necessary to dye rames, wherever particles of ramie light on other fabrics, fouls will be caused in the dyeing of the same.

Business Notes

The Sovereign Mfg. Co., Montreal, has dissolved.

The Empire Cloak Mfg Co., St John, N.B., is the name of a new firm soliciting trade.

The Canadian Colored Cotton Mills Co. paid their usual quarterly dividend on the 15th of April.

The population of Carleton Place has decreased 67 during the past year, attributable, no doubt, almost entirely, to the closing of the woolen mills.

The Geigy Aniline and Extract Co., New York, has removed its offices to No. 69 Barclay street. This company is represented in Canada by T. D. Wardlaw, of Toronto.

The W. R. Brock Co., burned out in the great fire, have purchased the property of the Rolph, Smith Co., adjoining their former premises, and will erect a four-story factory. Their new warehouse, on the site of that burned, will also be four stories.

A fire broke out in Thomas Sonne's tent, awning and sail factory, corner of Commissioners and St. Sulpice streets, Montreal, on the 3rd inst., resulting in a loss of about \$15,000 to the stock. As the busy season is just opening, the stock was complete and was valued at \$20,000. It was partly insured. The fire is supposed to have been caused by an electric wire.

At the annual meeting of the Colonial Bleaching and Printing Company, held at Montreal, the statement of the past year's business was submitted, and found very satisfactory. The following board of directors was elected: H. S. Holt, A. Racine, C. R. Hosmer, Frank Pault, George F. Hartt, W. T. Whitehead, G. W. Stephens, Jr. At a subsequent meeting of the board, H. S. Holt was elected president, and A. Racine, vice-president.

On the petition of the St. Jerome Water and Electric Light Company, Limited, (Hon. R. Mackay and E. G. Sills), an order has been granted to wind up the Boston Rubber Company, of Montreal, Limited, in liquidation, the proceedings being in accordance with a resolution passed by the Rubber Company itself. James McGown, secretary-treasurer of the company, has been appointed provisional liquidator, and a meeting of creditors was fixed for May 5th.

Notice is given that George A. Burrows, of Paisley, in the County of Bruce, carrying on business as a carpet manufacturer, in the name of The Anchor Carpet Mills, has made an assignment to James C. Gibson, of Paisley, for the general benefit of his creditors. The failure is understood to be not a large one and a good deal of the trouble of the company has come from their being snowed in most of the winter, and, therefore not able to carry on their business without great drawbacks.

R. J. Whittle & Co., wholesale dry goods, Winnipeg, are adding two additional stories to their warehouse, and making a substantial addition to the area of the building, which was already one of the largest in Winnipeg.

Justice Trenholme, of Montreal, has maintained the action of H. Wener, manufacturer of waterproof clothing, asking that S. Vineberg, another manufacturer of similar goods, be enjoined from using and violating his label, or any label similar thereto, or differing therefrom only in color.

About 250 employees of the Consumers' Cordage Co., Montreal, have gone on strike for a ten per cent. increase in wages. Increased cost of living is given as the reason for their demand, but the company state they cannot pay any more, as their industry is not adequately protected.

The Sovereign Mitt, Glove and Robe Co., of Delhi, Ont., has issued a writ against the Simcoe, Mitt, Glove and Robe Co., of the same place, to restrain them from using the name Simcoe Co., as liable to deceive the public. The defendant company was formed by employees of the plaintiff company, and it is alleged that they represented the Sovereign Company, to have gone out of business.

A fire in the fur warehouse of Waldron & Drouin, at Montreal, on May 4th, did damage to the extent of about \$150,000, which is covered by insurance. A. Fred & Company, manufacturers and importers of hats and furs, had a large stock of goods completely ruined, and several other firms sustained more or less damage. The fire broke out in the wholesale district of Montreal, and for a time it looked as if there was to be a repetition of the Toronto disaster, but the firemen by hard work succeeded in preventing it from spreading.

A sequel to the Toronto fire is the opening up of a new firm, that of Thomas Ogilvie & Sons, of Aberdeen, Scotland, who have bought the woolen department of the Wyld-Darling Co., and the woolen and tailors' trimmings department of Charles Cockshutt & Company, and will establish a branch of their business in Toronto. This firm has not heretofore done business in Canada, but Thomas Ogilvie, the senior partner, had come out with a view of establishing an agency, and being at Niagara Falls at the time of the fire, he came on to examine the prospects, with the result announced. The firm has eight or ten mills making good from their own exclusive designs, and occupy a leading position in the British mercantile world. The business was established 54 years ago at Aberdeen, and has since been gradually extended to Glasgow, Edinburgh, into England, and over to Ireland. In taking over the business of the Wyld-Darling Company they have retained the services of J. B. Canavan, head buyer, and the larger part of the staff, including travelling representatives.

A will disposing of the estate of the late Andrew F. Gault, wholesale dry goods merchant of Montreal, has been entered for probate in the Surrogate Court of Ontario. Mr. Gault left \$2,292,000, of which \$71,259.84 is in Ontario. He leaves his wife an annuity of \$8,000 per annum, and the use during her natural lifetime of the family residence. After providing for relatives, a large amount is left to charitable purposes, the bequests being as follows: Royal Institution for the Advancement of Learning, \$10,000; Synod of the diocese of Montreal, \$10,000; Protestant House of Industry and Refuge, \$15,000; Bishop of Rupert's Land, \$2,000; Sabrevois Mission, \$1,000; Protestant Hospital for Insane, Verdun, \$2,000; Montreal General Hospital, \$5,000; Sheltering Home, \$1,000; Y.M.C.A., Montreal, \$1,000; Y.W.C.A., Montreal, \$1,000; Montreal Diocesan Theological College, \$12,000. To Emma Shelton is left \$1,000 of shares in the Montreal Cotton Co.; to Kate Shelton, \$2,500 in the Montreal Cotton

Co. and to three daughters of a brother of the deceased, \$7,000 between them in Montreal Cotton Co. shares. Mr. Gault was interested in the Canada Colored Cotton Mills to the extent of \$31,445, and in the Dominion Cotton Mills to \$40,714. He owned Winnipeg property, valued at \$24,600, also property in Belleville, and 3,000 fully paid up shares in the Gault Bros., Limited, worth \$300,000, besides street railway, bank, insurance, industrial, and other stocks.



THE WORLD'S GREAT DYEING WORKS.

Robert Parker, of Parker's Dye Works, Toronto, recently returned from a trip through the United States, Great Britain, France, Germany, Switzerland and Italy. During his trip he visited some of the largest dyeing establishments in the world. "My visit," said he, "to Pullar's Dye Works, Perth, Scotland, was full of interest, especially to myself, as one having a practical knowledge of the business. Over 1,800 hands are employed at the works, and 250 clerks at branch offices. The works contain, among other machinery, 50 steam engines, 52 steam boilers, all stoked by machinery; 1,400 dye vessels, mostly of the paddle wheel pattern; 130 sewing machines, 22 steam presses, and 56 hydro-extractors. One large finishing machine, known throughout the works as Jumbo, was built by Pullar's own mechanics at a cost of over \$10,000. They have a telephone exchange of their own to connect with each department. The premises are lighted by electricity, which they generate by their own power plant, besides supplying power for 150 motors. There is in connection a strong fire brigade, with 60 fire extinguishers and eight steam fire engines, and until recently a string and reed band of 140 instruments, all employees, but now the band is known under the name of the Town Band. There are large reading, smoking and concert rooms, and an elementary school under Government supervision." Mr. Parker was shown over this immense establishment by Mr. James Pullar, brother of Sir Robert Pullar, who is head of the firm.

Several other large works were visited in Paris, London, Glasgow, Paisley and in the States. Before leaving Perth, Mr. Parker arranged with a well-known firm of engineers to send out plans for a new French cleaning building and plant, which will be built in connection with his works in Toronto.



BOY WEAVERS OF PERSIA.

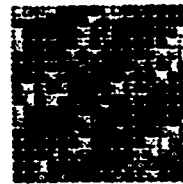
Boys from eight to twelve years old do a great part of the carpet and rug weaving in Persia. They are very deft. Having been shown the design and coloring of the carpet they are to work, the boys rely on their memories for the rest of the task. It is very seldom that you will see on any of the looms a pattern set before the workers. The foreman of a loom is frequently a boy from 12 to 14. He walks up and down behind the workers, calling out in a sing-song manner the number of stitches and the colors of the threads to be used. He seems to have the design imprinted in his mind. A copy of the famous carpet now at the South Kensington Museum is being made. The design and the coloring are unique, but the boys who are working on the copy are doing it without the design before them and at the rate of from thirty to thirty-five stitches a minute. Nothing but hand work is employed in the manufacture of Persian carpets and rugs, and none but natural or vegetable dyes are used. This accounts for the superior quality of the Persian products. The secret of the beautiful dark blue dye used in the older dyes has been lost.

COTTON OVERCOATS.

A recent announcement that well known New England woolen mills were about to extend the use of mercerized cotton in their manufactures caused no surprise to those who have followed the trend of affairs in wool and worsted manufacture of late years, remarked the Boston Transcript. The use of combed and carded cotton yarns that have been treated with caustic soda, which is the basic principle in mercerizing, or lustering, to take the place of the silk stripes in fancy goods as well as a substitute for worsted in making the entire fabric, has grown apace the past two years, and is evidently meeting a want that has been unsupplied heretofore. Mention was made in its columns some years ago of a consignment of clay worsteds that were sent there by the Bradford manufacturers in which there was no particle of wool, warp and filling alike consisting of long staple cotton, so manipulated in the weaving and finishing as to deceive even the expert buyers. Large numbers of lightweight overcoats were said to have been made from the material, and found a ready sale in that and other markets. The domestic manufacturers are doing now what the English makers did then, but are extending their field into the lighter weight goods for men's wear. Recent months have witnessed a larger output than ever of these cotton fabrics, designed for the clothing trade.

Textile Design

WOOLEN CHEVIOT SUITING.



Complete Weave.
Repeat 8 X 8.

Warp: 2,240 ends, 8 or 16 harness straight draw, all 4 run woolen yarn.

Reed: 8 X 4 = 70 inches wide.

Dress:

- 12 ends, gray.
- 2 ends, black.
- 1 end, crimson.
- 1 end, black.

16 ends repeat of dressing.

Filling: 32 picks per inch, all 4 run woolen yarn, arranged thus:

- 12 picks, black.
- 2 picks, gray.
- 1 pick, blue.
- 1 pick, gray.

16 picks repeat of pattern.

Finish: Woolen cheviot finish; scour well, clip on shear; 24 inches finished width.



FIBRE BOBBINS.

Cotton manufacturers, remarks the Textile Excelsior, are much interested in a new fibre bobbin or spool, which is said to be especially adapted for mill and electrical work. It is lighter and more durable than the paper bobbins imported from Germany, and can be produced at a cost no greater

than that of the wooden bobbin. The construction of the new bobbin is interesting. The barrel may be either of paper, wood or fibre, as desired; the heads are of vegetable fibre, specially prepared and hardened by a secret process, making it superior to laminar, and can be warranted not to warp, chip, or break with the hardest usage. These heads are swedged into the barrel of the spool by a patented wood bushing, which will always prevent the head from working loose, even on jack spools. The natural elasticity of the fibre is said to be greater than that of either wood or paper; the spools of any given size are declared to be absolutely uniform in weight and size, which is a valuable factor where quantities of yarn are shipped on spools, the variation in weight and yarn carrying capacity of which might be great. Owing to the less bulky construction necessary to attain equal strength and durability, a larger quantity of yarn can be wound on the fibre than on the wooden bobbin.



NEW COMPANIES.

Among recently incorporated companies in the textile line are the following:

The Moore Carpet Co., capital, \$100,000; Sherbrooke, Que.; to take over and carry on the property and business of the Dominion Carpet Company, now in liquidation. H. A. Moore, of Worcester, Mass.; H. D. Lawrence, L. A. Bayley, Wm. Morris, of Sherbrooke, and G. H. Howard, of Halifax.

Fisk, Limited; capital, \$100,000; Montreal; to manufacture leather and shoe findings. H. J. Fisk, A. A. Macdonald, Ed. Still, H. Cobb, of Montreal, and L. S. Odell, of Quebec.

Manitoba Bag Co.; capital, \$100,000; Winnipeg; to manufacture jute, cotton, and paper bags, twine, etc. H. L. Rutherford, of Westmount, Que.; C. A. Smart, W. B. Converse, A. W. P. Buchanan, and F. T. Enright, of Montreal.

The Horn Bros. Woolen Company; capital, \$100,000; Lindsay, Ont.; Alexander Horn, James S. Horn, H. J. Lytle, John D. Flavell and John Carew, provisional directors.

The Gilchrist Clothing; capital, \$40,000; Toronto; to manufacture clothing. C. M. Gilchrist, Jas. Constable, and J. H. Denton, provisional directors.

Avon Hosiery, Limited; capital, \$40,000; Stratford, Ont.; to manufacture hosiery and knitted goods. D. M. Ferguson, B. M. Williams, and R. L. Baker, provisional directors.

W. H. Scroggie; capital, \$600,000; Montreal; to carry on a departmental store, manufacture clothing, etc. W. H. Scroggie, and others.

The Essex Flax Mills Co.; capital, \$50,000; Essex, Ont. A. H. Raymond, S. K. Cohen, M. J. McCormick, E. A. Wismer, of Essex; Wm. Henry, Levi Henry, of Belle River.

A. McGillis Company; capital, \$30,000; Port Arthur; to manufacture and deal in wearing apparel. B. Rantenberg, G. W. Brown and A. McGillis, provisional directors.

The Alvinston Flax Co.; capital, \$25,000; Alvinston, Ont.; T. A. G. Gordon, V. S. Harkness, A. B. Connor, D. C. Munro, W. H. Murray, provisional directors.

The Morden Woolen Mills Company; capital, \$30,000; to take over as a going concern, the Morden Woolen Mills. A. C. D. Pigot, Fanz Schneider, C. F. Heckles, J. H. Black, J. J. Lane, J. H. Ruddell and A. W. Bowen, all of Morden, Man.



—There is a great exodus of Lancashire cotton spinners to Canada.

ACID BLACKS AND LOGWOOD IN THE SAME BATH.

While logwood, as a black dye for wool, has now been completely displaced by the acid blacks, many of which are excellent, and for some classes of goods meet every requirement, there arises instances where combination of the two dyes might be used in the production of handsome shades.

The following formula, based upon extended experience in dyeing worsteds, ladies' cloth, eskimo, cheviot and worsted cheviot with this process will convey a very good idea as to its adaptability:

	Lbs.
Logwood extract	8
Wool black (acid color)	4
Copperas	5
Bluestone	2½
Oxalic acid	2½

The logwood is first added to the dyebath and boiled thoroughly, followed by the copperas and bluestone, then with half the oxalic acid, and the acid black previously dissolved in hot water.

Enter the goods, boil for one hour or more, and observe the color of the dye liquor, which, when it is exhausted, should have a clear amber color. If it does not, additional quantities of oxalic acid should be given until the desired result is obtained.

Instead of the ordinary logwood extracts, the hematines can be used with very good results. Originally chipped logwood was used, but as it is saving considerable time to use the dry or paste products, these latter have the choice.

The results obtained by this process are excellent, the shade is full and bloomy, and when finished is the equal of chromed stock, while the cost is much less.

The cloth should be well scoured and washed to remove all traces of soap, so as to ensure level results. Any tone or reasonable modification of shade can be easily made by using a fast acid yellow, a fast acid red, or an acid green with the acid black, without altering the dyeing process.—Textile World Record.



F. S. Johnstone, designer for the Geo. H. Gilbert Mfg. Co., of Gilbertville, Mass., large manufacturers of woolen and worsted goods, is coming to Canada to start a knitting mill. Mr. Johnstone will locate in St. Thomas, Ont., where he has secured a factory building, and expects to start installing machinery in July. He will use electric power and will manufacture medium and fine hosiery, which will be sold through an agent direct to the retail trade. The Gilbert Mfg. Co., in which Mr. Johnstone is now employed, is one of the largest woolen and worsted mills in Massachusetts, having 30 sets of woolen cards and seven worsted combs.



—The manufacture of silks and velvets by steam-powered machinery in France has driven the hand-loom out of thousands of households in Lyons, notwithstanding the struggle to introduce electrical power into family service. The looms have been transferred to the country into farmhouses, where they can be utilized in the winter and in weather unseasonable for out-of-door work. In farmhouses for a distance of 100 miles around the city, men, women and children put in their odd hours at work on a loom, generally manufacturing mousselines and the finest of silk velvets. It is proposed to connect many of these isolated looms with a current of electricity, thus introducing power, light and heat into the poorest households of the country.

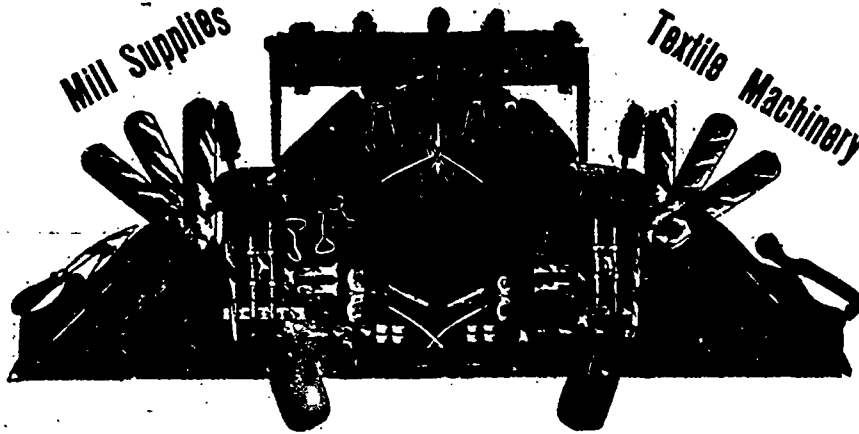
C. E. RILEY & CO'Y.

281-285 Congress Street, Boston, Mass.

Builders and Importers of
COTTON, WOOLEN, WORSTED MACHINERY

**CARD CLOTHING, EMERY FILLET, EGYPTIAN COTTON,
 SPINDLES, FLYERS, FLUTED AND SHELL ROLLS, GRINDING ROLLS, &c.**

GEORGE REID & COMPANY, WOOL



Sole Agents for
Hamilton Cotton Co.'s
 Beam Warps, Mule-
 Ropes and Spindle
 Bandings.

Samuel Law & Sons
 H. & T. Steel English
 Card Clothing.

Francis Willey & Co.
 Bradford, Eng.
 Wools, Tops, Noils.

English Leather
 Belting.

J. Smith
Woolen Machinery Co.
 PHILADELPHIA.
 Carding, Spinning,
 Pickering Machinery.

Crompton & Knowles
Loom Works.
 Looms for weaving
 every description of
 Fabric.

Prince, Smith & Son
 KEIGHLEY, ENG.
 Worsted Spinning
 Machinery.

Office—11 & 13 Front E.
 Warerooms—138 Esplanade E.
 (Foot of Jarvis St.)

TORONTO

Telephone, Main 3591
 Night call, North 2561

G. THOMPSON.

J. S. MITCHELL.

THOMPSON & CO.

SHERBROOKE, QUEBEC.

Manufacturers of

Bobbins and Spools

OF EVERY DESCRIPTION

For Woolen, Cotton and Rope Mills. Extra facilities for
 supplying new mills and filling large orders.

Correspondence Solicited. Orders Promptly Filled

Fred. Baker, manager of the wool stock mill, at Stratford, was caught in the machinery on April 19th and so injured that he died the next day in the hospital, his spine being fractured. He was a prominent athlete and a general favorite.

—The Boston & Nova Scotia woolen mills, Boston, Mass., and Eurcka, Nova Scotia, have been incorporated under the laws of Massachusetts, to manufacture woolen cloths in Massachusetts. Capital, \$150,000. H. K. Fitzpatrick, of New Glasgow, N.S., is president; James Stewart, New Glasgow, is treasurer, and F. W. Farley, New Glasgow, is one of the directors.

THE NEW

French Shoddy Picker Machine

SUPERIOR TO ALL OTHERS.

High Test Awarded at Paris Exposition, 1900.

Of SILK WOOL, COTTON, WASTE, JUTE, etc., it will produce fifty per cent. more production than the Garnett Machine on one-half the power.—Has no rival on the market.

Toronto Worlen Machinery Company

118 D E STREET, TORONTO.

L. REDANNAZ, Manager.

Sole Agents for Canada and the United States.

Prices on Application.

Prices on Application

—The J. W. Scovil Co., St. Stephen, N.B., has been incorporated with a capital of \$20,000, to make men's and women's clothing and carry on wholesale and retail business.

—The annual meeting of the Colonial Bleaching and Printing Company was held at Montreal, April 26th. The statement of the past year's business was submitted and found very satisfactory. The following board of directors was elected: H. S. Holt, A. Racine, C. R. Hosmer, Frank Paul, George F. Hartt, W. T. Whitehead, G. W. Stephens, Jr. At a subsequent meeting of the board, H. S. Holt was elected president, and A. Racine, vice-president.

—Ex-Provost Clark, of Paisley, England, has been relating the origin of cotton sewing thread, which was first used in that town in the weaving of "heedles" as a substitute for silk, which was stopped by Napoleon in 1803, when he seized Hamburg. Mr. Clark's grandfather and his brother then bethought them of cotton, which worked so smoothly that Mr. Clark's father, then a youth, took to recommending it to women instead of linen, then mostly used. Originally, it was sold in hanks or skeins. These the women had to wind into little balls, as they do a cut of wool at the present day. Wishing to convenience them, young Clark on selling a skein of thread would sit down at a pirn wheel and wind the thread on a bobbin, for which he charged a half-penny.

This halfpenny was refunded when the empty bobbin was returned. Such was the beginning of cotton thread.

CHEMICALS AND DYESTUFFS.

Navigation being now open, the demand for heavy chemicals has improved, orders coming in more freely.

Bleaching powder	\$ 1 40 to \$ 1 60
Bicarb. soda	1 75 to 2 00
Sal. soda	0 75 to 0 85
Carbolic acid, 1 lb. bottles	0 35 to 0 40
Caustic soda, 60°	2 00 to 2 25
Caustic soda, 70°	2 25 to 2 50
Chlorate of potash	0 07 to 0 10
Alum	1 35 to 1 50
Coppers	0 65 to 0 75
Sulphur flour	1 40 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 08
Sumac, Sicily, per ton	45 00 to 50 00
Bich. potash	0 07 to 0 08
Soda ash, 487° to 587°	1 15 to 1 25
Chip logwood	1 50 to 1 75
Castor oil	0 07 to 0 08
Cocanut oil	0 07 to 0 08

NEW BLACK FOR WOOL

EMPIRE BLACK

Absolutely Fast ONE DIP Black

Unequaled for depth of shade. Users of black should investigate.
Fastest Black on the market.

F. E. ATTEAUX AND CO.
BOSTON.

CANADIAN BRANCHES:

1 Colborne Street,
TORONTO

13 Lemoine Street,
MONTREAL

A. KLIPSTEIN & CO.

122 PEARL STREET, NEW YORK.

HAMILTON, Ont.

24 Catherine Street, N.

MONTREAL, Que.

17 Lemoine Street

Chemicals and Dyestuffs.

CARBIDE BLACK E

Cheapest and Best One Dip Black on the Market

HEADQUARTERS FOR

Caustic Potash 90% Carbonate of Potash
Chlorate of Potash Bleaching Powder
Phosphate of Soda Refined Gutch A.K.C.
Yellow Prussiate Potash Yellow Prussiate Soda

BRANCHES—

BOSTON—237-238 Congress St.

PHILADELPHIA.—50-52 N. Front St.

CHICAGO—126 Kinzie St.

PROVIDENCE—13 Mathewson St.

Sole Agents for the Society of Chemical Industry, Basle, Switzerland.

POLLOCK BROTHERS & CO.,

Canadian Sales Dept. for

H. A. METZ & CO., NEW YORK.

Sole Agents for the products of **FARBWERKE VORM. MEISTER LUCIUS & BRUENING, HOECHST-0/ MAIN.**

ANILINES, ALIZARINES, SYNTHETIC INDIGO, Etc.

55 ST. FRANCOIS XAVIER ST., MONTREAL.

GEIGY ANILINE and EXTRACT COMPANY

No. 69 Barclay Street,

New York.

BOSTON.

PROVIDENCE.

PHILADELPHIA.

ATLANTA.

CHICAGO.

TORONTO.

Aniline Colors, Calico Printers' Specialties. Dyewood and Sumac Extracts.
Synthetic Indigo J. B. G.

FIRE PROTECTION.

**FIRE HOSE—
Cotton—Rubber Lined.**

**FIRE HOSE—
Linen—Unlined.**

Full Stock constantly on hand.

**HIGH GRADE
“GENUINE OAK”
(ENGLISH TANNED)**

LEATHER BELTING

No Shoulders, Necks or Bellies.

ENGLISH CARD CLOTHING

Full Stock on Hand.

QUALITY UNEXCELLED.

D. K. McLAREN,

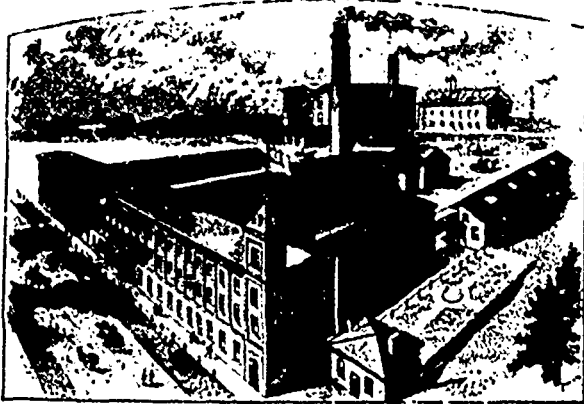
132 Bay Street, Toronto.

751 Craig Street, Montreal.

Hamilton Cotton Co., Hamilton

MANUFACTURERS OF

White and Colored Yarns, Single or Double, Hosiery Yarns of all descriptions, Warps, Twines, white or colored. Webblings & Bindings in great variety, Lampwicks, etc.



SELLING AGENTS

WM. B. STEWART, 18 Front St. East, Toronto.

Agent for Warps: GEO. REID, 11 & 13 Front St. E. TORONTO.

Labels

FOR EVERY
PURPOSE
EMBOSSED
PRINTED
ENGRAVED

LEVY & Co., 19 Leader Lane, TORONTO

Canada Bobbin Company,

WALKERTON, Ont.

Successors to
KIR & HARCOURT.

Established
1857.

Largest Makers of Bobbins in Canada.

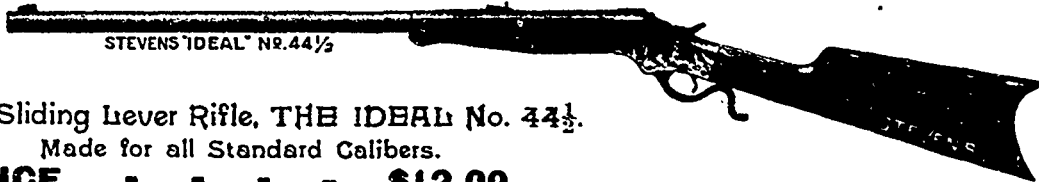
MANUFACTURERS OF ALL KINDS OF

Spools and Bobbins

Used in Woolen, Cotton, Silk, Rope and
Wire Mills, and Small Wood Turnery.

Having lately enlarged and improved our plant, and having a large quantity of well-seasoned stock in the rough always on hand, we are prepared to fill any order carefully and promptly.

STEVENS



STEVENS 'IDEAL' No. 44 1/2

Latest Sliding Lever Rifle, THE IDEAL No. 44 1/2.

Made for all Standard Calibers.

PRICE, - - - - \$12.00.

We Manufacture a Complete Line of RIFLES, PISTOLS, SHOTGUNS.

YOUR JOBBER CAN SUPPLY OUR ARMS.

SEND FOR CATALOG.

J Stevens Arms & Tool Co., 124 Main Street, Chicopee Falls, Mass.

LUCIEN MARCAN'S Successors BRADFORD (England.)

Exporters of Wool Tops, Nails, Rags, Shoddies, Silk, Mohair, Camel Hair Nails and all Specialties in Raw Materials required by Cloth, Hosiery Blanket, Carpet and Felt Manufacturers

An enquiry will cost you two cents and two minutes' time. If you will favor us with the same we shall be glad to send you samples of any raw material which you may require—quoted at lowest prices, delivered at your station, duty and other charges paid.

CABLES—"LUCIEN, BRADFORD."

CODES—A. B. C. 4th and 5th Editions and Private Code.

IRA ICKRINCILL & CO., Ltd., Top Makers and Spinners of all kinds of Worsted Coating, Mohair Camel Alpaca, Fancy Loop, Genappe, Spiral, Hosiery and Carpet Yarns.

KEIGHLEY and BRADFORD.

AGENTS FOR CANADA: LUCIEN MARCAN'S SUCCRS., BRADFORD.

To Manufacturers.

Two first class English overseers from the States, wish to correspond with owner of a woolen mill in regard to starting a new line of Cotton Mixed Blankets, and Low Grade Novelty Goods For further information address, "Blankets," Care of Canadian Journal of Fabrics, Montreal, Canada.

—Northup & Cossey, the only house in the Maritime Provinces dealing exclusively with woollens and tailors' supplies, has undergone a change. W. C. Northup retires owing to ill-health, and Mr. Cossey continues the business under the name of S. R. Cossey & Co. The partnership was first formed in 1890. In 1896 Mr. Cossey went out, returning shortly afterwards

EVAN ARTHUR LEIGH

232 Summer Street. Boston, Mass., U.S.A.

IMPORTER OF

Textile MACHINERY

Etc.

Sole Agent for the U. S. and Canada for

Messrs. PLATT BROS. & CO.
(LIMITED), OF OLDHAM, ENGLAND.

BY FAR THE LARGEST MAKERS OF TEXTILE MACHINERY IN THE WORLD

Platt's Cotton, Woolen and Worsted Machinery.
Sole makers of Brown's Patent Carding Rollers for Wool—give woolen yarn a worsted appearance.
Platt's Special Machinery for making English & French Worsted Yarns.
Platt's Special Machinery for making Cotton Waste into Yarns.

Also Sole Agent for U. S. and Canada for

Messrs. MATHER & PLATT

Salford Iron Works, Manchester, England.

Bleaching, Dyeing and Finishing Machinery and Archbutt-Deeley System of Softening and Purifying Hard Water.
The Best System on the Market.

Wool Washing and Drying Machines. Garnett Machines. French and English Napping Machines. Sykes's Card Clothing for Cotton. Critchley's Card Clothing for Woolen and Worsted. Varey's Fallers. Harding's Pins and Circles. Dronsfield's Grinders and Emery Fillet. Comber Aprons, Condenser Aprons, etc.

Textile Machinery Association, Limited,

Flax, Hemp and Jute Machinery.

George Hodgson, Limited,

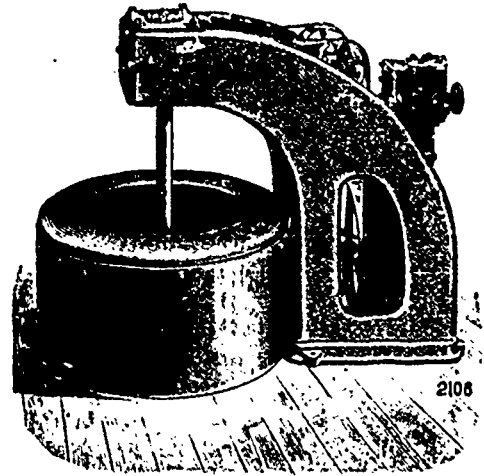
Bradford, Looms for Worsteds, etc.

The Automatic Feeding Machine Company,

Feeders for Fibres of all classes.

HYDRO-EXTRACTORS

FOR
WOOL, COTTON, WORSTED
AND ALL OTHER
TEXTILE TRADES



48 in. Engine Driven Suspended Hydro Extractor.

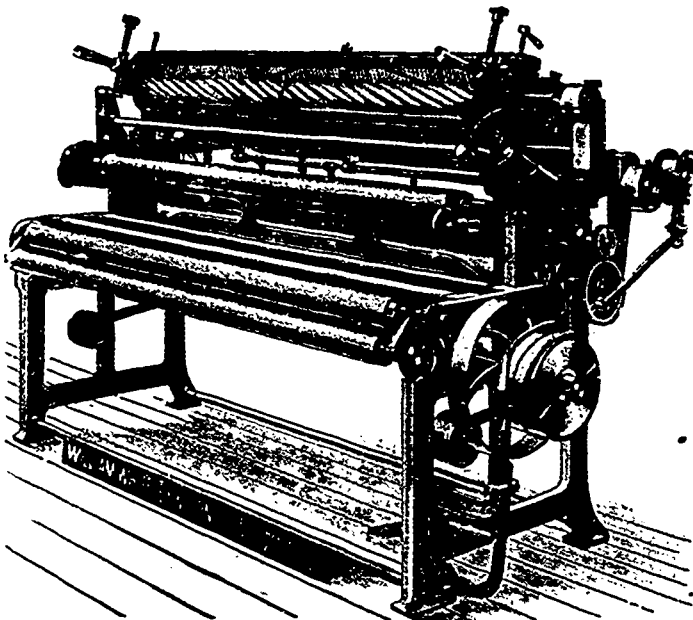
WATSON, LAIDLAW & CO.

DUNDAS STREET. GLASGOW. SCOTLAND.

SEND FOR OUR 1904 CATALOGUE.

William Whiteley & Sons, Ltd.

LOCKWOOD, HUDDERSFIELD, ENGLAND



Complete Cloth Finishing Plants
Tentering and Drying Machines
Wool and Cotton Drying Machines
Improved Self Acting Mules
Winding, Warping and Sizing Machines
and other Woolen Machinery
Mercerizing Machinery. Complete Plant for Aniline Black.
CATALOGUE ON APPLICATION.

WILLIAM FIRTH, President. EDWIN BARNES, Vice-President. JOHN H. NELSON, Treasurer.

WILLIAM FIRTH COMPANY

67 Equitable Bldg., - 150 Devonshire St., BOSTON, Mass.

SOLE IMPORTERS OF

ASA LEES & CO., Limited, Textile Machinery of every description for Cotton, Woolen and Worsted

SOLE AGENTS FOR

JOSEPH STUBBS. Gassing, Winding and Reeling Machinery for Cotton, Worsted and Silk.

GEO. HATTERSLEY & SONS, Ltd., Makers of every description of Looms, &c.

JAMES MACKIE & SONS, Ltd., Makers of Flax, Tow, Hemp and Jute Preparing and Spinning Machinery

GEO. ORME & CO.'S Patent Hank Indicators, &c

JAMES YATES & SON, Hardened and Tempered Steel Card Clothing for Woolen and Worsted Cards.

LOCKETT, CROSSLAND & CO. Engravers and Builders of Leather Embossing Machinery, &c.

R. CENTNER FILS. Heddles

GOODBRAND & CO., Yarn Testing Machinery, Wrap Reels, &c

JOSHUA KERSHAW & SON, Roller Skins, &c.

GEORGE SMITH. Doffer Combs, &c.

BRADFORD STEEL PIN CO., Comber Pins. [&c

ALSO AGENTS FOR
CLAPHAM, SMITH & CO., Caps, Tubes and Spindles for Worsted,

JOSEPH SYKES BROS., Hardened and Tempered Steel Card Clothing for Cotton.

WILLIAM TATHAM & CO., Waste Machinery.

DRONSFIELD BROS., Limited, Emery Wheel Grinders, Emery Fillet and Flat Grinding Machines.

COTTON CORD & VELVET CUTTING MACHINE CO.,

Corduroy Cutting Machines, &c

Pick Glasses, Leather Aprons, Patent Wire Chain Aprons

The Manual of Lubrication,

Or, How to Choose and How to Use Lubricants for

any description of Machinery

With Methods of Determining the Purity and other Properties of Oils, etc

By LOUIS SIMPSON

Price \$1.00

Post-paid

Address **BIGGAR-SAMUEL, Limited,**
Fraser Bldg., MONTREAL, Can.

ESTABLISHED 1859

THE C. TURNBULL CO.,

OF GALT, Limited.

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

WE HOLD THEE SAFE."

**The Dominion
Guarantee Co.**

LIMITED.

Head Office, Montreal, Can.

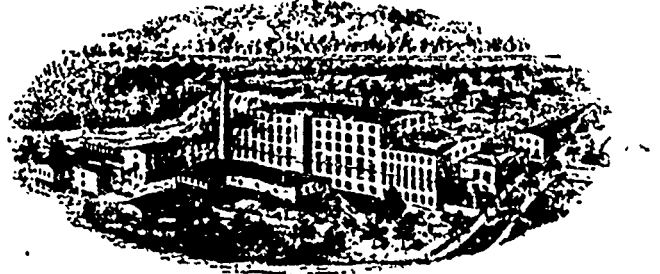
CAPITAL, \$300,000.

Insurance against burglary and housebreaking. Policies clear
and free from vexatious or restrictive clauses.

CHAS. W. BAGAR, General Manager

ROSAMOND WOOLEN CO.

ALMONTE, ONT.



Fine. **TWEEDS, CASSIMERES, and Fancy WORSTED
SUITINGS AND TROUSERINGS**

Colors warranted as fast as the best British
or Foreign Goods.

Dominion Oil Cloth Co'y

Manufacturers of Limited

**Oil-
Cloths**

of every description

Floor Oil-Cloth, Table Oil-Cloth, Carriage
Oil-Cloth, Enamelled Oil-Cloth,
Stair Oil Cloth, etc.

Office and Works:

Corner St. Catherine and Parthenals
Sts., MONTREAL, QUE.

SMITH WOOLSTOCK CO.Manufacturers of Wool Stock and
Shoddies of every description

For Dyeing and matching of colors for the Woolen
Mill trade a specialty.

Office and Works:

219 FRONT STREET EAST. TORONTO

RAILWAY ENGINEERING.

By CHAS. B. SMITH, MA. E.

A concise Treatise on Railway Construc-
tion, etc. for Engineers and Students.

Cloth. 200 Pages.

Profusely Illustrated. - \$1.50.

Biggar-Samuel, Limited, Publishers
Toronto and Montreal.

You are interested in the
Metric System

Of Weights and Measures,
because it will soon be adopted
in Canada.

CHART 10 cts. PER COPY.

BIGGAR-SAMUEL LIMITED,
13 Court Street, TORONTO

TO WOOLEN MANUFACTURERS.

MESSRS. REICHE & CO.

Wool, Tops, Noils, Yarns, etc.

BRADFORD, ENGLAND.

Represented in
Canada by **JAMES A. GANTLIE,**
22 St. John Street, Montreal.

Samples and Lowest Quotations promptly supplied.
Correspondence solicited.

THE MONTREAL BLANKET CO.

Manufacturers of

**Shoddies, Wool Extracts
and Upholstering Flocks**

Office and Works: COTE ST. PAUL
P.O. Address: MONTREAL

If You WISH to learn something
about the Metric System of
Weights and Measures, write for a copy of
the Metric Chart, 40 x 14 inches, mailed on
receipt of ten cents in stamps or coin.

Address **BIGGAR-SAMUEL, Limited,**
Toronto or Montreal.

AGENTS WANTED.

Local agents wanted to take subscriptions
for an Engineering Publication. For terms
apply, Box B,

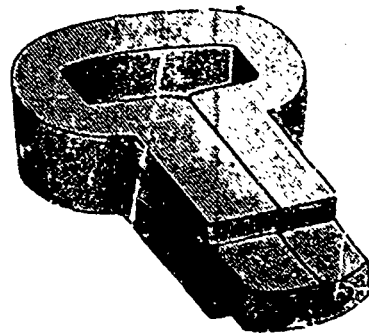
Office of Canadian Engineer,
62 Church Street,
Toronto, Ont.

WILLIAM CRABB & CO.

Manufacturers of all kinds of

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

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

**JOHN W. BARLOW**

Manufacturer of

LOOM PICKERS,

LAWRENCE, MASS.

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

E. T. CARTER

Successor to JOHN HALLAM

WOOL
35 years at the old stand:
83 & 85 Front Street East
TORONTO
DOMESTIC AND FOREIGN WOOLS

LONG & BISBY

DEALERS IN

Foreign and Domestic

WOOL AND COTTON

GENERAL COMMISSION MERCHANTS
HAMILTON, ONT.

JOHN E. BROWN,

Foreign and Domestic

WOOL

77 McNab Street N.,
HAMILTON, ONT.

The R. Forbes Co.

(Limited)

Manufacturers of

WOOLEN AND WORSTED YARNS

For Hosiery and other work

HESPELER, ONT.

INDEX TO ADVERTISEMENTS

Atteaux & Co., F. E.....	4
Barlow, John W.	8
Bellhouse, Dillon & Co.....	1
Benson & Co., W. T.....	1
Bischoff & Co., C.....	2
Brown, John E.....	9
Canada Bobbin Co.....	6
Cantlie, James A.....	8
Carter, E. T.....	9
Cassella Color Co.....	1
Crabb & Co., William.....	8
Crowe W. M.....	2
Dominion Dyewood & Chemical Co....	1
" Guarantee Co.....	8
" Oil Cloth Co.....	8
Dronsfeld Bros.....	11
Eickhoff, A.	9
Felten & Guillaume.....	12
Firth Co., William.....	7
Forbes Co., The R.....	9
Fraser, Robt. S.....	2, 11
Garland Mfg. Co.....	2
Geigy Aniline & Extract Co.....	4
Gessner, David.....	11
Halton's Sons, Thomas.....	2
Hamilton Cotton Co.....	6
Jack & Co., Watson.....	1
Klipstein & Co., A.....	4
Lachute Shuttle Co.....	9
Lawson, Combe Barbour Ltd., Fairbairn	12
Leigh, Evan Arthur.....	7
Leitch, A. W.....	1
Levy & Co.....	6
Linotype Co.....	10
Long & Bisby.....	9
Marcan's Successors, Lucien.....	6
Mather & Platt.....	7
McArthur, Corneille & Co.....	1
McLaren, D. K.....	5
" Belting Co., J. C.....	12
Mississippi Iron Works.....	9
Montreal Blanket Co.....	8
Morton, Phillips & Co.....	9
New York & Boston Dyewood Co.....	1

Pollack Bros & Co.....	4
Reiche & Co.....	8
Reid & Co., George.....	3
Riley & Co., C. E.....	3
Roessler & Hasslacher Chemical Co....	2
Rosamond Woollen Co.....	8
Sheldon & Sheldon.....	2
Smith Woolstock Co.....	8
Stevens Arms & Tool Co.....	6
Stoddard, Haserick, Richards & Co....	10
Thompson & Co.....	8
Toronto Woollen Machinery Co.....	3
Turnbull Co., The C.....	8
Watson, Laidlaw & Co.....	7
Watson Mfg. Co., L. S.....	12
Whiteley & Sons, Limited, William.....	7
Wilson Bros.....	9
" " Bobbin Co.....	11
" Paterson & Co.....	1
Young Bros.....	9

Established 1848.

A. EICKHOFF

(A. KHAMER, Proprietor)

Manufacturer and Dealer in

Hatters', Furriers', Tailors',
Glovers' and Shirt Cutters'

KNIVES AND SCISSORS.

Knives for all kinds of business always on hand and
warranted. All kinds of Cutlery ground
and repaired.

No. 381 BROOME STREET,

Between Broadway and Bowery,

NEW YORK CITY

**Matte's, Hughes' and
Robinsonian
Interest Tables**

**Buchan's, Oates' and
Robinsonian
Sterling Exchange Tables**

Tables in French and
German Exchange.

Send for Catalogue.

MORTON, PHILLIPS & CO.

Stationers, Blank Book Makers
and Printers

1755-1757 Notre Dame St., Montreal

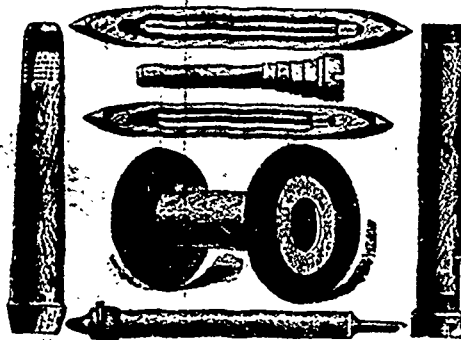
WILSON BROS.

Wool Importers

38 Front Street East, - Toronto.

H. A. WOOLS and CARBONIZED
NOILS a specialty.

The Lachute Shuttle Company



We are the largest Shuttle
Manufacturers in Canada.

Slubbing, Roving and all kinds
of Bobbins and Spools for
Cotton and Woollen Mills

We have always on hand
a large stock of
Thoroughly Seasoned
Lumber.

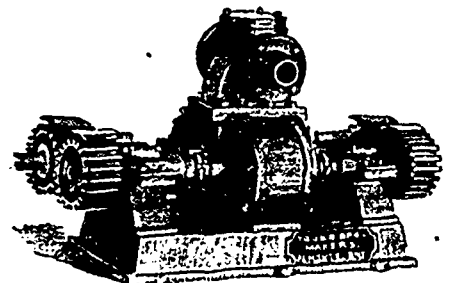
Orders solicited and all work guar-
anteed to give satisfaction.

E. F. AYERS, Manager
LACHUTE, P.Q.

MISSISSIPPI IRON WORKS



ESTABLISHED
1876.



Manufacturers of English or American Pulling Mills and Washers, Wool Pickers,
Exhaust Fan Drivers, Dusters, Rotary Force Pumps for Fire Duty, Roller Feed
Pumps, Shafting, Hangers, Castings, Pulleys, Gearing, Forgings.
Equipment of MILLS of every kind. **YOUNG BROS.,** Almonte, Ont.

STODDARD

**IMPORTERS OF COTTON, SILK,
WORSTED, WOOLEN AND FIBRE
MACHINERY, MILL SUPPLIES,
EGYPTIAN COTTON AND BURLAPS**

Sole American Representatives for

DOBSON & BARLOW, LTD.

New Hopper Bale Breakers, Pickers, Cards, Combers, Fly Frames, Mules,
Gassers, etc. Improved Worsted Carding Engines.

PRINCE, SMITH & SON

Gill Boxes, Noble Combs, Drawing, Roving, Spinning, Twisting and Reeling
Machinery for Worsted.

HASERICK

**SOCIETE ALSACIENNE de CONSTRUCTIONS
MECANIQUES de MULHOUSE**

Alsatian Cotton Combers, Slashers for Fine Warps, French Worsted
Machinery.

SAMUEL LAW & SONS, LTD.

Card Clothing of Every Description.

WM. WHITELY & SONS

Mules, Tenting Machines, Warpers, Mercerizing Machinery, etc.

R. HOYLE & SONS, LTD.

Dyeing and Finishing Machinery, Hydraulic Presses.

HARDING, RICHARDSON, RHODES & CO., LTD.

Gill and Combing Pins, Needles.

SAMUEL ROWBOTTOM

Spindle Bands and Tapes.

RICHARDS

JOHN DIXON & SONS

Mill Bobbins.

J. PARKINSON

Loom Temples.

J. KAYE & SONS, LTD.

Patent Oil Cans.

MILL SUPPLIES German Tempered Steel Wire Heddles, Persian Roller
Skims, Doup Twine, Leather, etc.

& CO.

152-8 Congress St.,
8 Curren St.

Boston

Bradford, Eng

OFFICES:

Bourse Bldg.,

Philadelphia

East Fourth St.,

Charlotte, N.C.

In tweeds, mottled and stripe effects are the thing for next autumn.

—Last year's cotton crop, from figures gathered by the Census Bureau of the United States, from the ginning returns, was 7 per cent. below that of the previous year, an 42,900 bales below the average of the last five years. Its value is placed at \$660,000,000.

—The warehouse of Phillips & Winch, Toronto, dealer in small wares, which narrowly escaped the great fire, and was the only house left in that trade, was seriously damaged by fire two days later. They put their loss at about \$25,000.

—Arthur K. Fisk, curator of the insolvent estate of Thos. May & Co., has entered an action against the Bank of Montreal for \$192,000, on behalf of the unsecured creditors. The action arises out of the relations that existed between the bank and Thomas May & Co., prior to the latter's insolvency. It is understood that third parties are making an offer for the stock and plant, with the view of carrying on the business.

All the raw silk markets have ruled in the buyers' favor, and concessions from recent asking prices have been so broad as to attract quite liberal buying for forward as well as for spot delivery. As compared with the market situation ruling early in the season, that now prevailing closely resembles demoralization. The change, however, has been gradual, and its effect on the goods market has been beneficial rather than otherwise. At present silk prices, manufacturers can figure a fair profit on their goods, and the moderate price concessions that they are able to allow are stimulating demand for their products. What is more to the point, the demand for silk fabrics is steadily increasing, and the outlook for all is far more bright than it was at the opening of the year.

REASONS WHY

The Canadian Oliver Typewriter

IS SUPERIOR TO

ALL OTHERS



VISIBLE WRITING.—The writing is visible, each letter being in plain sight the instant it is made.

DOUBLE TYPE-BAR.—It has a double or U shaped Type Bar provided with a shaft bearing as broad as the bar is long, thus insuring Permanent Alignment without guides.

SPEED.—Its visible writing, rapid escapement, direct type bar connection, downward stroke, and light touch, make it the most speedy of all writing machines.

TYPE, FACE UPWARD FOR CLEANING.—The type are of steel and lie face upward so that they can be cleaned with one sweep of the ordinary type brush.

PRICE.—\$30.00 cheaper than imported machines of like standard; because MADE IN CANADA.

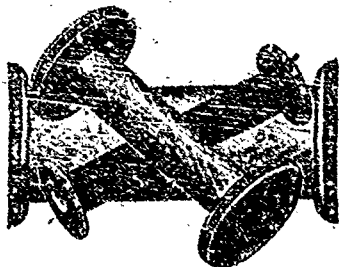
Why Pay Duty?

LINOTYPE COMPANY, - - MONTREAL
MANUFACTURERS

Branch: 55 VICTORIA STREET,
TORONTO.

BOBBINS & SHUTTLES

ESTABLISHED
1823.



Telegram—
"Nigel, Liverpool"
A.B.C. & A.I. Codes Used

47 GOLD MEDALS AND DIPLOMAS. SEE EXHIBIT—ST. LOUIS.

Wilson Bros. Bobbin Co.
Ltd., Cornholme Works,
Garston, Liverpool.

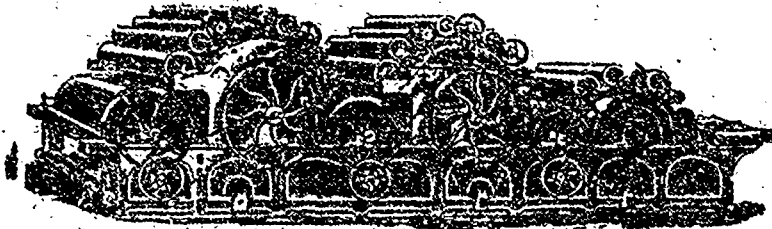
The best results in
Card Grinding
are obtained by using

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

DRONSFIELD BROS. LTD.
Atlas Works, OLDHAM, ENGLAND.

COUNTY O'

TEXTILE MACHINERY (New and Second Hand)



English Sales Attended.

CARD CLOTHING TETLOW'S

Stock in Canada

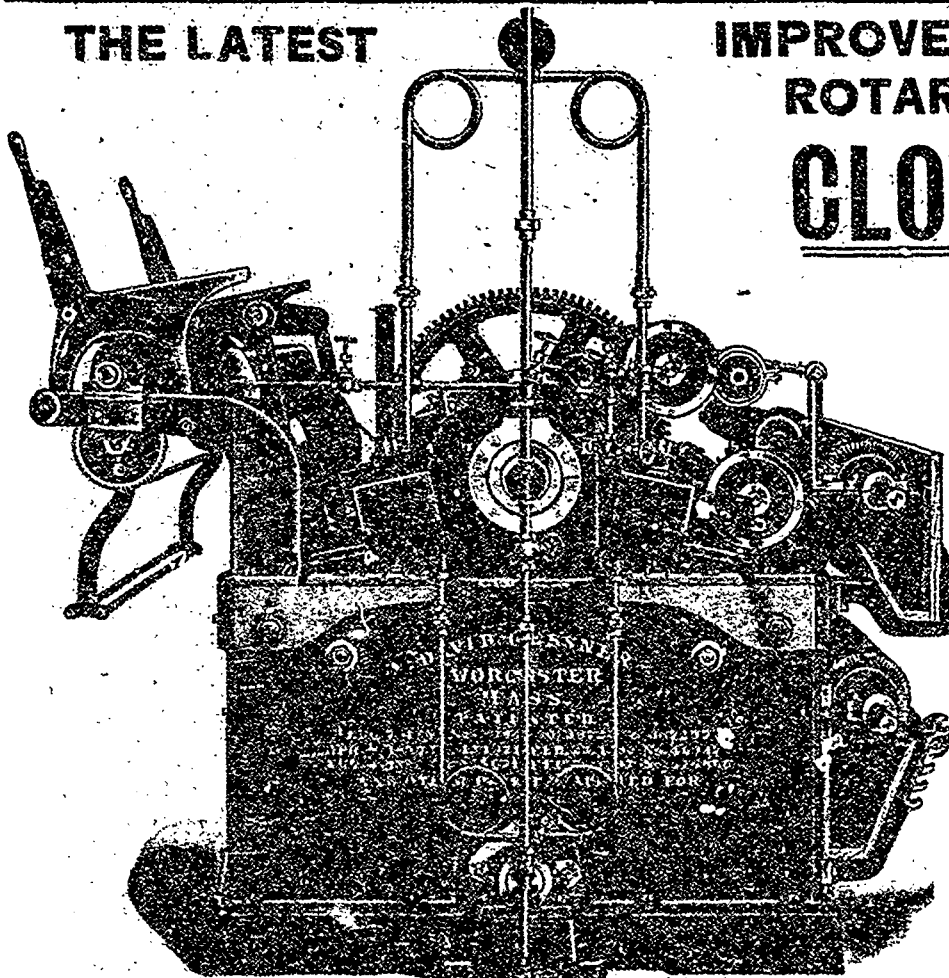
Condenser Aprons Buffed Surfaces
Plain & Grooves

Oak-Tanned and White Belting
Cotton Banding, Rim Spindle and Braided
Shuttles, Pickers, Heddles, Harness
Patent Frames, GENERAL FURNISHINGS

ROBT. S. FRASER

17 LEMOINE ST., MONTREAL

THE LATEST



IMPROVED DOUBLE-BED ROTARY

CLOTH PRESS

The bed plates are self-adjusting, the levers that operate them being mounted upon sliding steel fulcrum bars within the frames. The trussing apparatus of the bed plates is so arranged as to permit not only a forcing of the centres of the bed plates in a forward direction, toward the cylinder, but also away from it, which is of the utmost importance if the bed plates should ever become sprung. Bed plates and cylinder after being cold finished, are ground absolutely true while heated by steam at 75 lbs. pressure, insuring perfectly straight and uniform pressing surfaces. Pressure is applied and removed instantaneously, and by power.

DAVID GESSNER,
WORCESTER,
MASS., U.S.A

The Workman's Friend—a Reliable Belt.

USE

OUR "EXTRA" BRAND



Factory:
MONTREAL

{ THE J. C. McLAREN BELTING CO, }

TORONTO
VANCOUVER

Fairbairn Lawson Combe Barbour, Ltd.

LAWSON BRANCH

Hope Foundry.

LEEDS.

England.

Makers of Machinery for

Preparing and Spinning Flax, Hemp, Tow and Jute

AND OF Special Machinery for the Manufacture of Twines,

—ALSO OF—

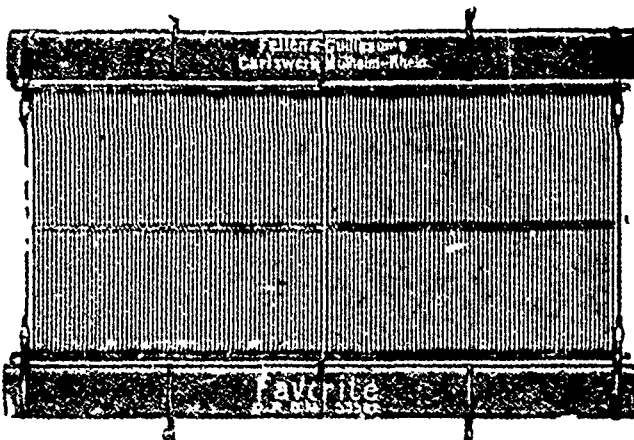
GOOD'S COMBINED HACKLING AND SPREADING MACHINE,

Long Reach Screw-Gill Drawing Frames, — Chain-Gill Drawing Frames with Apron Head,
PATENT HIGH SPEED HORIZONTAL AND AUTOMATIC SPINNING FRAMES FOR MANILLA,
AND OTHER

SPECIAL MACHINERY FOR THE MANUFACTURE OF ROPE YARNS AND BINDER TWINE.

Improved Laying Machines. Haskell-Dawes Tubing Twisters
Brownell's Patent Twisting and Laying Machines for Twine.

—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.—



Tellen & Guillaume, Carlswerk
Aktion-Gesellschaft, Mülheim-en-Rhine

Manufacturers of

Tinned Cast Steel Wire Heddles

made on Patent Automatic Machines and consequently perfectly uniform in every respect. The Lightest, Exactest and most Uniform Wire Heddles ever made, not surpassed by any other Wire Heddles in the market.

Patent "Favorite" Shafts for Weaving

give, combined with above Heddles, the best, most Reliable and most Durable Harness, either made with one or two carrying wires inside the wooden frame. These shafts have already been adopted by a great number of weavers, who speak most favorably of them, as can be seen from many testimonials in the possession of the makers. For Prices apply to

L. S. WATSON MANUFACTURING CO., Leicester, Mass.

L. S. WATSON MANUFACTURING CO.
LEICESTER, MASS.

Sole Agents for the BEST
Spinning & Twisting Travelers
Made by Prouty Wire Co.

Send samples of the Travelers you use and
we will send you a sample box to match
of our make free of charge.

Manufacturers of WATSON'S PATENT MACHINE WIRE HEDDLES

Guaranteed to be perfectly adapted to weaving all kinds of Woolen, Cotton and Worsted Fabrics, Fancy Cotton, etc., etc.
Superior Harness Frames furnished promptly. Also Hand Cards of every description.

Also Agents for the SMITHURST Reving and Twisting Gear for all woolen manufacturers and makers of yarns. Write us for particulars.