

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.

Additional comments:/
Commentaires supplémentaires:

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

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

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

CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XII.

TORONTO, SEPTEMBER, 1895

No. 8

Walter T. Clover & Co.
ENGINEERS, MACHINISTS, ETC.
SALFORD, Manchester, Eng.

Makers .. of .. **ELECTRICAL WIRE** and CABLE

ALSO MAKERS OF ALL KINDS OF
Rope, Twine and Cord Machinery
SMALLWARE MACHINERY

McARTHUR, CORNEILLE & CO. Importers and Manufacturers of

OILS
CHEMICALS
and **DYE**
STUFFS

310 to 316 St. Paul St.
MONTREAL



ALIZARINE
CYANINES

For Fast Navy and Indigo Blue
Shades on Wool

Manufactured only by The Farbenfabriken vorm FRIEDR. BOYER & CO.
ELBERFELD, GERMANY

DOMINION DYEWOOD & CHEMICAL CO.
TORONTO
Sole Agents for Canada

ANILINES ...

SOLE AGENTS FOR
A. GERBER & CO.
Direct
Cotton
Colors

JACK & ROBERTSON
30
St. John
Street
MONTREAL
ALIZARINES



ANILINE DYES LOGWOOD SUMAC INDIGO Extracts
HEMOLIN BLACK, MORIN YELLOW

WM. J. MATHESON & CO., Limited
423-425 St. Paul Street, **MONTREAL**
Main Office: 175 Front Street, New York.
Branches: Boston, Philadelphia, Providence.
Works: Long Island City, Port of New York.

W. T. BENSON & CO. 11 Common St. **MONTREAL**
DIRECT IMPORTERS OF
FOREIGN WOOL
AND ALL LINES OF
CHEMICALS and DYESTUFFS
Also Coconut and Palm Oil, and all other Soap Stocks
Sole Agents for
Messrs. JOHN DAWSON & CO., of GLASGOW
Manufacturers of Logwood, Fustic, Sumac, etc.
Complete Stocks of all the above always on hand.

Anilines **Dyewood Extracts**
Bellhouse, Dillon & Co., Montreal
SUBSTANTIVE COLORS
Fast to Light and Resistance to Acid
ALIZARINE BLUE, RED AND BLACK
Chemicals Write for samples and quotations. **Acids**

GEO. D. ROSS & CO.

WOOLEN COMMISSION MERCHANTS
MONTREAL and TORONTO.

Tweeds Stoffes Shirts and Pants
Worstedes Blankets Fulled Socks and Mitts
Serges Yarns Gloves, Hosiery, etc., etc.

Advances Made on Consignments.
Correspondence Solicited.

BELDING, PAUL & CO., LTD.

SILK MANUFACTURERS

Montreal

Spool Silks, Crochet Silks, Art Wash Silks,
Filoselles, Silk Serges, Ribbons.

ORGANZINES, TRAMS, SPUN SILK YARNS,
AND ALL THREADS FOR
MANUFACTURING PURPOSES
MADE TO ORDER

DYEWOOD EXTRACTS

Manufactured by
MUCKLOW & CO., - BURY, ENGLAND

DOMINION DYEWOOD & CHEMICAL CO.
TORONTO
SOLE AGENTS FOR CANADA

Horace Dutton & Co.

ENGLISH WOOLEN CLIPPINGS

Identical with those
prepared for the
Yorkshire Trade . .



PACKING

Also all grades of FRENCH RAGS (new and old), classified to suit manufac-
turers. OFFICES - Springfield, Mass.; London, England; Paris, France.

161 Franklin Street, - BOSTON, Mass.

A. R. CLARKE F. G. CLARKE G. E. CLARKE

A. R. CLARKE & CO.



Manufacturers of **GLOVES and MITTS**
Office: 25 Front St. East TORONTO
Works: 199 to 209 Eastern Ave.
Branches at Montreal, Quebec, Halifax, Winnipeg and Victoria

JAMES WALKER,

Manufacturers' Agent,
JAMES STREET SOUTH, HAMILTON, ONT.

Burlaps, Buckrams, Carpet Yarns,
Twines, Jute, Oakum.

YOUR ENGINEER OUGHT TO HAVE A COPY!!

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
Postpaid

Address: **BIGGAR, SAMUEL & CO.,**
Fraser Bldg., MONTREAL, Can.

The Drier the Steam the Greater the Power.

Our Sectional Pipe and Boiler Covering almost entirely
prevents **Condensation of Steam** while
passing through the pipes.

Asbestos Goods | Engine Packings,
Mineral Wools | &c., &c.

EUREKA MINERAL WOOL and ASBESTOS CO.
124 Bay St., Toronto

C. E. Calvert.

Cable Address, "Calvert," Toronto.

J. S. Wilson.



WOOL & COTTON BROKERS

OFFICE, 28 FRONT ST. EAST,
CORNER OF SCOTT ST.

TORONTO, CANADA

HAVE YOU A WHEEL?
then get a

Rice Cycle Belt-Cape

And you can ride late in the Autumn, for this Cape
is an effective protection from cold
as well as from rain.

The Cape is made of waterproof fabric, weight
eleven ounces, folded and worn as a
belt when not in use.

Ask your cycle dealer for one, or send to

WM. READ & SONS,
107 Washington St., Boston

CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XII.

TORONTO, SEPTEMBER, 1895

No. 9.

Canadian Journal of Fabrics

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

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

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

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

Agency in Europe: Polsue Bros., 30 Poppin's Court, Fleet St., London, Eng.
Toronto Telephone, 1392 | Montreal Telephone, 2589

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 now in hand.

Price, on and after publication, \$3.00. Subscribers ordering
in advance are given a discount of \$1.00.

BIGGAR, SAMUEL & CO., Publishers,
Fraser Building, Montreal.

CONTENTS OF THIS NUMBER :

	PAGE		PAGE
Among the mills	279	Montreal exhibition	281
Australian wool in Japan	275	Natural bronze colors	259
Bronze, natural	255	Navajo weavers	266
Cloth road bed	277	Orchil	265
Dyestuffs, new	284	Patents	279
English hosiery novelties	276	Persian carpet	259
Finishing cloth	276	Ramic spinning	258
Fibres under the microscope	277	Spider silk	261
Figuring on the goods	257	Soluble soap	261
French worsted industry	261	Specking and brushing woolens	277
Fulling soap	264	Scott, James & Son	270
Foreign Textile Centres	273	Stains, removal of	275
Hemolin	284	Technical education	260
Hosiery of Saxony	260	Textile designs	265
Indian fibre plants	264	Tucking machine	261
Japanese embroideries	264	Tyrian purple	265
" silk industry	260	Vat dyeing	269
" cotton growing	260	Wool market	287
Kingston cotton mill wreck	277	Woolens, shrinkage of	267
Kamilla dye	264	Women in English factories	261
Logwood colors	263		

For THE CANADIAN JOURNAL OF FABRICS.

FIGURING ON THE GOODS.

BY GEORGE DAMON RICE, AUTHOR OF "WOOLEN AND
WORSTED MANUFACTURE," ETC.

Overseers and loom fixers of weave rooms are frequently called upon to do brain work pertaining to matters not directly related to either loom fixing or weaving, consequently these men are often better posted on the details of cloth manufacturing than the average card or spinning room hand.

Loom fixing leads to overseeing of weaving, and the latter to superintending, but the road is not an easy one to travel.

Men must work and investigate to attain the end sought for. When the writer was an apprentice he noticed that some of the men of the mill liked sitting

on the bench, or falling asleep behind a machine next to the wall out of sight, when not working at regular appointed work. This will not do in these days of competition for good places. Not only must the aspiring fixer be on his feet most of the time, but he must keep his looms running right. One often hears a fixer say that he keeps his machinery running, and that so his duty is performed; but how is it running?

Is it running to the best advantage, or is it so fixed that the belt is kept upon the tight pulley most of the time, at the expense of the machine, as well as the production? It is often the latter. There are plenty of men who can take hold of a loom and fix it so that it will run; but when it comes to scientific setting, it is difficult.

All of the best mill men are fast adopting a system of rules. They find that it pays them to do so.

A man who can approach a machine and find out the parts which are wrongly adjusted, and reset them according to an established rule, is the man who is worth most. The man who goes in and jumps at conclusions, and sets the mechanism by guesswork, is the one who is not. Fixers should use judgment and care in fixing the parts of all looms. This much acquired, and something else regarding the figuring on the goods must be studied.

An unskilful or incompetent overseer causes great loss, as much depends on his knowledge of the business. To prevent those under his charge from making blunders and inferior work, he must understand the work and how to figure on same.

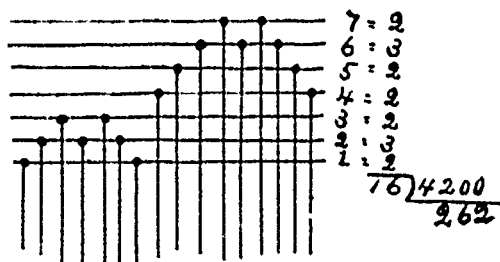
The fixer aiming to be an overseer, and eventually superintendent, has several things of importance to confront, among the chief being those pertaining to ability to direct and govern, also faculty to plan and execute. To lead, he must be better educated to his trade than those below him. To make a good executive officer, he must be generally skilled in cloth making, and in this is involved ability to make a profit, for no superintendent, no matter what his attainments are, can call himself a success until he can make money for his employers.

One thing that it is necessary to know how to figure, is the heddle equipment for harness.

HOW MANY HEDDLES.

In the straight-draw system, it is only necessary to divide the number of harnesses used in making the

pattern. If, for instance, a certain warp is made up of 4,200 threads, and is to be woven on seven harnesses, the method of arriving at the number of heddles needed on each would be as follows: $7 \div 4,200 = 600$. Thus 600 heddles would be required on each harness. In the cross-draw system, however, the process is a little more complicated. The reader will be able to understand this point by examining the accompanying sketch.



FIGURING ON THE HEDDLES.

The horizontal lines in this figure represent the harnesses, and the dots indicate that threads are drawn in on these harnesses at the points designated. The number of threads thus marked on the harness is the scope of the pattern. There are, therefore, sixteen threads in each pattern. Beginning with the first harness, then, we see that there are two threads on it, and the number is put out at one side. The second harness has three threads, which number is recorded accordingly. The third harness has two threads and so on. The total number is found to be sixteen, which is, of course, the end of the pattern or "repeat." This much done, and the number of threads in the entire warp (4,200) is divided by sixteen, giving as an answer 262. This shows that there are 262 patterns or repeats in the whole warp. A little figuring is needed now. The number of threads on each harness in the repeat must be multiplied by 262. The result is as follows:

Harness No	1	has	2	threads on it, thus	$2 \times 262 = 524$
"	2	"	3	"	$3 \times 262 = 786$
"	3	"	2	"	$2 \times 262 = 524$
"	4	"	2	"	$2 \times 262 = 524$
"	5	"	2	"	$2 \times 262 = 524$
"	6	"	3	"	$3 \times 262 = 786$
"	7	"	2	"	$2 \times 262 = 524$
					16
					4,192

Thus, a total of 4,192 heddles, distributed as above, is needed for producing the pattern in question. Several extra heddles should be put on each harness so as to make up for the difference between 4,192 and 4,200.

THE brown dyes weaken wool fibre more than those of any other color, on account of the mordants as well as the dyeing substances employed. Brown wool usually cards and spins badly, the yarn is more liable to break in the loom than undyed yarn from the same wool, and brown cloth is hard to full properly. Boiler colors attack wool much more readily than vat colors, and should therefore only be used on strong-fibred material.

RAMIE SPINNING.

We have given a good deal, from time to time, concerning experiments with ramie fibre, and the difficulties that have hitherto stood in the way of the complete success of manufacturing it into yarn and cloth. The Middling Spinning Co., of Long Eaton, England, claims that for the past twelve months it has "been engaged in treating and degumming ramie and spinning the result into yarns, which are being sold in the open market at very remunerative prices." The process by which this is accomplished is a patented one, and is thus described: The ramie (or Rhea-grass) arrives at the spinning company's works in the form of ribbons or lamieres, and is passed through a series of tanks, or chemical baths, which remove the gum and subsequently soften and bleach the fibre. The ramie is drawn slowly through these, clasped between two endless chains kept moving by suitable gearing. At the feeding end the chains are kept about one foot apart, one above the other, but as they near the first tank they approach until they firmly grasp the bundles of ramie placed between them. As the fibre passes from one tank to another the chains again separate and allow the ramie to pass between rollers, which are fluted, breaking cylinders in the first stage and wringing rollers in the latter part of the process. The gum is dissolved in the first tank, and when the ramie has passed the rollers the fibre is sufficiently loosened to be pulled out free from the woody part of the bark. When the ramie finally emerges at the end of the apparatus it is a pure white "filasse," and after drying in a heated room is made into "sliver." The time occupied is a little over five hours. This "sliver" is gradually reduced to yarn by the usual roving and spinning frames, which are said to be exactly similar to those for spinning silk and long-staple wools. Thus there can be no difficulty in working this ramie sliver in other spinning mills with their ordinary machinery. Twines, fishing lines and sail cloth are also manufactured. It is stated that the spinning company is so well satisfied as to the financial results obtained from its year's working and the outlet for its products, that the Boyle Fibre Syndicate (so called after the inventor) has secured the offer of a tract of country from the Sultan of Johore, Straits Settlement, and proposes to lay it out for the cultivation of ramie, as the climate is deemed peculiarly adapted to foster the plant both in quantity and quality. As five crops per year can be obtained in that climate, it will not be long before the syndicate hopes to reduce the cost to about \$45 per ton. It is proposed to establish there a degumming plant, so that the fibre can be converted into filasse, then compressed into bales in condition to ship abroad.

There are at present time several mills in Europe engaged in spinning this fibre, to wit: Two in France, two in Germany, one in Austria, one in Switzerland, and two in England, one of these being the Boyle Fibre Syndicate's mill. In this country, says the *Boston Journal of Commerce*, the United States Ramie Co.

has been recently organized, with a capital of \$250,000, to spin these yarns, and it has leased the buildings formerly occupied by the Cranston mill, at Cranston, R.I., and operations are to be commenced at as early a period as possible. The two most successful spinning mills at present are said to be those operated at Valobre, France, and at Emmendingen, Baden, Germany. The Valobre factory is now spinning annually 150 tons of yarns, 50 tons of sliver, and 70 tons of nolls. It spins yarns in numbers up to 90 in fineness. The company has added a dye-house to its plant, and is steadily enlarging its mills. It produces special threads for lace, passementerie, linen fabrics and other products of a higher grade, in which the price of the materials is of less importance, while waiting until the abundance and cheapness of the raw material will permit the introduction of threads for coarser goods, for which there will be large demand. It is probable, however, that the cost of the preparation of this fibre will always prevent its common use as a substitute for the textiles that can be more cheaply grown and prepared. While the fibre has not the elasticity of wool and silk, nor the flexibility of cotton, it is thought that it will always be preferred for making articles requiring the strength to resist the wear and tear of washing or exposure to weather. It is for this latter reason, undoubtedly, that this fibre has been selected from which to make the sails of the "Defender," and also of its rival, "Valkyrie III."

A RARE PERSIAN CARPET.

In the Indian section of the South Kensington Museum at London is now exhibited the famous Ardebil or Ardebil carpet, so-called from a Persian town in the province of Aderbaidjan, which from time immemorial has been an emporium of merchandise *en route* between Tiflis and Ispahan. This carpet is said to have been obtained from an ancient mosque at Ardebil. From a devout inscription it bears, the carpet, it is supposed, was originally used as a veil or curtain for a porch, while the inscription definitely states that it is the work of "the slave of the Holy Place," one Maksoud of Kashan, in the year of the Hegira 946, corresponding with our A.D. 1535.

The ground body of the fabric is of a rich dark blue, covered with a floral tracery in greenish blue and cream, with an intermixture of terra-cotta red. This tracery is remarkable for its exquisite delicacy of treatment. A central medallion is in pale yellow. It contains a small medallion in pale blue and terra-cotta red. The outer edges of the large medallion terminate in sixteen minaret-shaped points, from which spring sixteen cartouches, four green, four red and eight cream, and from two of these again are, as it were, suspended and hanging in the direction of the respective ends of the carpet, two of the sacred lamps of the mosque. These are in terra-cotta red, with ornamentations in pale blue and cream.

The crowning point of interest is the interwoven inscription, in bold, black Arabic characters, translated as follows:

"I have no refuge in the world
other than thy threshold,
"My head has no protection
other than this porchway.
"The work of the slave of this
Holy Place,
"Maksoud of Kashan,
"In the year 946."

A broad border completes the design. This border is divided into three narrow strips and one wide strip. The third and wide strip is composed of alternate elongated and rounded cartouches, filled with floral and other tracery, the former on a base of red, and the latter on green or shaded yellow, the whole surrounded by exquisite tracery on a rich brown ground, flanked on the inner side by a band of cream seven inches wide, relieved by a variation of the so-called cloud pattern, and a narrower inner band of rich terra-cotta red next the body of the carpet, and on the other side by a single broad band, also seven inches wide, of tawny brown, shading from dark to light, and relieved by a bold design in blue.

The carpet measures 34 feet in length and 17 feet 6 inches in breadth, and an idea of the extreme fineness of its texture may be formed from the fact that it contains about 380 hand tied knots to the square inch, which gives over 32,500,000 knots to the whole fabric. The museum paid \$12,500 for this Oriental treasure.

NATURAL BRONZE COLORS.

The vegetable bronze colors are lakes, says the *Leipziger Farber Zeitung*, and can be got from either logwood or red wood. A boiled decoction of the red wood is treated with a little carbolic acid, and left to stand for some weeks. The clear liquid is removed with a syphon, heated, mixed with alum to the extent of about one-fifth of the original red wood, and left for another week. A precipitate goes down, which is filtered off, washed, and then either completely dried or left as a thick paste. This being the color, if the paste is mixed with about 15 per cent. of strong gum water, it can be applied with a brush. To get a gold bronze, dissolve soap over a water-bath in the least possible quantity of water; then add a bulk of melted white wax equal to that of soap solution, and dilute the hot mixture with water till, when cold, it is of the consistency of thick turpentine; then the red wood paste is added, and the whole is painted on paper, wood, leather, etc., and gives the gold bronze when polished after drying. To make the color waterproof it is varnished when dry with turpentine.

With logwood the decoction is made as before. Treated with alum the decoction gives a light gold, with stannic chloride a dark brown precipitate, with both intermediate shades. The light gold itself can be intensified with bichromate, and all three salts may be used to produce certain shades. Great care must be taken to use no excess of bichromate, as the color will then become too dark to be used as a bronze.

The color of the precipitate also depends upon the

concentration of the decoction and other things, so that no fixed proportions can be given. The best process is as follows: A weak solution of bichromate is added in small quantities to the decoction at the same time as the alum, and the precipitate is tried with soap and wax until the result shows that enough bichromate has been added.

THE JAPANESE SILK INDUSTRY.

Kioto is the Lyons of Japan. It has been for many centuries the centre of the silk weaving industry, and the place where gold wrought brocades, figured damasks and painted crapes, and velvets have been turned out from time immemorial. Lying in a broad and fertile valley, hemmed in on each side by ranges of wooded mountains and watered by broad streams, Kioto, the royal city where generations of Mikados played out their short lives of pomp and pleasure; the gay city where the dancing and singing girls have always outnumbered those of any other town; the city of flowers, where in gardens of blossoming trees the light hearted people fling care to the winds, is still the ideal city of the weaver and the potter, where for centuries, in little workshops and in artisans' homes, trade secrets have been handed down from father to son, and the lamp of generous enthusiasm for art work has been kept alight.

Silk weaving has changed less by the introduction of modern nineteenth century civilization into Japan than almost any other industry. The Japanese looms are engaged as heretofore in making mainly for the home market: in weaving "obis" for the women to wear, gorgeous damasks for the decoration of temples and palaces, and brocades for actors and dancing girls. The exportation of silk piece goods is a small affair, the bulk of which is for handkerchiefs. On the other hand, raw silk is largely exported from Japan, and has rapidly become a very important article of trade. This exportation of raw silk has increased its price in Japan to from ten to twenty times the former cost, and has had a marked influence on the native silk manufactures, the price of which has been thereby raised to an unprecedented figure. Many Japanese who formerly dressed in silk have now to content themselves with the more homely cotton fabrics or with those mixtures of cotton and silk which the Japanese produce with such success.

PROGRESS OF TECHNICAL EDUCATION IN ENGLAND.

The following figures are given by the *Irish Textile Journal* as typical of the manner in which the funds placed at the disposal of County and Borough Councils in England by the Government are applied to technical education. The wants of each class of industry are carefully considered, and provision is made in proportion to its importance and local requirements. Lancashire is not only a manufacturing, but an agricultural county. The grant for the beer and spirit duties available for the current year is £41,304. The sums set aside by the County Council for various purposes for the year are as

follows: For distribution to various local authorities, on the dual basis of population and rateable value, £28,500; scholarships, exhibitions, and expenses of examinations, £7,920; agricultural instruction, £5,290; for specific purposes, *i.e.*, navigation, mining, plumbing and sanitary science, silk industry, etc., £5,550. Arrangements are in progress for the establishment of a silk school at some suitable centre in the county. A farm school has also been founded at Hutton, and is to provide practical training in agricultural and dairy work. Among the numerous subjects in which instruction is given may be mentioned the following: Bread-making, coal tar products, sugar manufacture, iron and steel manufacture, paper manufacture, pottery, porcelain and glass manufacture, dyeing, bleaching, calico and linen printing, leather preparation and leather industries, textile fabrics, lace manufacture, electrical engineering in its various branches, flour manufacture, carpentry and joinery, iron-founding, commercial subjects, agricultural subjects, which include bee-keeping, poultry-keeping, dairy work (including cheese-making), veterinary science, principles of farriery, practical agriculture and market gardening. Manual instruction is also given in wood, metal, glass and clay. It will be seen that this list is most comprehensive, and that such instruction cannot fail to increase the value and efficiency of the work done in the districts in which it is given.

THE largest carpet in the world has just been presented to Pope Leo XIII. by the ladies of Belgium. It is of Berlin manufacture, it measures twenty-five yards in diameter, and contains nearly 3,000,000 threads, each of which has been secured by hand. It will be fixed in one of the principal apartments occupied by the Pope.

NOR content with spinning her own yarn and weaving her own cotton piece-goods, Japan is trying hard to grow long-stapled cotton, the indigenous plant having a tough and short filament. Systematic experiments in the acclimatization of American cotton plants have been going on for some time, with results promising enough to induce further attempts. The Japs seem to be devoting more than ordinary patience to this work; for, apparently, there is no intention of embarking on cultivation on an extended scale until the observations and experience of several years show what soils and situations in the islands produce the best results.

THE hosiery industry of Saxony has grown very much during the last 30 years, as is shown by the following statistics. In 1860 there were in Saxony 27,000 hand-looms, 500 hand warping-frames, 300 French knitting machines, 4,200 English knitting machines, 50 power-looms and 1,300 sewing machines, giving employment to 32,000 persons. In 1882 there were 45,000 persons employed, 11,500 in factories and 33,500 at home. In 1892 the machines had grown by 12,000, while 3,000 hand machines had been added, the number of people employed being 50,000. It may be estimated that in the subsidiary industries of bleaching, dyeing, finishing,

pattern-card making, etc., nearly 100,000 people are employed. The production daily amounts to 50,000 dozen stockings and socks, 15,000 gloves, and 3,000 dozen vests, etc., of a yearly value of £5,000,000.

A new soluble soap has recently been patented in Germany and Austria. This is a compound product of sulphonated oil, alkali and alumina. The soap, it is said, effects oiling and mordanting in a single operation, thus saving much time and labor, without any interference with the quality of the color. The bleached goods, thoroughly washed, are padded, or in any other convenient manner impregnated with the solution, well squeezed, and then repeatedly run through a solution of ammonium-salt until they cease to smell of free ammonia. They are then well washed and ready for dyeing. Carbonate, phosphate, or chloride are most suitable, or a mixture of these salts may be employed. To 50 litres of water 15kgs. of soap are required; the bath is kept on and made up from time to time. For printing purposes the soap solution is thickened with animal glue. Being strongly alkaline, this new soap may also serve otherwise in discharge or resist processes.

THE Fourmies district, the chief centre of worsted spinning in France, had, in 1890, 650 wool-combing establishments, 870,000 spindles and 14,500 power looms, with an invested capital of 65,000,000 francs. Since 1890 firms controlling 150,000 spindles have partly or wholly closed their works. The high tariffs in Switzerland, Italy, Spain, and more especially in the United States, press very heavily upon French producers. Saxony has ceased buying either combed wools or yarns from Fourmies. She produces them herself, and Germany, formerly a large customer, has now become a formidable rival. On the other hand, while taking these causes into consideration, the crippling effect of the heavy taxes prevailing in France require to be considered, in addition to the dearness of necessaries, and the effects of the Factory Laws as bearing upon the employment of women and children, factors which make the cost of production higher than in Germany or Belgium, according to the statements of French manufacturers themselves.

A NOTABLE addition to the machinery for making up fabrics is the "multiple tucking machine," the invention of W. Bowden, 13 Swan street, Manchester, which can make and stitch from three to five tucks at once, as against one that can be done by other machines. In these days of tucking, a great saving of labor and money must be insured to manufacturers by the use of this machine, especially of ladies' and children's garments and aprons, as well as underclothing. All kinds of tucking can be done with it, the width being gauged at pleasure. It is said that this machine will tuck material in either three or five rows at one time, at the rate of 120 yards per hour. It is simple in its construction, and can be worked by any ordinary machinist. The tucking machine will give quite an impulse to the charming old world fashion, for tucking has

certainly seen in and out many new fangled styles of ornamentation. This machine is already in use by manufacturers in London, Manchester, Nottingham and Glasgow.

AN authority on silk, in the course of a recent paper, remarked that he believed that if it could be obtained in quantity, silk from spiders might be packed in bales and sent to England, where it would readily find a market for being carded and spun into silk threads for sewing or weaving purposes. It is believed that the substance would at any rate realize one to two shillings per pound. It is rather dirty, and this would to some extent detract from its value as compared with genuine silk waste. The spider to which this silken mass was referable is *Nephilengys (Epeira) Malabar-ensis*, Walck., a species of very wide tropical distribution, and apparently in great abundance where it occurs. There seems to be no reason why almost any amount of this silk should not be obtainable from the low plants and scrub on which the spiders spin their snares, and, with a little care in gathering, much less intermixed with dirt and other adventitious matter than the sample above alluded to. In fact, we may easily conceive that it would be possible, with a little trouble, to form a kind of spider farm for the purpose of producing this silk in the greatest possible perfection and abundance.

IN Miss Collett's report to the British Board of Trade on the employment of women in factories, it is shown that Blackburn, Burnley, Bury, Preston, Bolton, Oldham and Rochdale already employ over 90 per cent. of the female population between 15 and 20 years of age. The conclusion drawn from the statistics is that the trade demand for female labor in the great cotton manufacturing towns is clearly greatly in excess of the supply of girls and unmarried women. The returns of wives and widows employed in cotton mills in the neighborhood of a large cotton town generally show a lower percentage than those for the town itself, but Bolton and Rochdale are exceptions to this rule. A paragraph in the report says: "Now, if in a town where women earn high wages, men earn but little more, a woman would pass from affluence to poverty if on marriage she gave up working for wages." This would more particularly apply to Burnley, Darwen, Blackburn and Preston districts, where the earnings of men in the weaving branch of the cotton trade are very little more than those of women. In Oldham and Bolton and other spinning districts the earnings of men are considerably higher. Miss Collett concludes, as a result of her investigations, that the current view that woman's employment is rapidly extending, and that women are replacing men to a considerable extent in industry, is not confirmed. Employment of elderly and married women has, on the whole, diminished, and employment of women in casual occupations has also declined. There has been an increase in the employment of women and girls under 25, which has, however, been concurrent with similar extension of employment of young men and boys.

CANADA GARNETT CO.

MANUFACTURERS OF
Garnetted Wastes
and Shoddies
Waste Openers
and Pullers

Office, 3 St. Helen Street
Works, 10 Hanneckburn
Avenue, MONTREAL.

STEVENSON, BLACKADER & CO.

Manufacturers' Agents, MONTREAL

The Montreal Cotton Co., Ltd.

(Works at Valleyfield)

*Silicas, Ducks, Cambrics, Percalen, Sateen
Jeans, Turkey Reids, Pocketings, Bevelled Twills,
Lawnettes, Shoe Goods, Window Hollands, Cor-
set Cloths, Satines, Marsilles Cloths, Suitings,
Shirting Satines, Cheese Cloths, Butter Cloths,
Bunting Cloths and Dress Canvas.*

The Globe Woolen Mills Co., Ltd.

(Works at Montreal)

*Tweeds, Cassimeres, Meltons; Box, Costume
and Mantle Cloths.*

JAMES LOCKHART, SON & CO.

.. Woolen Manufacturers' Agents ..

59 Bay St., TORONTO

Montreal Office:

308 Board of Trade Building

GEO. H. BISHOP, Representative

GOLD MEDALIST DYERS.

*All Kinds of Dry Goods in the Piece
Re-dyed, Finished & Put Up.*

MILLINERY GOODS

Ribbons, Silks, Velvets, Plushes,
Laces, Nets and Veiling technically
treated, Re-dyed, Finished and Put
up. Work guaranteed the best.

Ostrich Feathers Dyed, Cleaned and Curled,
English or Parisian Mode.

Superior Garment Dyeing & Cleaning

IN ALL ITS BRANCHES.

FRENCH CLEANING

(Nettoys en Sec.)

A wonderful invention for Cleaning Fancy and Valuable Goods, Dress Suits
and all other expensive articles. Guaranteed no Shrinkage
or color running.

BRITISH AMERICAN DYEING CO.,

NEW WORKS, VERDUN.

Office 2435 Notre Dame St., Montreal.

Branch Offices:—90 King Street East, Toronto. 123 Bank Street, Ottawa
47 John Street, Quebec.

JOSEPH ALLEN,
Managing Partner.

Letter Address,
Box 238 MONTREAL

NEWLANDS & CO. Manufacturers of**Saskatchewan
Buffalo Robes**

Buffalo Fur Cloth Coats
Black Dogskin Cloth Coats
Astraohans, Lambskins
Stripe Jerseys, Elder Downs
Glove and Shoe Linings



Factories at GALT, Ont., and BUFFALO, N.Y.

HAWTHORNE WOOLEN CO., Ltd.

CARLETON PLACE, Ont.

MANUFACTURERS OF

FINE TWEEDS, CASSIMERES, Etc.

SELLING AGENTS:

GEO. D. ROSS & CO., Montreal and Toronto

ESTABLISHED 1859

**THE C. TURNBULL CO.,
OF GALT, Limited.**

MANUFACTURERS OF

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

THE

Dominion Cotton Mills Co., Ltd.**MAGOG PRINTS**

A FULL RANGE OF

Pure Indigo Prints

is now being shown to the Trade.

Ask Wholesale Houses for Samples.

All Goods GUARANTEED and stamped "WAR-
RANTED INDIGO BLUE."

D. MORRICE, SONS & CO.

MONTREAL and TORONTO

SELLING AGENTS

The greening and decoloring of logwood black on wool in milling is generally attributed to the insufficient oxidation of the wood or to the lack of tartar in the mordanting bath. Walter, in the *Farber Zeitung*, points out that it can be due to neither of these causes since a perfect logwood black can be obtained without tartar, and that on the other hand if the logwood be not completely oxidized it is impossible to obtain a good black even before milling. The true causes are in the difference of dyeing capacity in different sorts of woolen, and the mixture of these in the fabrics under treatment, to the imperfect scouring of the wool, and finally to a too prolonged milling often rendered necessary because the wool has lost more or less completely its felting properties as the result of the action of chromic acid in the mordanting bath. This last cause has been definitely proved by the fact that samples of iron black have been milled completely in 6½ hours, whereas samples of chrome black have required 16 hours. In the latter case the bleeding was much more excessive than in the former, especially in imperfectly scoured wool. This defect of the chrome mordant has caused many dyers to replace it at least in part by copper sul-

phate, or to diminish the quantity of mordant which they use, strengthening the coloring matter in order to get the desired tint; or, again, after having thus used a stronger solution, saddening with blue vitriol. This last method produces a very superficial black which easily disappears on milling. The excess of coloring matter fixed by the second method also bleeds too easily. The first method alone gives good results; and an excellent black, fast to milling and to light, is obtained by mordanting with a mixture of 2 per cent. of bichromate and 2 to 2½ of sulphate of copper, a third of this being added after dyeing.

REMARKABLY LIKE WOOL!

Send for Samples,
and examine the
appearance and texture of

**PERUVIAN
COTTON**

A very grand
Mixing Cotton

SMALL HANDY BALES.

ALFRED BOYD, 1 WELLINGTON STREET EAST, Toronto

—Dealer in—

FULLER'S EARTH, BORAX, CHEMICALS, etc.

DICK, RIDOUT & CO.

... Toronto ...

MANUFACTURERS OF JUTE AND COTTON BAGS

—AND—

MANUFACTURERS' AGENTS

REPRESENTING

LOUIS BEHRENS & SONS, Manchester, England—
VELVETTES, VELVETEENS AND CORDS.

GEORGE HOWE & BRO., Manchester, England—
GRASS CLOTH, HAIR CLOTH, HAIRETTES, FLANNELETTES.

J. J. WILSON & CO., New Mills, Scotland—
LACE CURTAINS, ART MUSLINS.

GEORGE HOWE & BRO., Dundee, Scotland—
HESSIANS, HOP SACKINGS, WEBBINGS, TOWELS, TOWELINGS.

J. Ironside Thomson

COMMISSION MERCHANT and MANUFACTURERS' AGENT

European Manufactures:

GEBRUDER BOCHMAN, Meerane and Mulsen, Saxony—
Plain and Fancy Dress Goods and Overcoat Linings

FRANS MUTSAERTS & ZONEN, Tilburg, Holland—
Serges, Vicunas, Beavers, Naps, Ulster Cloths, etc.

W. THEODOR GEY, Gera and Langenberg—
Ladies' Fancy Dress Goods.

WINZER & WECKER, Chemnitz—Fancy Hosiery.

Canadian Manufactures:

HARRIS & CO., Rockwood—Friezes, etc.

Correspondence Solicited.

TORONTO and MONTREAL

JAS. A. GANTLIE & CO.

MONTREAL and TORONTO

**GENERAL MERCHANTS AND
MANUFACTURERS' AGENTS**

Canadian Tweeds, Flannels, Dress Goods, Knitted
Underwear, Blankets, etc., etc.

Representing in Canada:

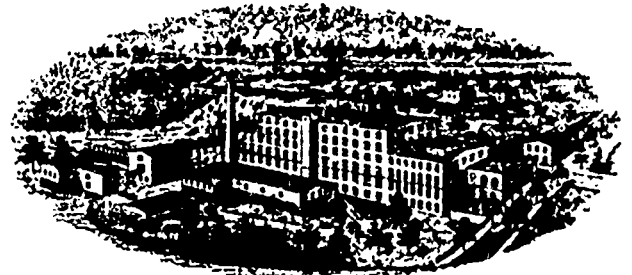
F. P. SAVERY & CO., Huddersfield and Bradford, Eng.

Also ALOYS KNOPS, Aachen, Germany.

J. CUPPER SOHN, Birtscheld, Germany.

WHOLESALE TRADE ONLY SUPPLIED

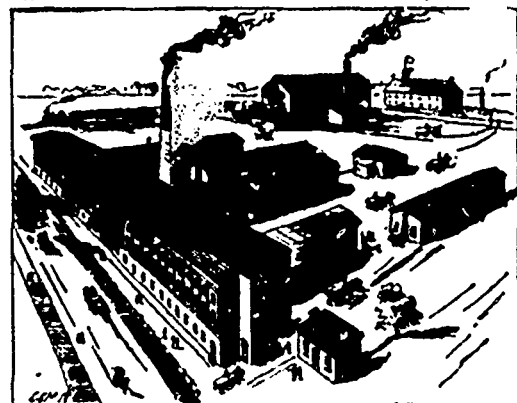
ROSAMOND WOOLEN CO., ALMONTE, Ont.



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

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

Hamilton Cotton Co., Hamilton



Manufacturers
of

Cottonades,
Denims,
Hosiery
Yarns,
Beam Warps,
Carpel Warps,
White and
Colored
Yarns,

Lampwick (standard and special sizes), Webbing, Bindings, etc.

Best in the
market.

SELLING AGENTS:

D. MORRICE, SONS & CO., MONTREAL and TORONTO
Agents for Beam Warps: PAUL FRIND & CO., TORONTO
Agents for Webbing: A. McT. WATT, MONTREAL

A NEW departure in electric lighting was recently witnessed in the Blackstaff Linen Mill, Belfast. This system is an adaptation of the well known arc lamp in which it is turned upside down, so as to throw all the light upwards by means of a reflector placed under the lamp. The object of this is to completely do away with all shadows, which have hitherto been such a hindrance to the universal adoption of the arc light for work shops, manufactories, etc. In this case the light is first thrown on the white-washed ceiling or roof, or, if necessary, large screens of canvas or other material can be placed over the lamp, and from this the light falls vertically on the work, without any shadow, and, it is said, enables the operatives to carry on the most delicate manipulation with the greatest ease.

OVER 300 fibre-yielding plants are found in India, and yet but few of them have been cultivated for commercial purposes. The reason of this is chiefly the lack of information regarding the qualities of these wild plants, most of which have never been practically utilized. The only information concerning many of the fibre-plants is published in botanical works, not popularly known, and which pre-suppose at least some knowledge of botany. Though textile products, such as cloth, paper, ropes, etc., at present are brought to great perfection by the constantly progressing improvements in machinery, this only holds good with regard to certain raw materials, such as cotton and jute. The products of other important fibres, such as "Sunn" and "Bhendy," are capable of great commercial development, and in the future India will be the great source of supply of many of these remarkable fibres.

COMMENTING on the proposal to close the carpet works of H. R. Willis & Co., of Kidderminster, the *Cabinet Maker*, of London, says the Brussels branch of the business is suffering from the rubbish made in Brussels looms that has been offered to the public, as well as from the demand for squares and surrounds of inlaid flooring, linoleum or staining. This alone has reduced the consumption of manufactured material by 25 per cent. Axminsters have also injured the trade. When Crossley & Sons purchased the tapestry patent from Whytock, of Edinburgh, it was said that Brussels was doomed. But it survived, and, after a trying experience, took its place again. Next came Bright's patent printed goods, which were to ruin the Brussels trade altogether, but disappeared themselves instead. A best five-framed Brussels is such a clean, good and useful fabric that its day is not likely to be over yet.

A CORRESPONDENT who has recently been in Japan says the price of embroideries there has increased very rapidly with the number of tourists that are going that way, and those portions of the country which lie within the beaten track of travel are pretty well stripped of fine examples. The art dealers have the best that are left and charge fancy prices for them. But if one can make the acquaintance of a missionary who is in the habit of visiting the towns of the interior, or a tea or silk buyer, he can find places where gems of art em-

broidery may be had at prices that are almost incredible. Curtains such as were used years ago in the palaces of the Daimyos in the Shinto and Buddhist temples, masses of silk and gold as thick as an Axminster carpet, and large enough for a portière or a bedspread, which represent years of labor and the most artistic skill, can be bought for 50 or 60 yen, or half that value in our money. Friezes of the choicest brocades, heavy with gold and silken figures two feet wide and twenty feet long, representing in their designs historical and mythological scenes, can be had for 25 or 30 yen; and smaller pieces, such as will answer for upholstering chairs, or tablespreads or sofa pillows, you can buy for \$2 or \$3 each. When such things get to the English and American markets they cost a great deal of money, and the wonder is why some enterprising merchant does not invade the interior of Japan and pick up a large stock of them.

AMONGST the many rich natural products of Ganjam, says the *Indian Textile Journal*, probably the most esteemed in commerce is the red "Kamila" dye, the valuable product of the *Mulotus philippinensis*. This tree, with its lovely scarlet berries and vivid emerald green foliage, is a marked feature of forest scenery in Ganjam. The berries are coated with a beautiful red powder, which constitutes the dye. This powder is collected by being brushed off into baskets made for the purpose, but the method of collection is reckless and wasteful in the extreme, the trees being often felled in order to reach the berries more easily. The industry is a monopoly of the hill Khonds, who, however, turn it to little advantage. They are ignorant of the great commercial value of the dye, and part with the powder to the low-country dealers settled amongst them for a few measures of rice or a yard or two of cloth. The industry is capable of great development, and a large fortune awaits the firm or individual with sufficient enterprise to enter into rivalry with the low country native dealers settled amongst the Khonds, who at present enjoy a monopoly of the trade. It is notorious that these men are accumulating vast profits in respect of this dye, as they obtain the powder in barter from the Khonds for the most trifling equivalent, and send ship-loads of it from the district. The local native name for the dye is Sundragundi. The tree is cultivated largely by the Khonds in their forest villages.

THE fulling soap should be of sufficient strength to cut all the grease the goods contain, and of a sufficient body to retain it during the fulling process. If the fulling soap is just right, says a writer in an American exchange, it will cut the grease, which at once becomes a part of the soap, so that in fulling the goods will contain nothing but soap, and when they go to the washer there will be no grease to contend with. This soap, however, being heavily charged with grease, loose dye, etc., which the goods contained, and its alkaline strength being exhausted in fulling, there is danger of a separation of the parts, so that some of the grease may yet remain in the goods if they are at once

rinsed. Hence the necessity of a scouring soap to insure a thorough saponification, so that the application of the water in rinsing will not have an unfavorable effect upon the goods, but will carry away every particular of foreign matter they contain. If, in fulling, the soap is too weak or thin it will fail to cut the grease, and the consequence is you have that grease to contend with, and the heat of the fulling will set it, so that it will be very difficult to remove; besides which, a fulling soap that is so deficient will not retain the grease it takes up at the commencement of fulling, and the saponification is destroyed. Now it is plain to be seen that the cleansing of the goods really begins in the fulling mills; and he who bears in mind that, whether in fulling or scouring, the soap must overcome the grease or else the grease will overcome the soap, and governs himself accordingly, has more than half the battle won.

THE inquiry for cheap printed flannelettes has been very active of late, and more expensive fabrics, of which these goods are an imitation, have suffered somewhat in consequence. The rapidity with which manufacturers of woolen imitations have pushed their claims, says the *Textile Mercury*, is one of the most striking facts in connection with the recent history of the textile trades. Unions have attained a position of almost dangerous prominence in the hosiery trade, and at many retail establishments it is not all an easy matter to secure an all-wool article. The linen trade has been invaded as strongly as any other by cotton. In Ireland Lancashire yarns are being imported by Belfast to a considerable extent, and flax and cotton mixtures are now having a great sale. In addition to the enormous business in unions which Ulster has succeeded in creating, there is a very large output of all-cotton handkerchiefs for local making-up factories. On the whole therefore, cotton now plays a very prominent part in connection with the textile industries of the north of Ireland, although the actual spinning and weaving of the fibre has not progressed noticeably in the district. Ulster may well rest content with the strong hold she possesses of the linen industry, a situation equally due to the advantages of centralization, which, as regards the flax trade, are as strongly shown in the north of Ireland as in the English cotton manufacturing districts. In woolen manufacturing districts the use of cotton warps has for a long time been very noticeable, and the Bradford trade may be said to depend largely upon the sale of fabrics of which cotton yarns are one of the principal components. In the silk trade, also, the cotton fibre has intruded itself without any attempt having been made to repulse it.

LACE SMUGGLERS.

One of the most extensive smuggling schemes for many years has been recently discovered at Niagara Falls, N. Y. The smugglers were women who made a practice of visiting the Canadian side and purchasing large quantities of valuable imported lace, which was afterwards either hidden in their dresses or audaciously carried to the American side in baskets. The females engaged in the traffic were of such eminently ladylike appearance that there is some excuse for the Customs officers being duped. The goods were disposed of in Buffalo at a substantial profit.

Textile Design

WOOLEN SUITING OR ULSTER CLOTH

Warp —

DESIGN.	4 Times	12 ends Claret, 17 skeins woolen.
		2 " White " "
		4 " White, 36 skeins, twisted to Canary 36 skeins, at 20 runs per inch.
		2 " White, 17 skeins.
		2 " Scarlet " "
		10 " Claret " "
		2 " White " "
		4 " White, 36 skeins, twisted to Canary 36 skeins, at 20 runs per inch.

Woven — 12 picks Claret, 17 skeins woolen.

2 " Drab " "
4 " Light Olive " "
2 " Drab " "

3,564 ends

54 ends per inch

52 picks " "

3 ends in a reed.

18's slay.

66 inches wide in the loom.

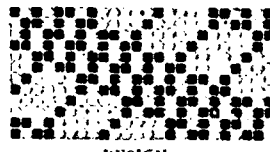
56 " when finished

Straight draft.

Finish soft and mellow.

Weight 24 ozs.

DIAGONAL SERGE COSTUME CLOTH.



DESIGN.

2,320 ends in warp; 36 ends per inch, 9's reed, 4 in a reed, 38 picks per inch, 64 inches wide in loom, 56 inches wide when finished; 10½ oz. warp; 2/24's worsted weft; 12's worsted.

ORCHIL AND TYRIAN PURPLE.

Orchil is the present-day representative of a group of coloring matters some member of which has been in use from the earliest antiquity; since this class of purple substantive colors may be considered to include the Tyrian purple of ancient history, probably the first substance which was successfully used as a dyestuff.

During many centuries, in fact for nearly 2,000 years, Tyrian purple was the most celebrated product of the art of the dyer. It was probably discovered as early as 1500 B.C., its use under the Roman emperors being confined, under penalty of death, to members of the Imperial family. Tyrian or Laconian purple was obtained from certain shell-fish—the two chief varieties being termed *Buccinum* and *Purpura*—which inhabit the coast between the high and low water zones, attaching themselves to large stones or rocks. The secret of the method of producing the color was jealously guarded by the few who were initiated and appears to have been somewhat as follows. The color-producing liquid exists in certain glands in a colorless condition, and these being extracted were laid down in salt for a few days. When a sufficient quantity of the matter was obtained it was then slowly boiled in leaden vessels over a gentle fire for several days, the workman from time to time skimming off the impurities which rise to the surface. During this boiling the coloring matter was developed and wool became dyed by simply steeping in the solution. As might be expected wool dyed in this manner was very costly, 1 lb of purple wool being worth about \$200 of Canadian money.

The particular shade of purple obtained was conditioned by the way in which the process was conducted, that most closely resembling the amethyst being the most esteemed. In very early times, however, other dyestuffs were used in conjunction with the shell-fish purple with the twofold object of mollifying and cheapening the color. In this connection we find the first mention of orchil, the *Fucus marinus* mentioned by Pliny probably referring to the purple dye obtained from some lichen. Kermes and alkanet root (*Anchusa tinctoria*) were also made use of for this purpose.

All knowledge of the method of producing the Tyrian purple appears to have been lost about the 12th century and it remained a lost art throughout the middle ages. It was rediscovered, however, by a Mr. Cole about the end of the 17th century, who found certain shell-fish capable of yielding a purple color and afterwards

shown to be *Buccinum*, on the coast of Somersetshire. The only use made of the color at this time was for marking linen, and Cole's process, which is described in Vol. XV. of the *Phil. Trans. Royal Society*, 1685, was simply to paint the linen with the colorless liquid from the glands before spoken of and then expose to sunlight. A remarkable series of color changes then occur: "The letters or marks will presently appear of a pleasant green color and in a few moments this will change to a full sea green, after which it will alter to a watchet blue, from that in a little time more it will be of a purplish red, after which in an hour or two it will develop into a very deep purple, beyond which the sun can do no more."

The matter was further investigated by the renowned French chemist Réaumur, who in the main corroborated Cole's results, and a full account of his interesting experiments is given in the *Mem. de l'Acad. Royale des Sciences*, etc., Paris, 1711. Twenty years later Duhamel found the *purpura* in great abundance on the coast of Provence, and also succeeded in producing the purple. (*Mem. de l'Acad. Royale des Sciences*, 1736.)

Bancroft, from whose *Philos. of Perm. Col.* many of the above notes are taken, also made many original experiments in 1803 and proved that light was the essential agent in causing the color change described by Cole, the purple being readily produced *in vacuo* under the action of strong sunlight.

There is little doubt that the purple color produced by Cole, Réaumur, Duhamel and Bancroft was identical with the Tyrian purple, but its rediscovery did not lead to its reintroduction into the dyeing industry, because the use of the much cheaper and more easily obtainable orchil had become general. In all probability, however, the Tyrian purple was a much faster color, especially under the influence of light, than orchil.

Colors closely allied to, if not identical with Tyrian purple, are still in use amongst certain coast tribes in South America and possibly other countries.

The chemical composition of Tyrian purple has never been determined, but it is not improbable that it is allied to that of the *alloxan* of Liebig and Wöhler, which is produced by the action of nitric acid upon uric acid. When treated with ammonia, *alloxan* produces a beautiful purple color, *murexide*, which in 1855-6 was largely employed in calico printing. Its discovery was, however, too late to be of much practical value, as the introduction of the aniline colors a few years later led to its entire abandonment. During the short time it was in use the large quantities of uric acid required for its production were obtained from Peruvian guano.

Colors derived from certain lichens, and corresponding to the dye we now call orchil, were certainly in use before the Christian era, but the art of producing them was lost for many centuries until rediscovered by a Florentine named Frederigo about the year 1300. For many years all the orchil employed in Europe came from Florence, and thus the discoverer accumulated a large fortune, was ennobled and founded one of the most distinguished Florentine families. The necessary information as to its manufacture, and the discovery of an alternative source of the raw material in the Canaries, about the year 1410, rendered the other nations of Europe independent of Italy for their supply of orchil. At a considerable later date (1730-40) the orchil-producing lichens were found in great abundance at the Cape de Verd islands, and now they are also imported from Zanzibar, Madagascar, California, etc. In quantities insufficient to form regular sources of supply, some varieties of the lichens may also be found in almost any district.

H. PREFONTAINE & Co., dry goods, Sherbrooke, Que., have assigned to Millier & Griffith. This firm failed in July, 1893, and made a settlement at 50 per cent.

GEORGE BOURGONE & Co., wholesale dry goods, St. Paul street, Montreal, assigned a few days ago with liabilities of about \$200,000, and assets of large holdings of city and suburban real estate, besides stock, the value of which is not yet known. The demand was made by La Ranque du Peuple, which is a secured creditor to the amount of \$78,500.

NAVAJO INDIAN WEAVERS.

THEIR WONDERFUL SKILL IN THE MAKING OF BLANKETS AND RUGS—REMARKABLE RESULTS OBTAINED BY PRIMITIVE METHODS.

The Navajos of Mexico are renowned among the Indians as weavers, and by no native tribe of America, north of the Mexican boundary, has the art of weaving been carried to greater perfection than among the Navajos.

Although cotton grows well in the country over which the Navajos are scattered, it is seldom spun by them, the materials of dress, &c., worked up by them being almost invariably from the wool of the domestic sheep, of which they have vast herds.



The wool is at the present time combed with hand cards, and is spun with the simplest form of spindle obtainable—a slender stick thrust through the centre of a round wooden disk, for, although the Navajos have seen and have many opportunities of purchasing or stealing the common spinning wheels, they do not take kindly to them, and will not abandon the rude but effectual instrument of their forefathers.

Their native dyes are three—yellow, reddish and black—the last made from the twigs and leaves of the aromatic sumac, a native yellow ochre and the gum of the pinon, and as they have also three natural colors in the wool—white, rusty black and gray—they have, and presumably always had, a fair range of tints with which to execute their artistic designs. Among the imported colors is indigo, brought in by the Mexicans, while the brilliant red figures in the finer blankets are made almost entirely of bayeta. American yarn has recently been introduced, and although the majority of the handsome blankets are made only of the colors and materials above mentioned, some are manufactured wholly or in part of Germantown wool.

An ordinary blanket loom may be thus described: Two posts are set firmly in the ground, and to them are lashed two cross pieces or braces, the whole forming the frame of the loom. A horizontal pole, which we may designate the supplementary yarn beam, is attached to the upper brace by means of a rope spirally applied, the upper beam of the loom (it is analogous to the yarn beam of our looms, with this difference, that the warp is seldom wound around it) lies parallel to this horizontal pole, about two or three inches below it, and is attached to it by a number of loops. A spiral cord wound around the yarn beam holds the upper border cord, which in turn secures the upper end of the warp. The lower beam of the loom (to which the name "the cloth beam" has been applied, although the finished web is never wound around it) is tied firmly to the lower brace of the frame and to it is secured the lower border cord of the blanket. The original distance between the two beams is the length of the blanket. The healds, which are attached to a heald rod, are made of cord or yarn; they include alternate threads of the warp, and serve, when drawn forward, to open the lower shed. The upper shed is kept patent by a stout rod (having

no healds attached) called the "~~shed rod~~." The Navajoan substitute for the reed of our looms is a wooden ~~fork~~. To construct the warp a frame of four sticks is made, somewhat like the ~~frame~~ of the loom, but lying on or near the ground; the two forming the sides are rough saplings or rails and the two forming the top and bottom are smooth, rounded poles, often the poles which afterward serve as the beams of the loom. On these poles the warp is laid in a continuous string, being first firmly tied to one of the poles, then passed over the other, brought back under this and over the first, forward again, under No. 1 and over No. 2, and so on to the end. By this means a series of elongated figure 8's is formed, which makes in the very beginning of the process the two sheds, which are kept distinct throughout the whole work.

The weaver (who is always a female) next takes three strings and ties them together at one end. She now sits outside one of the poles, looking towards the centre of the frame, secures the triple cord to the pole immediately to the left of the warp, and takes one of the threads (or strands, as they are now become) and passes it under the first turn of the warp. Next she takes a second strand, and, twilling it once or oftener with the other strands, includes with it the second bend of the warp. This done she takes the third strand, and, twilling it as before, passes it under the third bend of the warp; and thus she goes on until the entire warp in one place is secured between the strands of the cord. Then she pulls the string to its fullest extent, and in doing so separates the threads of the warp from one another.

When the warp is transferred to the loom the healds are applied, and in so doing the weaver sits facing the loom in the position for weaving, lays at the right side of the loom a ball of string more than sufficiently large to make the healds, takes the end of this string and passes it to the left through the shed, leaving the ball in its original position. Then she ties a loop large enough to admit the heald rod at the end of the string, holds horizontally in her left hand a straight, slender rod (which is to become the heald rod), its right extremity touching the left edge of the warp, and passes the rod through the loop until the point of the stick is even with the third thread of the warp, puts her finger through the space between the first and third threads, and draws out a fold of the heald string. This she twists once around, so as to form a loop, and pushes the point of the heald rod on to the right through this loop, puts her finger into the next space and forms another loop; and in this way continues to advance her rod and form her loops from the left to the right until each of the alternate warp threads of the lower shed is included in a loop of the heald. When it becomes necessary, on the near conclusion of the weaving, to remove the healds, the rod is drawn out of the loops, a slight pull is made at the thread, the loops fall in an instant and the straightened string is drawn out of the shed.

In making a blanket the weaver sits on the ground with the warp hanging vertically before her, and thus works from below upward, save in one or two particular designs. Her cloth beam does not revolve as in our looms, and when the web has reached as great a height as is consistent with her comfort it is drawn down toward her by loosening the spiral cord, thus bringing the yarn beam to the desired distance. Save in girths, belts, and occasionally in very narrow blankets, the shuttle is never passed through the whole width of the warp at once, but only through a space which does not exceed the length of the batten, for it is by means of the batten, which is rarely more than three feet long, that the shed is opened.

The blankets are always single ply with the same designs on both sides, no matter how elaborate these designs may be. To produce their variegated patterns the Navajos have a separate skein, shuttle or thread for each component of the pattern. In one blanket, for instance, which has two serrated borders, two white spaces, a small diamond in the centre and twenty-four serrated stripes, we have altogether twenty-nine component parts of the pattern, and the weaver when she was working it must have had as many different threads of weft hanging from the face of the web at one time. It is curious that the weaving of the last three inches of a blanket entails more care and labor than any foot of the

work up to that point, but the reason of this is simple. When the work is so nearly completed that the batten can no longer be inserted in the warp, slender rods are placed in the shed, while "the web is passed with increased difficulty on the end of a delicate ~~spindle~~ and the reed fork alone presses the warp home."

As the work progresses, and the end is in sight, even the slender rods and the ~~shed are removed~~, then the alternate threads are separated by a slender stick worked in tediously between them, and two threads of weft are inserted—one above and one below the stick. The very last thread of all is usually put in with a darning needle. From the four corners of the majority of blankets there are fringes or tassels to be seen hanging, they are made of the redundant ends of the four border cords (that is, those portions of the cord by which they were tied to the beams), either simply tied together or secured in the web with a few stitches.

Navajo blankets are of two qualities—the coarse and the fine. In the former there is great uniformity in design, but in the latter there is an endless variety both of design and finish—so endless, indeed, that among thousands examined it is almost a matter of impossibility to find two exactly alike, and that notwithstanding the fact that all the figures consist of straight lines and angles, to the utter exclusion of curves.—*Carpet and Upholstery Trade Review*.

THE SHRINKAGE OF WOOLENS IN DYEING AND FINISHING.

Nearly all woolens, when submitted to the different operations of finishing and dyeing, show in a greater or less degree changes in length and breadth, caused generally by the forward motion of the pieces at a certain tension when in the dyeing and finishing machines. The goods are inclined to increase in length and decrease in breadth at the same time. In view of exacting demands of the present day, which require the finisher to limit this shrinkage to a precise measure, these changes, which are often beyond control, occasionally produce very unpleasant consequences. The finisher must therefore watch with vigilance for these troublesome influences. Besides avoiding as much as he can all unnecessary tension in the machines used for washing, gigging, dyeing, shearing, etc., he must make use of preventive measures in fulling, principally to obtain the required ready breadth and weight in such a manner that the stuffs become broader and shorter. It is difficult at times to determine the proportions of this shrinkage. Even though the correct measure may be found by experiment for certain classes of goods, small and often unforeseen changes in the same line of stuffs frequently occur which overthrow all previous calculations. For instance, a change of wool often calls for a different treatment of the cloth in washing and dyeing. In the same manner, says a writer in the *Industrial Record*, a small difference in the thickness of the yarn produces similar results in fulling and finishing.

The behavior of the cloth in the fulling operation may serve to a certain extent as a guide. The quicker, for instance, a piece fulls in breadth, the more will it be inclined to shrink in the subsequent operations. This will be the case especially when with light-weight cloths, such as chevicts, serges, meltons, etc., the fulling capacity is not entirely exhausted. The inclination for shrinking, therefore, is still proportionately strong. The cases are not at all rare where easily-fulling stuffs will shrink several centimetres in breadth after having been withdrawn from the mill, while lying or hanging upon the horse before being washed.

The texture of the weave is also a factor to some extent. Loosely-woven stuffs, especially double weaves, have more inclination to shrink in breadth and draw out in length than compact weaves with a greater number of thread crossings. The color of the stuff may also exert an influence in some cases. White and vat-blue goods are always more inclined to shrink in breadth and stretch in length than kettle-dyed pieces—brown, green, black—as the shrinking capacity and elasticity of these is more or less impaired by the boiling and mordanting with chemicals.

The endeavor to preserve the full width of the goods, even in cases when they are light and loosely woven, must not be pushed

too far, for the following reason—The attentive observer has doubtless noticed that light and loosely woven stuff does not shrink so rapidly at the beginning of the milling as when the felting and shrinking process has progressed to a certain point. When this point has been reached, the goods begin to shrink rapidly. If the cloth is now taken from the mill, the shrinking in the subsequent operations will not take place to that degree as it will when the proper period has been exceeded.

Suppose we take a piece of cheviot or melton for piece blue. In order to reduce it to 134 centimetres ready breadth, we should, perhaps, be obliged to take it from the mill at from 138 to 140 centimetres. Up to 140 centimetres the felting process progresses slowly. After that, however, it is accelerated, and after a short time (from 10 to 15 minutes) we have obtained the breadth of 138 centimetres. If we exceed this even by 2 centimetres—in other words, continue to full to 136 centimetres—the piece will shrink very much in the subsequent washing. After washing, we may find it reduced to 130 centimetres, and, perhaps, even to 128. The piece is too narrow, and it will become still narrower when dyed in the vat or kettle, and in the subsequent rinsing.

We take the next piece out of the mill, let us say, at from 140 to 142 centimetres. While with the first piece we experienced a loss of from 6 to 8 centimetres, after washing we may now have very probably a shrinkage of 2 centimetres only, because it was removed before the period of more rapid fulling had arrived. We find that the piece which, after washing, is still perhaps 138 or 140 centimetres in breadth, shrinks less in dyeing and rinsing, consequently, it remains too broad. For this reason, therefore, the fuller must be very careful and observe the time when the fulling process begins to accelerate. To stop fulling with 2 centimetres difference, either before or after this time, frequently makes a great difference afterwards in the ready breadth. Goods of close warp and strong fulling tendency suffer but little change in length and breadth afterwards in finishing. It may also happen that goods which were shrunk in breadth with difficulty become broader again subsequently in finishing. These same remarks also apply to goods shrinking with difficulty in length.

The treatment in washing, finishing and dyeing, finally, is another factor requiring consideration when establishing the dimensions of length and breadth. It is evident that a light or loose cloth which is to be submitted to a more or less severe gigning must be left broader in fulling than one which is not required to undergo this treatment. In the same manner piece goods intended to be dyed in the vat or kettle, and treated energetically in the washing machine for the purpose of rinsing, must remain broader than wool-dyed goods. Heavy, wool-dyed cloths for nap finishing, such as satens, doeskins, eiderdowns, etc., which are steam-lustered afterward need not issue from the mill any broader than is required—in fact it is better to have them a little narrower than the prescribed ready breadth, so that they can be entered well in drying to make them smooth. The steam lustring fixes the breadth and length imparted by the preceding tentering and drying, and in this manner they receive their ready breadth in a more natural manner. Piece-dyed goods of this kind, however, must be left a little broader, as their shrinking capacity, not being weakened by mordanting and boiling, is stronger, in consequence of which they will generally shrink afterwards in washing and gigning. Owing to their natural elasticity, these stuffs will also stretch more or less in length. This stretching in length is in most cases just as disagreeable as the shrinking in breadth, because the stipulated relative weight of the goods is disarranged thereby.

Let us next examine in what manner the several operations subsequent to fulling are active in producing a change of dimensions of woollen goods. The washing is indisputably the principal factor. The fact that soap (an agent which promotes the felting process) is employed, prolongs this process. With pieces that are not fulling to the complete exhaustion of their felting capacity, an after-felting and shrinkage in washing is unavoidable. But it takes place only in breadth corresponding to the mechanical treatment in washing, viz., by drawing it lengthwise and applying pressure, whereby the cloth is stretched in length. The temperature of the

bath used for washing is also an important factor. It is well known that many stuffs after-felt, if washed with hot water, but do not when treated with cold. Goods will felt and shrink most, however when washed in the mill, as is often done. Without taking account at present of other evils invited by this kind of washing, and which partly consist in fixing the cockles more obstinately and an insufficient washing (both of which are the consequence of the little room afforded the goods in the mill bowl), insufficient overhauling, etc., the only advantage is that the cloth is not drawn out so much in length when washed in the mill. As long as the cloth runs in the soap, it will generally crimp in the channels, even though the crimping box is ungear, and good cloth possessing a certain inclination to felt will thereby continue to shrink in length. It is a well-attested fact that nearly all the changes occurring in the dimensions of the cloth are directly due to washing it in the mill. This does not happen so often in the ordinary rope washing machine. Here it is only necessary to take into account the entrance of the cloth through the guideboard, and, next, its stretching produced by the drawing up from the bowl—a stretching which is caused by its own weight. Nevertheless, the cloth is invariably stretched to a certain extent in this machine also, and contracts in width, especially when the apertures of the guideboard are only as small as are required for the proper entrance of the rope and the prevention of washing cockles and creases. The stretching by its own weight in the running from the bowl to the squeezing rollers may be partially avoided by placing a belt on the drawing or transport roll on the outside of the machine underneath the guideboard and around the lower main roll, but the proportions of the two pulleys must be such that the guideboard feeds at least as much, and, if possible, a little more than is taken away by the squeezing rolls.

No attempt should be made to assist the transport of the cloth by belts, so as to prevent its stretching in length, whereby it becomes narrower. There are several constructions of this kind, but the advantages sought to be gained by the arrangement are apt to cause defects as soon as the different pairs of rolls wear unequally, whereby the ratio between the circumference of the rolls and the size of the pulley is disarranged. By this unequal wear of the rolls it may easily happen that the belts retard the run of the cloth instead of promoting it. This, of course, causes a very injurious stretching, and the frequent tearing of the seam and occasionally of the cloth is the result of the wear in machines of this kind.

Many have complained lately that the new style of breadth washing machines stretches the cloth excessively, thus making it narrower. It is evident that the cloth, while running full breadth between the rollers, must be spread out to its full extent, which can only be done at corresponding tension, otherwise one of the principal purposes of the machine—to wit, the smoothing of the cloth—would be rendered inoperative. That light and loose stuffs, by passing over the different spreaders and guide slats, should be much stretched and made narrow, is unavoidable, in spite of the propulsion by belt from the main shaft, and this occurrence must be duly taken into account when establishing the amount of the required shrinkage. It would be foolish to dispense, on account of this objection, with the breadth washing machine, which otherwise possesses many great merits, because it stretches the length of the cloth a little more than the rope washing machine.

Cloth is now rarely carbonized after fulling, this operation generally preceding the fulling. It is necessary, however, under certain circumstances, and it is perhaps proper to remark that this process also causes a stretching and shrinkage. The cloth, by the treatment with acid at a high temperature, becomes looser in feel, and the texture is so loosened that, when neutralized in the washing machine, it stretches to a considerable degree, as the author has ascertained from repeated trials.

The gigning operation is another process which causes a change of dimensions. The cloth must be at a certain tension when passing the gig roll. This tension, of course, can be regulated so that when treating light and loose cloth an undue stretching may be prevented by the brake arrangement. The stretching during the process is particularly favored when loosening the felt—at least on one side, generally down to the texture of the cloth, which becomes

softer and more elastic, and consequently more inclined to stretch. This circumstance is happily offset by another—viz., cloth which is from its nature inclined to stretch (for example, light and loose goods) is only moderately giggered. It is, therefore, not so long exposed to the stretching process as cloth, which, in consequence of its denser texture and more compact felt, offers much greater resistance to the stretching.

In double-gig machines, the greater or less tension depends partially upon their construction. The finisher who has a number of them at his disposal can easily avoid trouble by choosing one best suited to the cloth. When the giggered cloth is submitted to a wet lustring (boiling) directly after having been napped, a slight stretching in length may be expected. This is due not so much to the rolling up of the cloth, which is generally accomplished with little tension, as to the subsequent rinsing, if the cloth, softened by the hot-water bath, is entered into the washing machine, in which it is often treated for some time in full water.

For piece-dyed goods, the operation of dyeing often causes a change in the dimensions, which increases with the degree of the felting capacity of the wool. The greatest change is produced by dyeing in the kettle. This is less frequently the case with vat blue goods, which are but little stretched in length, unless the antiquated method of drawing them through a board with a small opening is resorted to. In boiling, the cloth is apt to after-felt if has any inclination to felting. This is due to the boiling up of the bath against the stuff firmly lying against the side of the kettle, which performs the mechanical labor. For this reason the cloth shrinks by boiling not only in length, but also in breadth. Still, the loss in length is generally restored again by stretching when rinsing the dyed stuff.

In order to prevent this change of dimension in the cloth by the boiling dyebath, as well as the formation of creases and cockles, and in napped goods the entangling of the nap, all the goods—at least those of a better class—to be dyed in the kettle are steam lusted previously, whereby the position of the wool fibres is fixed. If I may use the expression, the fibre is "killed" by the steam lustring—that is, it is deprived more or less of its shrinking capacity, after which it appears to be less inclined to change in form and position. The difference in behavior between sharply steam lusted and non-lusted cloth is very marked as regards its inclination to shrink during and after dyeing. It is true, the cloth will stretch in this steam lustring in consequence of its being wrapped tightly round the cylinder, which may, according to its elasticity, amount to 4 per cent., and this must be taken into account when deciding upon the extent to which the cloth is likely to shrink. Since the cloth is to be dried before steam lustring, some notice can at this time be taken of the stretching in length by the lustring. This can be counteracted by tentering the piece more in breadth than length. Besides this, in the case of light and loose stuffs when the finisher may count on a shrinkage in dyeing in spite of the steam lustring, an incidental difference may be avoided by tentering these stuffs a little more in breadth before the steam lustring. Experience and close observation only will enable the finisher to determine the exact amount. The treatment of piece dyed worsteds upon the crabbling machine answers the same purpose as steam lustring before dyeing.

Although incidental losses in breadth may be equalized again by the tentering and drying after the teaseling, still this cannot be applied nearly so extensively to-day—when the goods must be delivered ready for the needle—as it could formerly, when this stipulation was not regarded as so important. Nevertheless, small differences may always be corrected by the tentering, because according to the larger or smaller shrinkage capacity of a stuff, a part of the additional length or breadth caused by the tentering will remain after making ready for the needle. This takes place in a reverse ratio—that is, the less capacity the cloth has to shrink, the better it retains the stretch imparted to it. For instance.—

Let us take a piece of wool dyed, plain cloth, strongly fullled, and well giggered. It must, when ready, be 140 centimetres in breadth, but in the course of the different shrinkings it was, after teaseling, reduced to 138 centimetres. When we tenter this piece

in the ordinary manner—that is, stretch it in breadth three or four centimetres, as is generally done, to smooth it well—it will very likely return to its original breadth of 138 centimetres when making it ready for the needle. But by spreading the piece double the quantity just stated—that is, from six to eight centimetres—we shall have it at least 140 centimetres wide finally.

More difficulty is experienced with stuffs of light fulling, the shrinking and felting capacity of which is not yet fully exhausted. They will shrink even while being made ready for the needle, and they must consequently be tentered very strongly, especially in breadth. It has happened to the writer that light chevots and serges which before drying were fully as broad as demanded, a few pieces even exceeding the measure, after being made ready for the needle, had to be stretched again in breadth from ten to twelve centimetres to give the required width.

The proportions of length and breadth are best regulated by tentering with goods intended to be steam lusted before the last-named process. The cloth retains the greater part of the length and breadth imparted to it by drying by the fixing process of steam lustring, and often it preserves it permanently. It is even possible to restore cloth lacking a good deal in breadth, or which shrank too much in length by the fulling, to the dimensions required by strong tentering either in length or breadth and thorough steam lustring.

The effect of stretching in length and breadth is not so great on dry cloth as on wet. For this reason the tension in the shearing machine has little or no influence, at least upon heavy fullled goods, and alters them neither in length nor breadth. It is otherwise, however, with lighter stuffs. These contract more or less in breadth, due to the tension upon the shearing cylinder, which shrinkage will be proportionate to the extent to which they were stretched in breadth when tentered for drying. This circumstance must be duly taken into account in drying, and light and loose goods are to be tentered correspondingly more in breadth.

Finally, the treatment in the cylinder press very often causes a change of dimensions. This is principally due to the fact that the stuff still contains a certain percentage of moisture, whereby it is softened between the hot press faces and then carried along under tension, which under certain conditions causes it to stretch considerably. This is not of great moment in the case of cloths which are made ready for the needle after the pressing, since by this process the original proportions are restored, especially if the operation is performed upon the steaming table. Nevertheless, it may happen that in the steaming upon the roller the proper shrinkage will not occur, especially if the cloth after being wound is kept rather tight. Goods that are not to be delivered ready for the needle should not be treated in the cylinder press, as is sometimes done, but in the plate press. The goods are often stretched in length as much as from three to five per cent., and they also lose largely in weight, as their moisture is evaporated by the heated pressing faces—a fact readily observed in pressing.

IMPERFECT VAT DYEING OF WOOLEN PIECE-GOODS.

The difficulty of thoroughly dyeing all wool cloth compactly fullled is discussed in a German contemporary. The case presented involves the dyeing of a vat blue on military diagonal cloth, and various methods of overcoming the difficulty referred to and causing the dye to penetrate the cloth more perfectly are suggested. The writer says that it is not reasonable to expect that piece dyed vat-blue cloth will be dyed throughout as intensely as upon the face, especially in the case of white goods. The greater portion of the absorbed dyestuff will naturally be deposited on the face. However, with a rational treatment in fulling and dyeing, the body of the cloth need not necessarily remain entirely undyed. Such a result is in great part due to the fact that the cloth did not issue clean from the fulling mill, and still contains fat or soap residues, or, what is worse, yolk residues, in consequence of a defective washing of the wool. These residues, which occasionally render the absorption of the dye on the surface difficult, naturally all the more prevent its penetration into the body of the cloth.

With faultlessly clean goods, even when they have been milled

strongly, the body of the cloth will invariably dye more or less, and with heavy cloth, teased well not only on the surface, but also somewhat on the back, the dye will penetrate still more readily. If the felt of the surface is thoroughly loosened and laid in nap by the teasing, the penetration of the dyestuff is greatly facilitated. The loosening and laying in nap of the felt also has the advantage of clearing away many impurities, particles of soap, etc., which cling to the felt. This process will be still more effective if the cloth, after nap-teaseling, is immersed for one or two hours in boiling water, passed through rollers and squeezed out, and afterward rinsed with a fuller's earth solution in the washing machine—a manipulation to be highly recommended.

Another reason for the imperfect dyeing of vat-blue goods is that they are not subjected to a mechanical working during the operation of dyeing. This process would be very effective where the bath is not boiled, which diminishes its power of penetration into the cloth. Ordinarily, the cloth is either drawn about with hooks in the vat, or alternately beamed upon a reel in the bath while being unwound from another underneath the surface of the bath. By this process it is exposed to the action of the bath for a short time only, and at a length of about half-a-yard at a time.

When thorough dyeing is desired, the bath reel should always be connected with a pair of squeezing rollers between the two beaming rollers, and the cloth should be passed through in such a manner that it remains as long as possible in contact with the vat liquor. The absence of such an arrangement is a great objection to many piece-dyeing machines. The squeezing rollers also require a stationary spreader, without which the cloth would run into a rope and become full of creases. These, in consequence of the high pressure and the temperature in the vat, would become so pronounced that they could afterwards be removed only with great difficulty, and sometimes they might permanently injure the cloth. Such a spreader would have to work in the contrary direction to the winding of the cloth upon the other roller.

Reference may be made to the simple piece-dyeing machines with squeezing apparatus used many years ago. The primitive form was, of course, crude. A pair of wooden squeezing rollers, weighted with a protecting board or lattice which reached very near the lower roller, to prevent the wrapping around of the cloth, was the original contrivance. The cloth, which lay freely in the vat, was prevented by a wire netting underneath from coming in contact with the sediment, and was kept stretched before the rollers by two workmen. Only heavy goods could be blued in these machines. Finer cloths, flannels, worsteds, etc., became entangled about the rollers, and were thus frequently injured, in spite of the lattice or doffers. The cost of labor was an important item, as it required at least three workmen to tend this machine. But the color produced was much clearer and more uniform, and, moreover, the cloth dyed through much better than with the modern apparatus, which is constructed on the principle of alternate beaming. The small undyed spots which are frequently seen now were then hardly known, even with goods that were less clean.

These old machines have lately been reintroduced in an improved form, and many practical dyers prefer them to those of any other pattern. The squeezing rollers on the latest apparatus of this style are better adjusted. One of them is generally clothed with india-rubber. A stationary spreader does the opening and smoothing, and a special arrangement, consisting of two smaller rollers, receives the cloth from the squeezing rollers, so constructed that it cannot adhere to and wrap around them. The advantages of such an apparatus are very great. The cloth, even if indifferently moistened in its passage through the squeezing rollers which are located in the bath, is dyed more uniformly, and is forced to absorb the vat liquor. The pieces issue well dyed from this apparatus. Dark selvages or light spots and flecks are rarely seen. The penetration of the dye is thorough by reason of the pressure.

Another important advantage is that the pieces lie open in the vat during dyeing, and for this reason the vat liquor penetrates more readily. This style of dyeing causes the cloth to absorb more dyestuff. The apparatus is easily driven by a belt from the main shaft.

RETIREMENT OF JAMES SCOTT & SON.

A long and honorable business career is closed by the retirement of James Scott & Son, retail dry goods dealers, Toronto. Mr. Scott started business in 1850, in the same block in which his business remained till its close this month. He had not been in good health for some time past, and decided to give up business, selling out his stock to W. A. Murray & Co., his son also retiring with him. Solomon has said that a good name is rather to be chosen than great riches, but Mr. Scott's career is not only a proof of this proverb, but shows that a good name in business may create the riches, which are a secondary consideration in the wise man's view. Mr. Scott made money in business simply because the customers who came to know him could depend absolutely on his representations. He had the same run of customers, in the main, year in and year out, and many a citizen has taken his retirement as a personal loss. Many an incident has occurred within the last few days in connection with the "selling off," showing how complete was the confidence which Mr. Scott's name inspired in those who had been so many years in the habit of buying goods there. The mercantile community can ill spare such men from the ranks of trade. We understand that Thomas Glass, who has been for twenty-five years continuously in the employ of the firm, and who is almost as well known in the business as Mr. Scott himself, will go into the employ of W. A. Murray & Co.

THE new sets of samples received by J. Ironside Thomson, Toronto, from his foreign agencies, show the great progress made in German fancy fabrics each season. Winzer & Wecker, of Chemnitz, whom Mr. Thomson represents, are producing some beautiful lines of hosiery in lisle thread, maco, etc., their stainless colors being a noteworthy feature of these goods. W. Theodor Gey, of Gera and Langenberg, also show through Mr. Thomson some striking novelties in dress goods, which are sure to be eagerly sought after on the Canadian market. The goods of E. Steger, Annaberg, and Gebruder Bochmann, which Mr. Thomson handles for the Canadian trade, are also very handsome this season.

SPEAKING of the "gelsoline," the new fabric or material prepared from the fibre of the bark of the mulberry tree without the intervention of the silk worm, a technical journal says there are three absolutely distinct fibres procurable from that tree. Thus, in addition to the ordinary silk, a strong and thick fibre for certain purposes is obtained by killing the silk worm and drawing the thread out of its inside. In the preparation of the gelsoline the bark is rotted and the fibre treated after the manner of flax, and after purification with soap and soda is ready for the weaving shed—some works in Italy. It appears, already producing thousands of yards of the woven fabric for upholstery purposes. This new material is said to be ten times as strong as middling Orleans cotton, and is obtainable at one-tenth the price of flax. Being perfectly round the fibre insures a close fabric.

THE Canada Suspender Co., of Quebec, assigned last month with liabilities of \$35,847, and assets of \$15,000. Kent & Turcotte, of Montreal, were appointed provisional guardians. The following is a list of the principal creditors, who are chiefly in Montreal: Glover & Brais, \$826; Gault Bros. & Co., \$1,768; Greenshields, Son & Co., \$1,680; Greene Sons & Co., \$794; Mark Fisher, Son & Co., \$2,078; James Johnston & Co., \$5,734; Wm. Agnew & Co., \$1,489; Caverhill & Kissock, \$879; Henri Duverger, \$589; F. F. & C. B. Kelly, \$300; John MacLean & Co., \$530; Thos. May & Co., \$1,541; H. A. Nelson & Son, \$312; M. L. Schoman, \$249; Skelton Bros., \$511; Watterson & Auldjo, \$423; Kyle, Cheesebrough & Co., \$741; Alp, Racine & Co., \$457; Robert Linton & Co., \$1,100; H. S. Scheyer & Co., \$490; H. B. Muir & Co., \$462. Some complications are expected to arise in connection with this failure. An investigation into the business methods of the company is now going on in the Quebec Supreme Court at the instance of J. Johnson, of Montreal.

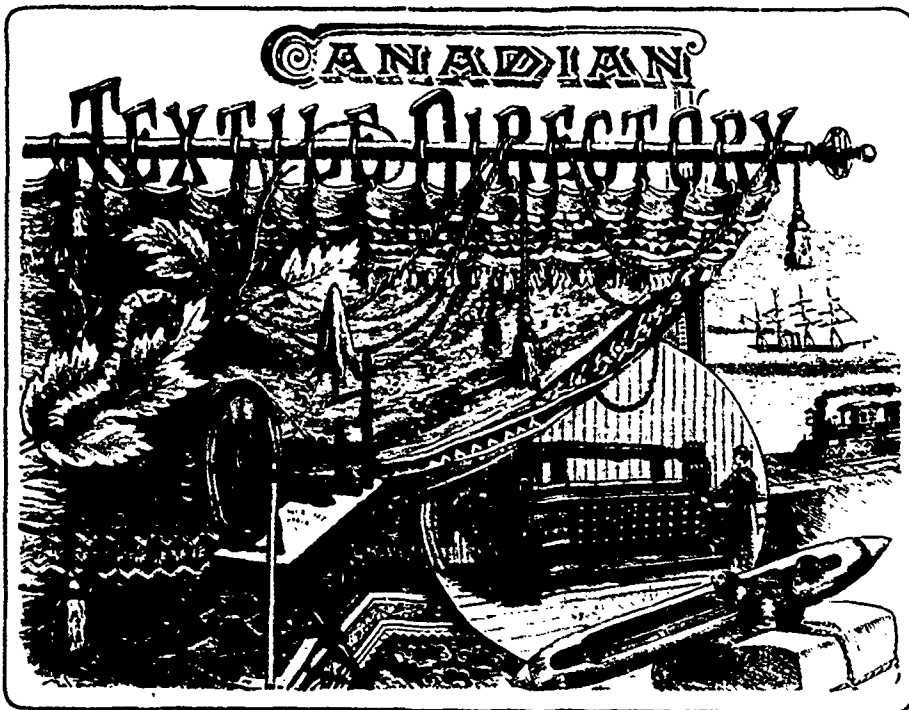
It Pays to Know

All you can concerning
your own trade.

The Canadian Textile Directory

Will contain thousands of facts of value to anyone interested in any branch of the
Textile Trade of Canada.

We are now starting work on the **FOURTH EDITION** of this valuable
HAND BOOK.



THE "Canadian Textile Directory" is a reference book comprising all manufacturers and dealers in the textile trades of the Dominion. It embraces Cottons, Woolens, Print Goods, Carpets, Silk, Jute, Flax, Felt, Rubber, and Asbestos Goods; Clothing, Men's Furnishing (Haberdashery), Ladies' Wear, Buttons, Feathers, Job Dyeing Establishments, and Laundries; Furniture, Upholstery and Upholsterers' Supplies; Sails, Tents, Awnings, Window Shades, and Wall Papers. Manufacturers and Dealers in Hats and Furs, Paper Mills, Dealers in Raw Wool, Furs, and Cotton, with principal Dealers in Dyestuffs, etc.

It gives lists of all Manufacturers' Agents, Commission Merchants, and Wholesale and Retail Dealers in the Dry Goods and kindred trades of Canada. Also, Statistics, Tables of Imports and Exports, Customs Tariffs of Canada, Newfoundland and the United States, the Canadian Boards of Trade and Textile Associations, and other information. The Fourth Edition will also include the Trade of Newfoundland.

The Price of the CANADIAN TEXTILE DIRECTORY on and after day of publication is **\$3.00**, but those who order it in advance are given a **discount of \$1.00.**

ORDER NOW. Address:

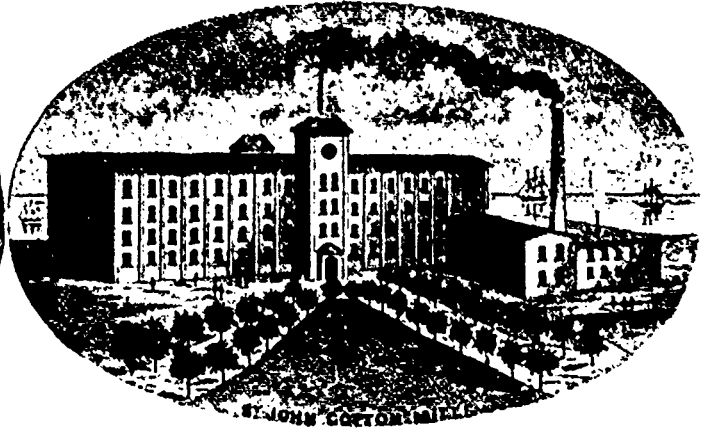
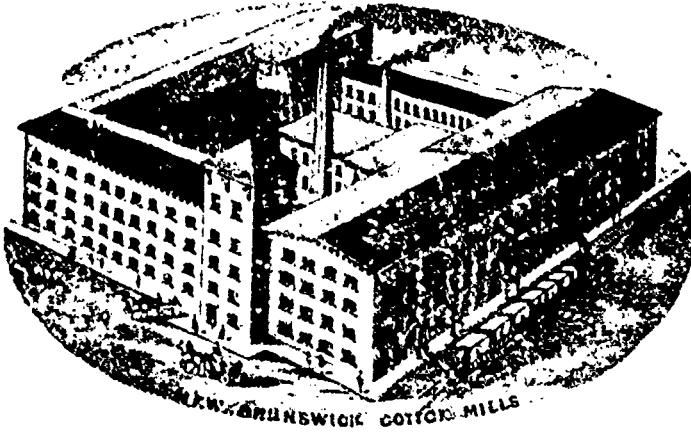
BIGGAR, SAMUEL & CO., Publishers

E. B. BIGGAR
R. R. SAMUEL

Fraser Building, MONTREAL, Que.

WM. PARKS & SON, LIMITED

ST. JOHN, NEW BRUNSWICK



Cotton Spinners, Bleachers, Dyers and Manufacturers

Yarns of a superior quality and Fast Colors for manufacturing purposes a speciality

Agents: - DAVID KAY, Fraser Building, Montreal. WM. HEWETT, 30 Colborne Street, Toronto. JOHN HALLAM, Agent for Beam Warps, 83 Front Street East, Toronto.

STEAM AND POWER

Pumps

& HYDRAULIC MACHINERY

FOR ALL DUTIES

NORTHEY

CO., LTD.

TORONTO, ONT.

LAURIE ENGINE CO.

Sole Agents for Quebec

St. Catherine St, MONTREAL

BARNEY VENTILATING FAN CO.

Ventilating Engineers
and Experts in Textile Manufactories

MANUFACTURERS OF

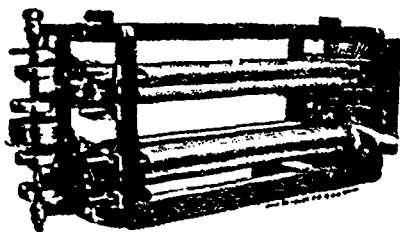
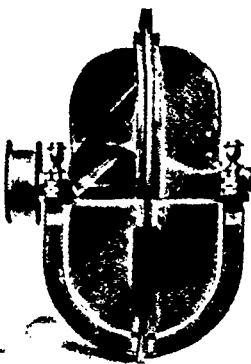
BARNEY'S COMPOUND VENTILATING WHEEL

Prompt Delivery, and no Customs Duties.

MANUFACTURER'S AGENTS FOR THE

Manville Wool-Felt Sectional Steam-Pipe Covering

54 Oliver St., BOSTON, Mass., U.S.A.



We manufacture Barker's Patent Noiseless Fast-running Doffing Comb

Barker's Patent Double Apron Rubbing Motions for Condenser Cards

are in successful operation on all grades of stock, being generally adopted because they change carding and spinning rooms for the better.

James Barker, Cotton and Woolen Machinery

Second and Somerset Streets, PHILADELPHIA, Pa

Foreign Textile Centres

MANCHESTER.—With the close of the cotton year on August 31st, the usual annual reviews appear. It is yet too soon to correctly define the exact size of the late crop. The New Orleans Cotton Exchange puts it at 9,907,251, and, considering the extra size of this year's bale, we may call it 10,000,000 bales - by far the largest crop ever grown. Yet the world's visible supply is only about 300,000 bales in excess of last year. What has become of the surplus is an unsolved problem. This may be the great factor in causing the present rise in price. If the cotton has been consumed, to-day's quotations are too low, if it is in stock they may prove too high. Unfortunately, yarn and cloth are in poor request, and can only be sold at unremunerative prices. An authority states that in every other country where cotton spinning and manufacturing exist, capital is making 10 to 40 per cent., while in England we are sustaining 5 to 15 per cent. loss. The disease is apparent, but the remedy not forthcoming. Some trade has been done in 40 mule for Madras and Bombay, and also in bundles for China and Japan. Home trade yarns are dearer, but very little doing. The continental demand is less active. In cloth few orders are being booked. India remains quiet, and China is now content with recent purchases. Home trade and minor markets continue slow. The majority of the recent Oldham stock takings has not been very satisfactory. But in few instances have dividends been declared. The Rochdale flannel trade continues satisfactory, and orders are increasing. Several manufacturers have advanced prices 1/4d. per yard on account of the increased price of wool. The waterproof garment industry is said not to have been brisk this season. Some of the leading manufacturers are full up with orders, but the prevailing opinion is that business has been below the average. The umbrella trade is improving, and manufacturers anticipate that the season will be a good one for home and export.

BRADFORD.—The correspondent of the *Drapers' Record* writes, under date September 7th: "Since last week the wool market here has at times been in quite an excited state. Prices have advanced rapidly for all classes of bright material, and have shown a continuous, if somewhat slower, advance for fine wools and cross-breeds. Business has, however, now settled down a little after the large trade which has been passing during the last few days. Staplers are not anxious to sell, except at a further advance, which users at present are not prepared to give. Lustre wools have gone up fully a penny per lb. in the last week, and every transaction a wool-stapler makes emboldens him to ask for a still further advance. Both mohair and alpaca are firm at the extreme rates touched, but as no new business is reported no further additional prices can actually be quoted, although the tendency is still upward. The yarn trade continues brisk, and large business could be done in almost all varieties if spinners could promise deliveries in any reasonable time. Nearly all these are weeks behind with the orders in hand. Spinners of mohair and other bright yarns have put up their prices to prohibitive limits, or they could do a large business both for home and the Continent. Manufacturers appear busier than ever, and the large contracts placed for the United States in worsted coatings are far from completed. Inquiries are being made which seem likely to lead to business in the class of fabric which will keep the looms going when the orders in hand are cleared. Of course, makers of bright goods are still inundated with orders. One good feature is that, instead of the bright goods craze calling gradually for cheaper fabrics, there is an increasing demand for the highest class styles in the most expensive fabrics, to meet which some most beautiful fabrics, composed solely of mohair and silk, are being produced. In the warehouses the employees are having a busy time, and all possible overtime is imperative to deal with the present rush. For the winter the close cut, smart-faced Bradford serges are in great request both in lower and expensive makes, and the supply is already quite below the demand. There are also some indistinct effects in Ottoman wool dress costumes, which give quite a novel appearance to the material.

HUDDERSFIELD.—The home-trade demand for winter goods of all kinds is very brisk, and while fine and medium qualities have sold well there has been a considerable increase in the inquiry for low tweeds and serges. Wholesale houses have been placing many large orders for fine and medium vicunas and serges and medium tweeds for next spring, and orders have come in satisfactorily for cheaptweeds. There is an increasing trade with the Continent, with United States and Canadian merchants, and with houses doing business with South America. Nearly all manufacturers are busy, many are running overtime, and some day and night. The Huddersfield branch of the West Riding Weavers and Textile Workers' Association has accepted the invitation of the Huddersfield Chamber of Commerce to attend a conference to consider the causes which are supposed to affect detrimentally certain classes of the Huddersfield trade, and has appointed the secretary (Allen Gee) and three members of the branch to meet an equal number representing the Chamber of Commerce. It is expected that special attention will be drawn by the chamber representatives to the advisability of one weaver taking charge of two looms—a contentious question which the weavers' representatives declined to recognize as bearing upon the depression generally at the last commission of inquiry held by the two bodies named.

LEEDS.—Both the home and export trade in woolen goods is steady, and prices keep firm at the recent advance. Meltons are hard to clear except some special makes, which are freely taken for the United States. Large parcels of presidents and cure serges are also going there to order. Except some in the ladies' line no goods are shipped to the States speculatively. The union cloth trade has almost disappeared for the time being. The new spring styles are quieter than last year. So far it appears probable that the sale will be larger of the better qualities than of the inferior. The worsted coating manufacture keeps buoyant, and further revision by manufacturers of their quotations would not be surprising. Of the improved outlook in Australia there is strong confirmation. Winter orders from the Continent are fully maintained. Some exporters in Paris doing business in Japan are operating in this market. Some firms are doing substantial business with the Cape, and matters are found to be improving both in the Argentine and Chili. Another Leeds correspondent says that in flannels there are better reports from all quarters, and now the season seems to be opening out in earnest there is every prospect of a good year's trade, unless there is a check on account of higher prices. Leading makers, who are now as a rule busy, have advanced some of their leading numbers 1/4d. per yard, declaring that this does not half cover the advance in wool which they are paying. There is a better demand for fine Yorkshire grey flannels, which are coming more into favor.

LEICESTER.—The activity in the yarn market is well maintained, and with an upward movement in values spinners get particulars of old contracts much more freely. Stocks are small, and the deliveries on home and Continental account are now very large. Lambswool, cashmere and fancy yarns sell readily at full rates. All the leading branches of the hosiery trade are active, and there is some pressure for immediate delivery. Already a heavy business has been done in football jerseys for the opening of the season, and the demand is fully equal to the supply. Cords, braids, belt-ings, and fancy elastic-web goods are in fair request.

KIDDERMINSTER.—Many carpet buyers are away for holidays, and for the moment, little is doing. Inquiries from various markets are, however, being made, and the volume of the autumn trade promises to be considerably increased as compared with last year. The yarn market is buoyant, and spinners keep busy at advancing prices. Not much is being done in new business in carpet yarns, because manufacturers are fairly covered, and, for the present, they decline to pay the advances which spinners ask and maintain.

JYTINGHAM.—The lace trade is still quiet. A few additional orders have been placed both in the home and foreign branches, but they have not been of sufficient importance to stimulate business to any appreciable extent. The Valenciennes continues to be the prevailing style for cotton laces, and moderate quantities are selling both in white and light tints. Some goods formed of an ad-

mixture of muslin and open work have been selling, and there is a little inquiry for Irish guipure, Maltese, and other laces. Common goods for making-up purposes sell slowly, and the demand for crochet edgings, tattings and trimmings is inactive. No improvement has occurred in the demand for silk laces and nets. Narrow widths of Chantilly are used in place of Valenciennes. Whenever we hear that Chantilly is to be replaced we find out some new qualities that it possesses. This has prevented the introduction of black Valenciennes. Whatever can be used for ruches, made-up neckwear, or jabots, will sell in spite of the lace trade at large being decidedly dull. The neckwear trade has been a strong stimulant this season to the lace business. The expensive trade takes galloons for trimmings in muslin effects for dresses or neckwear. Tullies have had a demand for the same purpose. Mechlin and Alencon are the coming styles for handsome laces. A steady business is being done in veerings, but competition is keen. The lace curtain trade remains dull. The plain net trade is without animation, orders being placed slowly, but prices generally are steady. Stiff nets meet with very little inquiry. The local yarn market is dull. Pretty good orders have been booked for woolen and merino hosiery, and prices are well maintained, but the level is a low one. Cotton hosiery is not much wanted, and the same may be said of silk hosiery and gloves.

SOUTH OF SCOTLAND In the Glasgow cotton yarn market no large transactions have taken place for the past two weeks, owing to the fact that buyers are unable to obtain any advantage in firms which are holding very firm. The Hawick hosiery trade is opening well for the next season, and all makers are at present fully employed with forward orders. There is a large demand so far for Llana and cashmere goods, and for other qualities the prospects are also satisfactory. Shirting manufacturers are hoping for a good season's trade in best union goods, and already some of the biggest retail buyers have shown a decided inclination to push such goods for the autumn and winter season. In patterns novelties are not abundant, but darker colorings are not favored. Checks are being shown fairly well, but makers have not found a large market for them, the preference being for stripes, of three shot to ten shot width. Cheap tweed shirtings are not in much demand, Grandills and other cotton shirtings having taken their place in many working-class quarters. Fifeshire linen manufacturers are fortunately unaffected by the labor troubles which are hampering their brother manufacturers in the jute industry in Dundee. There are no signs of any similar troubles affecting the linen industry. The increased rates notified in the *Warehouseman and Drafter* as having been inaugurated by Richards & Co are being adopted by other firms. In fine and fancy goods there is a steady trade doing, and in glass cloths, crashes and heavy linens most makers are booked well ahead. While the yarn market has slightly advanced in sympathy with the increased demand and slight rise in prices for manufactured goods, the raw material is still about even prices with the market rates of three months ago. The Kirkcaldy floorcloth and linoleum makers are still busy, and this important industry seems capable of further development. Lace manufacturers in Ayrshire are in the happy position of experiencing a steady demand for all kinds of goods. There is still determined competition in the home markets, and consequently the margin of profit is a pretty small one. Frilled curtains are going out, and steady inquiries are being made for heavy and stylish goods. Compared with last season, the demand from the States has decidedly improved, the popular styles being single borders, of light floral design. The Colonial trade is improving, and the same can be said of the Continental.

BELFANT—The market is lifeless and speculative purchases are few and far between. Rain has fallen incessantly of late and the damage to the various crops, flax included, has been enormous. In the case of flax the loss this season to the farmers will be very serious, ranging in some cases from 20 to 30 shillings per acre. This will, without doubt, reduce the sowing next season. Yarns have been inactive, manufacturers merely purchasing to satisfy their immediate requirements. Prices keep firm at recent figures. Continental yarns are looking up and this will likely stiffen our market. Linens. The coarse end of the trade has been well engaged, old

orders to a large amount being still on hand, and producers quite indifferent about further engagements unless at advanced rates. Union goods of all descriptions have been moving easily into consumption, and this branch of trade is yearly increasing to the detriment of pure linen. In the finer end of the trade cambries of medium qualities are fetching slightly advanced figures, and higher rates are being demanded for handkerchiefs. American yarns are being quoted $\frac{1}{2}$ d per pound higher; Egyptian unchanged. Handkerchiefs are far from brisk, and fine double damasks are as dull as they well could be. Loom sets, however, continue to sell in large quantity for export. Ballymenas are meeting with steady demand and manufacturers are well employed. County Downs are also going off easily. Finished linens for the home trade have been featureless, buyers doing nothing beyond a sorting-out business. There has been an improvement with the Continent, but with the States fresh business is still unimportant. The general outlook, however, is encouraging, and an early turn for the better confidently expected.

DUNDEE—A correspondent writing from Dundee on September 2nd, says: The strike continues. Probably 25,000 persons are now idle in Dundee and the district which depends on Dundee yarn. The masters generally have signed a bond with a penalty, in which they bind themselves not to advance the rate. The people are thoroughly misled; indeed, they may be said to have no leader. Irresponsible young persons have taken action, and while it is certain that the great bulk of the intelligent work people are well aware that this a most inopportune time to demand a rise, they are powerless. A very few days—it may be hours—will, it is still hoped, lead to reason, and the return of the people to their work. In the meantime there is little doing in jute. The tendency is rather in favor of buyers, but at £10 15s. for firsts the "bears" are now very cautious, and refuse to make lower offers. On the spot good jute is wanted and difficult to be had. Yarns are not quoted, as few can deliver. For 8 lb. cop 1s. 3d. is named, but there is very little business. Wide hessians are in demand, and it seems likely that this unfortunate strike will directly lead to immediate extensions in this important branch of the trade in Calcutta. Flax is unchanged in price, but it is now difficult to procure good brown flax. For K the price is £18 for good to £16 15s. for ordinary Riga. The new crop is, on the whole, well reported of. In tows there is less doing. A very large business has been done, and neither sellers nor buyers are now keen for business. The price is quite £1 a ton dearer from quotations current a few weeks ago. Flax yarns are decidedly firmer. One hears that the low price of real line, as well as the rather unsatisfactory reports on unions, is causing Fife manufacturers to go back to linen warps. This has somewhat stiffened the price of 2 lb. flax. Tow yarns are quite 1d. per spindle dearer from the bottom, and good wefts are wanted. They are still below a price to cover costs. Linens are in better request, and, would men only act with prudence, the trade would revive. No sooner, however, does any industry show the smallest margin of profit than some insane crowd spoil the trade with impossible demands. Arbroath is fairly busy in heavy linen goods.

PLAUVEN—The situation here was modified considerably during July. Very few American buyers visited the market, and those who did arrive only placed orders of small importance. The large quantity of novelties in silk brought forward during May, June, and July did not produce the result expected, and the business done is said not to have covered cost of production. Paris has been very quiet, and with the exception of a few orders for entredeux and imitation Malines, business last month was almost at a standstill. London sent forward larger orders, and the English demand has been greater, and helped to strengthen the local market more than from any other quarter last month. There is too much examining by buyers. A large number of novelties is brought forward, but the article on which one can place reliance has not yet apparently been found. The Marie Antoinette fichu in tulle, guipure and muslin has been largely bought, and the other goods which have moved include bleached embroideries and black silk grenadine, with butter-colored borders of Vals., black lace with "motifs" embroidered in silk cashmere, grey cloths with yellow or brown embroidery, and laizes in widths of 60 and 70 centimetres.

CREVELD.—Retailers are not buying, and if there had been any desire to do much business it has been quieted by the hot weather. Wholesale distributors are doing very little business in consequence, and this is felt by the manufacturers, who report an almost total absence of reassortment orders for fall delivery. The cloak trade at this time usually keeps up a fair demand for silks, but this year seems to be an exception, and, except plushes, which sell well for ready delivery, the business with the garment trade is rather slow. Linings are not selling well for this time of the year. This dullness in the demand for fall goods is not due to any unfavorable conditions, but to the fact that the opening of fall business being a little later this year the market is still asleep. But the manufacturing situation is in no way affected by this, and while manufacturers find it almost impossible to secure advance orders for fall delivery, it is easy for them to obtain contracts for next spring. Good orders have been placed for dress and trimming silks for spring, and buyers seem anxious to secure novelties. Enough orders have been placed lately to guarantee constant work for the looms for a considerable time to come. The looms devoted to ribbons are well engaged and orders for next spring have been placed in which the better grades of ribbons have taken a good share. Tie and umbrella silks have also received more attention on orders for future delivery, but the orders are individually small. Evening silks are still favored, but the order season for these is likely to close soon, although the looms have work ahead on these goods also. Wool-filled bengalines have received attention. While the distributing activity is still slow, production is active. With the opening of fall trade wholesale distributors are likely to also feel an improvement. In velvets and plushes business is fair. Millinery velvets are in good demand. Changeable velvets sell well and are scarce. Mantle plushes are selling regularly. Velvet ribbons are in good request at firmer prices.

ZURICH.—The silk goods market is more active and the prospects for the future are becoming still brighter. As far as the demand is concerned, manufacturers have little to complain about, but considering the recent advances in the prices of raw material there is room for improvement in the selling price of goods. This is especially the case for plain fabrics, like surahs and merveilleux. These are in regular demand, but do not give much satisfaction as to values. Good supplementary orders for next spring have been placed for taffetas. The looms are well engaged and there is no fear of work being scarce between now and the middle of next spring. Black silks are better favored and stocks of rhadamés, satin de Lyon, merveilleux and surahs have decreased. Damassés are good sellers.

AUSTRALIAN WOOL FOR JAPAN.

E. Jerome Dyer, from Melbourne, has been in Japan for the past two or three months, trying to convince the Japanese that there is more virtue—and profit—in conquering countries by commerce than by fire and the sword. Mr. Dyer was the bearer of a large collection of Australian products from the Government of Victoria to the Emperor of Japan, including a large collection of various wools from the Wool Brokers' Association of Sydney. They were distributed amongst the different mills in Japan, and left on permanent exhibition at the Bureau of Commerce and the Chambers of Tokyo and Osaka. The manufacture of cotton goods, however, has monopolized the attention of those who might otherwise have developed the woolen industry; but the war has most strikingly proved the value of woolen clothing, and during the last eight months the output of the Japanese mills has been about doubled. It is said by the leading Japanese that after this war the woolen manufacturing industry will make great strides in Japan, especially as there is a general feeling that it is advisable to go slower with cotton spinning. In 1891 Japan imported wool to the value of 206,500 yen; in 1892, 302,500 yen; and in 1893, 425,000 yen worth. Of the total for 1893, 247,306 yen worth came from Australia, and in 1894 the import of this article from Australia rose to the value of 380,673 yen. (The total imports for 1894 are not yet compiled.) The mill owners of Japan are convinced that this

industry has scarcely yet started in Japan as compared to what it will be, to supply the great local demand and that which is expected from China, apart from the trade of foreign markets which will be competed for. When it is remembered that Japan imports about 8,000,000 yen (about \$1,000,000) worth of woolen goods, and that it is in a position, with labor at from 4c. to 8c. per day, unlimited working hours, and cheap motive power, to manufacture successfully for outside markets, the prospects of Australian wool in Japan look decidedly bright.

STAINS AND THEIR REMOVAL.

It is, perhaps, hardly necessary to say that stains should be treated as speedily as possible after their first appearance when once dry they are more difficult to remove, requiring both time and perseverance. Paint should be instantly wiped off, grease on wood, stone, or carpet should be congealed before it has time to penetrate, by throwing cold water over it. Tea, coffee, ink, wine, and fruit stains will disappear in a quarter of the time if they can be attended to while wet. Spots on colored material must not be rubbed, but dabbed over and over again until they disappear. Rubbing roughens the surface and often leaves a whitened circle almost as unsightly as the original stain. The dabbing is best done by covering a finger with an old handkerchief frequently changed, and great care should be taken to confine the operation to the area of the stain itself, and not to extend the damage by damping and dabbing the surrounding material. In the treatment of stains to know what you mean to do, and to do it quickly and neatly, is more than half the battle. We will take stains on white washing materials first:

For acids, tie up a bit of washing soda in the stained part, make a lather of soap and cold soft water, immerse the linen and boil until the spot disappears.

For anilines, wet with acetic acid, apply diluted chloride of lime, and wash out carefully.

Apple and pear stains may be removed by soaking in paraffin for a few hours before washing.

Blood, if fresh, is removed by soaking for twelve hours in cold water, then washing in tepid water. If the mark still remains, cover it with a paste made of cold water and starch, and expose to the sun for a day or two. Old stains require iodide of potassium diluted with four times its weight of water.

For coffee and chocolate, pour soft boiling water through the stains, and while wet hold in the fumes of burning sulphur.

Fruit stains can be treated in the same way if fresh, but if old, rub them on both sides with yellow soap, cover thickly with cold-water starch, well rub in, and expose to sun and air for three or four days. Then rub off the mixture and repeat the process if necessary.

Grass stains are removed by alcohol.

Ink requires milk for its removal, the spot should be soaked and gently rubbed. A fresh stain will disappear quickly, but an old one may need soaking in milk for twelve hours.

For iron mould, spread the stained part on a pewter plate set over a basin of boiling water, and rub the spots with bruised sorrel leaves, then wash the article in soft warm suds. Or, cover the spots with a paste made of lemon juice, salt, powdered starch, and soft soap, and expose to the sunlight.

Mildew can be removed by the above paste, or by simply wetting the spots, covering them with powdered chalk, and bleaching on the grass.

Paints must disappear before turpentine and perseverance.

Scorched linen can be restored if the threads are not injured. Peel, slice and extract the juice from two onions, add half a pint of vinegar, half an ounce of curd soap, two ounces of Fuller's earth, boil these well, and when cool, spread over the scorch, let it dry on, and then wash out the garment.

Tar can be taken off with petroleum.

Tea stains yield to the action of boiling water poured through them from a height, or to glycerine.

Wine stains, if old, treat like old fruit stains, if fresh, table salt spread over the spots while wet will neutralize the damage.

Stains of which the cause is unknown will frequently disappear if held in a pan of milk boiling on the fire, or by dipping them in sour buttermilk and drying them in the sun. The articles should then be washed in cold water, dried, and the process repeated several times in the day. The following bleaching liquid will effectually remove any trace that may still remain after the garments have been through the laundry. It may be called an instantaneous ink and stain extractor, but requires to be used with care lest the fabric suffer. Put a quarter of a pound of chloride of lime and a quart of soft water in a wide-mouthed bottle and shake it well. Cork tightly for twenty-four hours, then strain through cotton and add one teaspoonful of acetic acid to every ounce of the mixture. Damp the stain, apply the extractor and wash well in clear soft water.

For the removal of stains and spots from colored materials and carpets, ammonia takes the first place. Almost any mark, new or old, will yield to its persevering use, and if dabbed on (not rubbed) it will itself leave no trace of its use. It can be applied to woollens, cottons and silks. It will remove ink spots from marble, paper and wood. Grease flies before its application; and when diluted with water, spots caused by orange or lemon juice or vinegar are removed by it from the most delicate materials. For very nice fabrics some people like to use the old-fashioned javelle water, to be obtained from the chemist, but ammonia, delicately applied, does quite as well. From carpets, curtains and suits of clothing it will remove almost every stain, including that caused by white-wash. Ink spots are always the most difficult to efface. Take up as much of the ink as possible with a spoon and blotting paper, and then use milk or clear water until it disappears, being careful not to extend the area of damage by rubbing the ink into the adjacent material. Benzine will remove paint from delicate fabrics, if it fails, turpentine must be used, and the mark which it leaves effaced by alcohol. If in the process of removing stains, the color departs from the material, it can generally be restored by dabbing with chloroform.—*Dyer and Calico Printer.*

ENGLISH HOSING NOVELTIES.

Silk embroidery is being employed more and more in the hosiery industry. It is already passing over to men's half-hose, the better sorts of which are richly ornamented in this style, but the patterns in this instance, however, consist exclusively of simple strokes, stars and dots, gotten up in light-colored silk. Just now the best-liked colors for these half-hose are steel-grey, grey-brown, brown-red and tan, while black is preferred for the embroidered sorts. Mixtures are exceedingly well liked, and by weaving in threads of white silk that make an attractive appearance in steel-grey and brown, some fine effects are produced. Black silk half-hose, with narrow blue or red length stripes, are a novelty, and they are frequently made so loose in texture that they appear as if perforated.

Coming now to usefulness, it may be stated that several practical novelties in this respect have appeared last spring, and to these belong, for example, the peduplex hosiery of cashmere or worsted yarn with double foot, and the Indiana hosiery of finer glossy woolen yarn, so that they appear as of silk. And while on the subject of durability and usefulness, the so-called Knickerbocker hosiery which are principally used for purposes of sport may be mentioned. This hosiery are very popular, not only in England, but their merits are also causing them to be introduced on the Continent. Such hosiery are made of Scotch mountain wool and dyed in practical colors, such as brown, red, yellow, grey and black. The foot part is not ornamented, but the leg portion is generally checkered and ends above with stripes. The patterns vary generally in the ornamentation of the leg, one of the most recent consisting of checkers formed of lines crossing each other and having in their centre another black square with the ground color of brown.

No decided novelties have appeared in tricot underwear. The most elegant material for both men's and women's underwear is white silk, which is occasionally ornamented with a few delicate color effects, or else has fine waves in pale blue, rose or salmon. In men's colored underwear, full sets of the same color are wanted, steel-grey and tan-brown being liked the best. Woven-in white silk threads not only produce nice color effects, but also con-

tribute to the durability of the article. Cross stripes predominate in men's underwear of every kind, socks, drawers, jackets, undershirts, etc. In conclusion, mention may be made of an invention for which an English manufacturer has received a patent, and which to all appearance will meet with much success. Its purpose is to insert a piece of a light porous stuff under the armhole and to make this much wider, whereby perspiration is largely facilitated. It can be used for every kind of knit jacket or shirt. Another novelty are the bathing suits, upon which great expectations are placed this year, and the designs of which mostly consist of broad colored cross stripes upon a white ground. The tennis caps, which are knit of long stapled coarse wool and are worn in playing lawn tennis, are a fairly important article in England, and deserve a final word of mention.

OUR WOOLEN MANUFACTURERS.

"Invertebrates."

This is the term THE CANADIAN JOURNAL OF FABRICS applies to our woolen manufacturers. We have several times said strong things about them ourselves. We withdraw all previous expressions and yield up the palm to our competitor,

It seems a waste of time to tell these woolen workers exactly what you think of them, because, as a rule, they are either too penurious or too backwoodsy to take a trade paper. Even if we sent them a free copy, they wouldn't read it.

We like the Canadian woolen manufacturers because we ourselves are Canadians, but we despise the way they do business in most cases. They are slow, dead slow. If we could devise any method whereby they would be led to a proper sense of their own position and their own importance, we would be glad.

Their utter inability to size up a market is seen in their actions during the past four months. With the raw wool market advancing, they have been cutting prices. The wholesale buyers "pulled their legs," "twisted their noses," and did several other funny little things with them. Now the manufacturers are loaded up with orders, and repeats are being sent in at a rapid rate, but they must pay several cents per pound more for their raw material than they figured upon.

And now the manufacturer weeps.

What might have been!

And yet some of the buyers overreached themselves this year. They juggled and haggled, and finally placed contracts at low prices, but deliveries promise to be slow and irregular. One buyer got badly nipped. He had got the price for some fall goods down so low that the manufacturer failed, rather than make them from wool at its present price. This instance may be duplicated several times before the season is over.

Domestic woolen manufacturers are not making money, and it is their own fault. They allow the wholesale buyer to play them off, one against the other. He uses one to beat down the price of the other. And yet there are enough orders to go around if they would wait for them to be placed. The buyers bear the market, and the manufacturers seem to forget that they might play the same game.

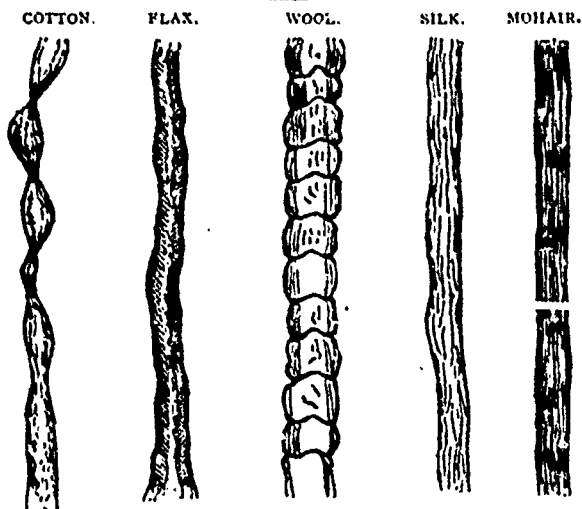
We propose a remedy. Let there be a Woolen Manufacturers' Association, to educate the trade and introduce an *esprit de corps* that would help maintain paying prices.—*Canadian Dry Goods Review.*

A NEW METHOD OF FINISHING CLOTH.

An electrical journal gives a new method of finishing cloth and paper by electricity, which is a German invention. In the finishing of certain kinds of woven fabrics, and obtaining moire and figured effects, it has been the practice to use hydraulic presses and heated plates. The plates are heated in furnaces and subjected, after the fabrics or paper have been placed between them, to hydraulic pressure. The difficulty with this system is that during the operation the plates cool, and the action is not regular. The adoption of a form of electric heating gives exactly the required regularity and constancy of temperature, and makes the process

perfect. The plates are made hollow, and the heating wire is wound within them in the shape of a spiral, imbedded in sufficient resistance to produce the necessary heating effect. A flexible cable passes from each plate to a switchboard, where electrical connection is made. As the current is turned on in any of the cables, the plate to which it is attached is raised to the required heat, which is maintained evenly until the process of finishing is completed. The invention is a radical improvement on old methods; it may be applied largely by manufacturers of woven fabrics and paper in this country.

FIBRES UNDER THE MICROSCOPE.



KINGSTON COTTON MILL WRECKED BY A TERRIFIC STORM.

The terrible storm which passed over Kingston, Ont., on September 11, was the most disastrous that ever visited the city. Scores of buildings were partially or wholly wrecked by the hurricane, and the Kingston cotton mill, owned by the Dominion Cotton Mill Co., Ltd., of Montreal, was almost completely wrecked, the amount of the damage being estimated at about \$70,000.

The wind struck the building full at the side, and one-third of the upper story wall of the main building was blown in and the debris thrown over the valuable machinery, crushing it to fragments. The wind then rushing into the cavity thus made, forced up a great part of the roof, and then threw it, with its lower side upwards, on the remaining portion. The combined weight resulted in both portions falling in on the machinery, which was completely ruined. The force sufficient to accomplish this must have been terrific, as the roof is constructed of heavy plank upon still heavier timber, and of itself is an enormous weight. Each of the big beams upon which the planks are laid measures about ten inches wide by fifteen inches deep and about twenty feet in length, and was imbedded firmly at its outer end in the wall. The wall is about one foot in thickness and at least two feet of brickwork lay on the top of each beam. Then to the outside of the roof were attached the heavy shafting, the steam piping and sprinkler pipes, all of which made up a tremendous weight. Besides this, there were exerting a strong downward force six "mules," each of which was connected by a strong 3½-inch belt, to a heavy pulley fastened to the roof, and in addition there were about twenty belts averaging about 3½ inches in width connecting pulleys fixed to the roof, with the machinery firmly fastened to the floor. Notwithstanding this great weight, eight of the beams were torn out of their bedding, while the wall was blown from the ends of eight others, and the steam pipes, sprinklers and heavy shafting were bent and twisted as though they were made of fine wire, and the belts were snapped like thread. The machinery on the upper flat was almost completely destroyed, and two-thirds of the length of the roof on the eastern side of the main building will have to be

built anew. The tower, which is considerably higher than the other buildings, was also much damaged, the roof being torn off and thrown a distance of 200 feet. The sprinkler pipes burst in several places and the water did considerable damage. The work of repairing the mill was begun several days ago, and the mill will be in running order in a very short time. The part containing the spinning mules damaged will, however, not be ready for over a month. The accident wrecked 3,600 spindles and six "mules," and 200 employes were temporarily thrown out of work.

CLOTH FOR A ROAD FOUNDATION.

At Martha's Vineyard, a town in Massachusetts, the Massachusetts highway authorities found, in building macadamized roads, that upon loose, sandy soil, much stone is wasted by being driven into the sand. In such cases gravel when accessible has been placed upon the sand to a depth of 3 or 4 in., and the stone laid on this. By so doing the cost is greatly reduced. There being no gravel at Martha's Vineyard, cheap cotton cloth has recently been spread upon the sand and over that the stone. It has been found that the sand does not then work up through the stone, and much less stone is required. Layers of tarred paper were tried, but without success, as the stone pressed through them. This is probably the first road foundation ever made with cloth. The following materials have in various places been used as road material, namely, cork, compressed hay, marble, pins, india-rubber, oyster and other shells, lead, iron and steel.

SPECKING AND BRUSHING WOOLEN GOODS.

After shearing comes specking. The goods should be drawn over the specking table and all specks, burrs, etc., removed. Ink is sometimes used for coloring the white or light specks. When this can be judiciously done, it is much more quickly accomplished than by picking them out with the irons. With ordinary black ink there is danger of spotting the goods unless they be very dark. A good ink can be made by using common printer's ink, reducing it to a liquid by adding spirits of turpentine. If the goods be light, the ink may be reduced to correspond. It should be applied with a pointed stick. After specking, the goods should be drawn over the perch and thoroughly inspected, and if any threads are wanting they may be sewed in by a careful, fine drawer. This, however, is not approved of, believing it to be far better to rectify such imperfections before the goods are fulled, which is the only way to have the goods absolutely perfect. The piece should also be examined to find if there are any holes, and to mend such as can be mended, and make allowances for such imperfections as cannot be rectified.

When this is done, the goods may be brushed preparatory to pressing. If the pressing is done in press-papers they should be as evenly and closely papered as possible, and after remaining in the press several hours they should be taken out and repapered so that the parts of the cloth which were folded be brought into the middle of the papers, when they should receive a second pressing. The time for them to remain in the press should be governed by the weight of the goods, and determined by the judgment of the finisher.

W. THOMAS, J. Beiser, I. Davis, A. Sasseville, and E. Richardson, all furriers, and L. M. Dagenais, A. Payeur, and L. Lowenthal, tailors, of Montreal, were charged with arson on September 9th. These men are all alleged to have set fire to their business places, and have most of them secured more or less insurance money. The insurance companies had been for sometime suspicious of a number of fires that took place in business houses without clear cause, and therefore set men to make secret enquiries with the present result. Crown Prosecutor Quinn has stated that he has quite enough evidence to indict the prisoners and that the charges embrace a very large territory. Mr. Quinn has just returned from New York, where he has been looking up the records of Beiser and others of the accused. Some of the prisoners are said to have been concerned in the incendiarism in tenement houses in New York two years ago. Mr. Quinn estimates the total amount of insurance paid out in the fires at over a million dollars.

ROTHSCHILD BROS. & CO.

Manufacturers, Manufacturers' Agents and Importers

BUTTONS.

Sole Agents for the American Continent



Sole Agents for the American Continent

Offices—466 & 468 Broadway, N.Y.
25 Rue de la Victoire, Paris, France.
11 & 13 Front St. East, Toronto.

Alliance Assurance Co.

Established 1824 :: Head Office, LONDON, Eng.
SUBSCRIBED CAPITAL, \$25,000,000.

Rt. Hon. LORD ROTHSCHILD, Chairman
Rt. Hon. ROY. LEWIS, Esq., Chief Secretary

Branch Office in Canada:
127 St. James Street, Montreal.
G. H. McHENRY, Manager.

PATENTS

Promptly secured. Trade-Marks, Copyrights and Labels registered. Twenty-five years experience. We report whether patent can be secured or not, free of charge. Our fee not due until patent is allowed. 32 page Book Free. H. B. WILLSON & CO., Attorneys at Law, Opp. U.S. Pat. Office. WASHINGTON, D. C.

The R. Forbes Co.

(Limited)

Manufacturers of

WOOLEN AND WORSTED YARNS

For Hosiery and other work

HESPELER, ONT.

WEBSTER OIL EXTRACTOR

AND Feed-Water Heater and Purifier

AGGREGATE SALES 400,000 HORSE POWER!

The Webster Feed Water Heater is the only heater in the market that will work satisfactorily in connection with Exhaust Steam Heating.

Every machine guaranteed and furnished subject to 30 days' trial.

Send for illustrated Catalogue of Webster Oil Extractors and Steam Separators.

RELIANCE WORKS **Darling Bros.**
MONTREAL

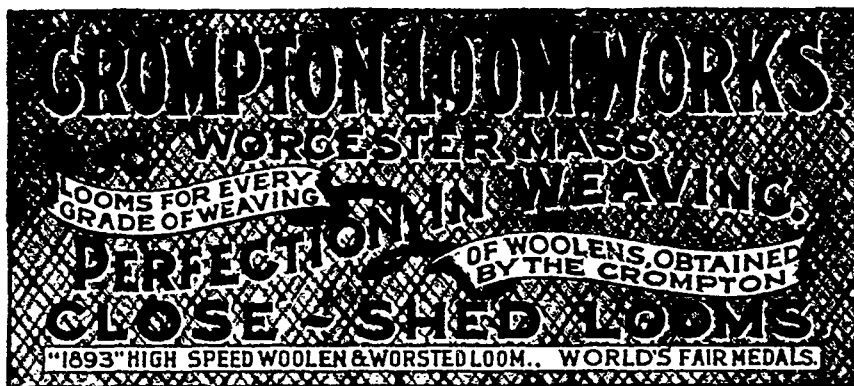
WILLIAM CRABB & CO.

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, Special Springs, Loom and Shuttle Springs, English Cast-Steel Wire, Cotton Banding and General Mill Furnishings

Bloomfield Avenue and Morris Canal, NEWARK, N. J.

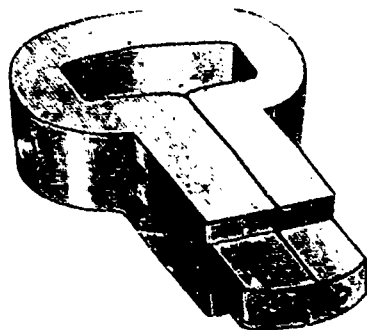


JOHN W. BARLOW

Manufacturer of

Loom Pickers,

LAWRENCE, MASS.



This cut represents Barlow's Pat. Blow Picker with solid interlocking foot. Pat. Feb. 20, 1880.

The Importer's Guide

Sterling Advance Tables.
Cloth, 75 cts.; Leather, \$1.00.

Becher's Sterling Advance Tables

2 1/2 to 100 per cent., advance.
Cloth, \$1.25; Leather, \$1.75.

Matte's Interest Tables

At 3 per cent. and also at 4 to 10 per cent. \$3.00.

Either book sold separately.

Canadian Customs Tariff of 1894

Second edition. Cloth, 50 cts.

Buchan's Sterling Exchange Tables

by 5ths and 16ths; also American or Domestic Exchange at both discount and premium, etc. \$4.00.

MORTON, PHILLIPS & CO.

Stationers, Blank Book Makers and Printers

1755-1757 Notre Dame St., Montreal

Established 1848.

A. EICKHOFF

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

The Parkhurst Burr Picker is guaranteed superior for cleaning Wool, Cotton or Hair. Our new Picker Feeder is a decided success. If your work is not satisfactory it will pay you to write to the **ATLAS MANFG. CO.**

NEWARK, N. J.

Steel Ring Burring Machines a Specialty.

Among the Mills

The Streetsville woolen mill is still shut down

The Montreal Cotton Co. have advanced their linings from five to ten per cent.

G. Anderson & Co., of Toronto, wholesale dealers in hats and caps, have assigned. It is thought that the assets will be equal to the liabilities.

The Globe Rubber Co., of Quebec, has been awarded \$101 and costs, the extent of their suit against L. B. Montgomery & Co., Toronto, for goods sold.

Mr. Sheriff, of Lomas & Son, Sherbrooke, Que., has been making a tour in the lower provinces during the time the mill was closed down on account of the water

The Wallaceburg Flax Company have now over \$10,000 worth of unthreshed flax stocked up in their yards, and more coming in. The work of manufacturing it will be begun in a short time.

The wall-paper factory of Watson, Foster & Co., Montreal, was damaged to the extent of \$10,000 by fire a few days ago. Fortunately the stock was unhurt, and the firm are able to fill orders

The Grant Tanning Company, Woodstock, Ont., are applying for incorporation with a capital stock of \$90,000. They will acquire the business of J. & T. Grant, and will manufacture leather, felt goods, etc.

The affairs of the Worsted & Braid Co. of Toronto Junction, referred to last month, have not been settled, but the factory is being operated, meantime, under the administration of Mr. Clarkson, with Mr. Sykes as superintendent.

The Mica Boiler Covering Company of Toronto are offering to manufacturers and the trade a new idea in boiler covering, which is highly spoken of by very competent engineering authorities. Those interested should investigate the question at the company's offices, No. 2 Bay street.

One of the most interesting exhibits of the Machinery Hall, at the Toronto Exhibition this month, was a brussels carpet loom shown in operation by Talbot, Cockroft & Harvey, carpet manufacturers, of Elora, Ont. The loom was generally surrounded by an admiring crowd. This firm contemplate making Wilton carpets also.

The Calvert-Wilson Wool Co., composed of J. S. Wilson and C. E. Calvert, have started in business in Toronto as brokers in foreign and domestic wools, cotton and ramie. With regard to the last named, they inform us that they are prepared to furnish ramie noils in any quantity, and at prices favorable to the introduction of this new and important fibre into Canada

Two accidents of a similar nature occurred in the Canada Cotton Mill at Cornwall a few days ago. While P. Dudlin was assisting in putting on a new roof he fell through an open trap door, alighting on the looms. Several ribs were broken, and he was badly shaken. A few days after S. Cairns also fell through a trap door and had his thigh broken. Both men are doing well.

Application for incorporation has been made by the Gower Rope and Belting Company (Limited), with a total capital of \$20,000 and headquarters at the city of St. Catharines, Ont., to manufacture rope and belting, tan leather, etc. The names of the applicants for incorporation are J. W. Coy, manufacturer, H. Ellis, mechanical superintendent, H. Flumerfelt, tanner, and F. A. Coy, all of St. Catharines, and L. C. Raymond, Barrister, of Welland

The tenders for the leasing or sale of the Ontario Government's binder twine factory at the Central Prison, Toronto, were considered this month by the cabinet. Two tenders were received, but on examination it was found that both differed in several matters of detail from the terms of the proposed contract as set out by the Government. They were both rejected, and the parties who had tendered were notified that the necessary alterations in the forms of their tenders must be made, and were given until a certain hour

to put in tenders in an amended form. This was accordingly done and these two offers were considered by the Government. It is reported that a lease of the factory will be made to John Hallam, wool merchant, Toronto, who was one of the tenderers, and who has been selling agent for the factory during the time it was operated by the Government.

The Winnipeg *Nor'-Wester* says. The money received for Manitoba's flax produce this year will form a more important item in the revenue of the farmers than ever before in the history of the province. In the course of a conversation with a gentleman interested in the flax trade he stated that the quantity exported would amount to fully one million and a quarter bushels. Of this nearly one million bushels would be taken by John Livingstone, of Baden, Ont., who turns it into oil cake for the European markets. Mr. Livingstone's agent in this country is P. Erbach, of Greta. Besides this there will be a local consumption of from 60,000 to 90,000 bushels. Prices for flax will be considerably lower than last year, when it was worth \$1.25 a bushel. It is expected that the market will open this season at about 65 cents.

The electric storm which passed over central Ontario, on the 11th inst., was very severe at Almonte. For a time the sky was almost continuously aflame with lightning, and the crashing of the thunder hardly ceased during the violence of the storm. Rain came down in sheets and some hail fell also, while the wind uprooted trees, broke down fences, unroofed barns and smashed windows. The most serious damage took place on the premises of the Almonte Knitting Co., where the force of the wind was such that it tore the roof clean off a good portion of the warehouse and office, the iron and sheathing being torn away from the rafters. It fell between the two buildings, and Henry Gray, watchman, had a narrow escape from being struck. The rain poured in on a large stock of finished goods stored in the warehouse. George W. Ward, superintendent, estimates the total damage at not less than \$1,000.

A telegram from Ottawa, published in a Winnipeg paper recently, reads as follows: "The Deputy Minister of Agriculture has just returned from Manitoba and the Territories, and will report on the great prospect of profit to settlers in flax crops. It can be sowed at the first ploughing of the prairie, and is worth a dollar to a dollar and a quarter a bushel. The average this year is twenty-two bushels per acre." If the Deputy Minister has been correctly reported, he has been badly misinformed. The official average of flax this year in Manitoba is placed at fifteen bushels per acre, and the usual average yield is less than has been estimated for this year. The price stated is also much too high, the usual range being about 75c. per bushel, though last year's prices touched as high as \$1.25. No doubt flax could be grown to advantage on a larger scale in Manitoba, but its susceptibility to damage from late spring frosts renders it necessary that flax growing should be adopted with caution, while every farmer might grow some flax, no one should make it a leading or principal crop.—*Winnipeg Commercial*.

RECENT CANADIAN PATENTS.

OF INTEREST TO TEXTILE TRADES

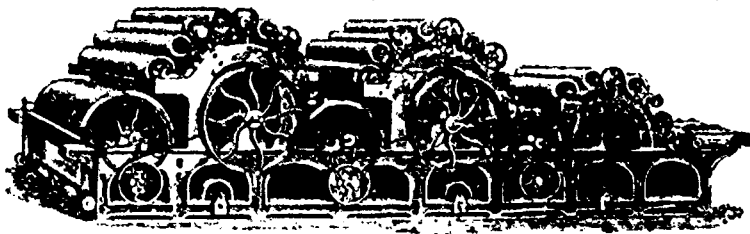
E. H. Lobdell and A. J. Acker, both of Mecosta, Mich., have patented a sack having handles at its sides and corners for the greater convenience in carrying.

J. Bennor, Macon, Georgia, has patented a process for making a fashioned stocking in which the upper or wide portion of the leg is connected to the narrow part at the ankle by an intermediate portion, the seams of which run laterally. This will give the hose a much improved appearance.

M. Stockmeier and C. A. Bronaugh, both of Los Gatos, Cal., have invented a combined parasol and fan. The material of the parasol is so arranged that it may be drawn into the shape of a fan by the assistance of sliding stem and elastic ribs.

L. Schrafer, Oneida, N. Y., has invented a system of marking patterns on fabrics. The system consists of a marking board having colored pigment on its surface, and a spur wheel which passes over and transfers the pattern to the material to be colored.

TEXTILE MACHINERY (New and Second Hand)



English Sales Attended.

CARD CLOTHING **TETLOW'S**
Stock in Canada

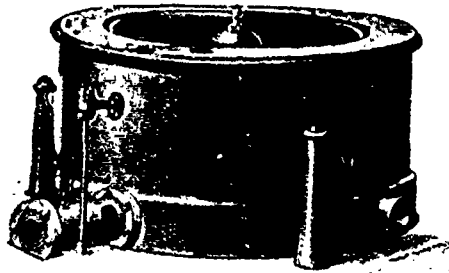
Condenser Aprons Buffed Surfaces
Plain & Grooved

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

ROBT. S. FRASER

3 ST. HELEN ST., MONTREAL

BROADBENT'S HYDRO EXTRACTORS



Direct Steam Driven. No Shafts or Belting required.
Suspended on Links and requiring no Foundation.

Adapted for Manufactories, Dyehouses, Laundries,
Chemical Works, Sugar Refineries, etc., etc.

SEND FOR CATALOGUE

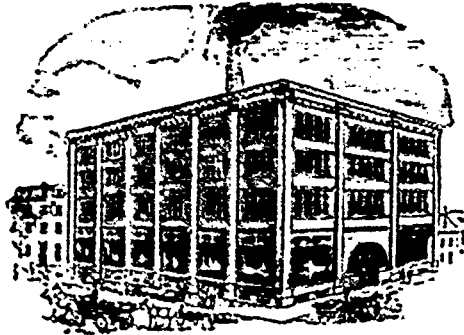
THOMAS BROADBENT and SONS

CENTRAL IRON WORKS

CHAPELHILL, HUDDERSFIELD, ENGLAND

Telegrams: "BROADBENT, HUDDERSFIELD."

Agents for Canada: - - Wm. SHAW & CO., 164 McGill Street, Montreal.



MONTREAL FACTORY.

ROBIN, SADLER & HAWORTH

MONTREAL and TORONTO

MANUFACTURERS OF

OAK-TANNED

Leather Belting

We make Belting for all kinds of work. In ordering state where belts are to run.

LAURIE ENGINE CO. St. Catherine Street East MONTREAL

Sole Agents in Province of Quebec

... for ...

NORTHEY CO., Ltd.

Manufacturers of all kinds of

ENGINEERS and CONTRACTORS

PUMPS, CONDENSERS and
HYDRAULIC MACHINERY

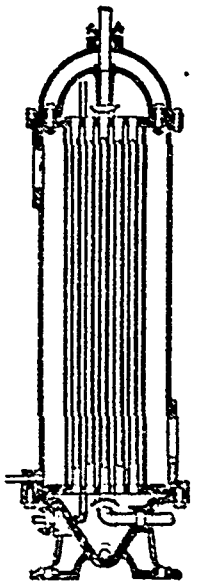
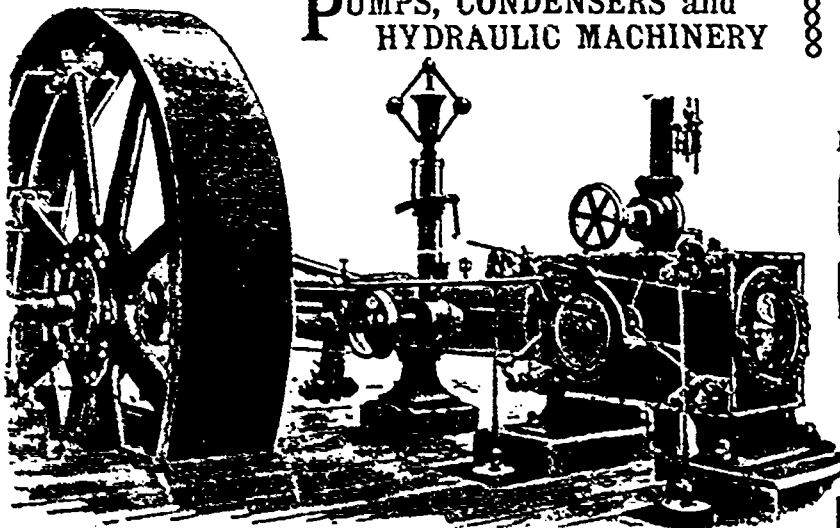
COMPLETE
MOTIVE
PLANTS, etc.

IMPROVED
**CORLISS
ENGINES**

High-Pressure, Condensing
and Compound

Feed-Water Heaters
and Purifiers

HEAVY FLY-WHEELS a Specialty



M. L. Peck, New York, has invented a combined bicycle and walking costume, consisting of a short outer skirt fitted with an additional length made to fasten inside, but which may be let down and made into the ordinary walking dress at will.

H. H. Ham, Boston, Mass., has invented a spindle for spinning machines. The device consists of a combined bolster and whirl, the parts of which are formed upon opposing faces with ball bearings and balls.

O. L. Mason, Cleveland, O., has invented a garment hook, having a tongue extending through the shank and hook proper. This device prevents the hook from being accidentally unfastened.

C. A. Farmer and J. Parnall, both of Bristol, Eng., have invented a device for knitting woolen silks and like articles. The invention consists essentially of a block or frame into which is set a row of adjustable pegs.

H. Cruse, Salford, Lancaster, Eng., has invented a loom shuttle, with a body made of aluminum. The shuttle has a yarn bridge and a tongue bridge cast in one. The tongue is constructed of slightly bowed strips of steel, and has a spring for retaining it in its open or closed positions.

H. Raffloer & Co., Havana, Cuba, have patented a spinning jenny, with which is also combined the mechanism for operating a two parts extensible and contractible stop lever.

S. Spencer, J. S. Lord, G. S. Lord, all of Whitefield, Eng., have patented a machine for washing yarns, etc. The invention consists of revolving pins which correspond with toothed wormed wheels revolving in opposite directions; these latter are in combination with a rising and falling hank frame carrying rods.

The Brussels Tapestry Company, Chauncey, New York, has patented a curtain stick and guide. The device consists of a sliding rod that can be altered in length to fit various sized windows at will.

G. P. Hill, Richmond, Virginia, has patented a darning device, consisting of a metal ring having blunt fingers reaching toward the centre of the ring. The article to be darned will be stretched over this.

C. B. Wright, of St. Paul, Minn., has patented a sleeve expander for ladies' dresses. The device consists of a series of strips of U-shaped material connected together with a fabric. The whole is fastened to the interior of the sleeve and is collapsible.

To Manufacturers.

A FIRM of Manufacturers' Agents, selling to the Retail Dry Goods trade of Ontario, have an opening for another good line on commission. Highest references. Address—

MANUFACTURERS' AGENTS,
CARE CANADIAN JOURNAL OF FABRICS.

WANTED—Situation as Finisher. Tweeds, cassimeres, worsteds, dress goods and flannels. Temperate and industrious. Practical experience from loom to case. Address "Finisher," THE CANADIAN JOURNAL OF FABRICS, Montreal, Que.

WANTED—To rent, or a partnership in, a one-set Woolen Mill. Must have good custom trade. Address "Woolen Mill," THE CANADIAN JOURNAL OF FABRICS, Montreal, Que.

New York and Boston Dyewood Co.

Manufacturers of

DYEWOOD EXTRACTS

Sole Agents for the
United States and Canada for the

ACTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION

Manufacturers of ANILINE COLORS, Berlin, Germany

NEW YORK: 55 Beekman St.
BOSTON: 115 and 117 High St.
PHILADELPHIA: 122 and 124 Arch St.

A. W. LEITCH, 16 Hughson St. South, HAMILTON, ONT.

MONTREAL EXHIBITION.

The Montreal Exhibition was this year a more successful one from the exhibitor's point of view than those of previous years. The exhibits relating to the textile trades were, however, very few. The Alaska Down Quilting Co. had a tastefully arranged display of down quilts, cushions, etc., many of the patterns were art designs of new and attractive colorings.

The Canada Rubber Co. made an exhibit of waterproof clothing and other articles that attracted a good deal of notice. The Globe Rubber Co., of Quebec, also had a big exhibit of waterproof coats, rubbers, etc. Creelman Bros., of Georgetown, Ont., had an exhibit of the latest improvements in knitting machines, the exhibit was arranged in a very pleasing manner, and the working of the machines was a source of much interest. There were a number of exhibits of fancy work and smaller articles. But textile manufacturers were conspicuous by the absence of exhibits. Furniture and upholstery were well represented by exhibits of the leading firms of the Dominion. The Montreal Exhibition brought down a large number of the western woolen manufacturers, among whom were Mr. Kendry, of the Auburn Woolen Mills, Peterborough, Mr. Lattimer, Perth, manager for R. Gemmel & Sons, Mr. Lomas, Sherbrooke, Mr. Thorburn, Almonte, and a number of others.

CHEMICALS AND DYESTUFFS.

Manufacturers are beginning slowly to order in the supplies for their winter requirements. The market is at present quiet, but there are signs of early improvement. There are but few alterations in price to note. Sal soda has advanced, but sulphate of copper and gambier have not advanced. The following are current quotations in Montreal:

Bleaching powder.....	\$ 2 15	to \$ 2 30
Bicarb. soda.....	2 25	" 2 35
Sal soda.....	0 67 1/2	" 0 70
Carbonic acid, 1 lb. bottles.....	0 25	" 0 30
Caustic soda, 60°.....	1 90	" 2 00
Caustic soda, 70°.....	2 25	" 2 35
Chlorate of potash.....	0 15	" 0 20
Alum.....	1 40	" 1 50
Copperas.....	0 70	" 0 75
Sulphur flour.....	1 50	" 1 75
Sulphur roll.....	1 50	" 1 75
Sulphate of copper.....	4 00	" 5 00
White sugar of lead.....	0 07 1/2	" 0 08 1/2
Bich. potash.....	0 10	" 0 12
Sumac, Sicily, per ton.....	65 00	" 70 00
Soda ash, 48° to 58°.....	1 25	" 1 50
Chip logwood.....	2 00	" 2 10
Castor oil.....	0 06 1/2	" 0 07
Cocoon oil.....	0 04 1/2	" 0 07

A. KLIPSTEIN & COMP'Y

122 PEARL STREET, NEW YORK

Chemicals and Dyestuffs

ANILINE COLORS OF EVERY KIND

SPECIALTIES

Fast Colors for Wool Such as DRY ALIZARINE, ALIZARINE
BLUE, GREEN, YELLOW, etc

Also CAUSTIC POTASH FOR WOOL SCOURING

WRIGHT & DALLYN, Agents - - HAMILTON, Ont.

Loom Picker Co.

BIDDEFORD, ME.



MANUFACTURERS
... OF ...



Loom Pickers & Loom Harnesses

OF SUPERIOR QUALITY

Established 1842



ADAM LOMAS & SON,
SHERBROOKE, QUE.
Flannels, Dress Goods and Tweeds
Selling Agents, JAS. A. CANTLIE & CO.
Toronto and Montreal

"We hold thee safe."

The Dominion Burglary Guarantee Co.

Limited

Head Office, Montreal, Can.

CAPITAL, \$200,000.

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

JOHN A. GROSE, GENERAL MANAGER.

THOMAS MEALEY & CO.



MEALEY STAIR PAD

Manufacturers of
Wadded Carpet Lining
and **STAIR PADS**
Hamilton, Ont.

OFFICE:
24 CATHARINE ST. NORTH

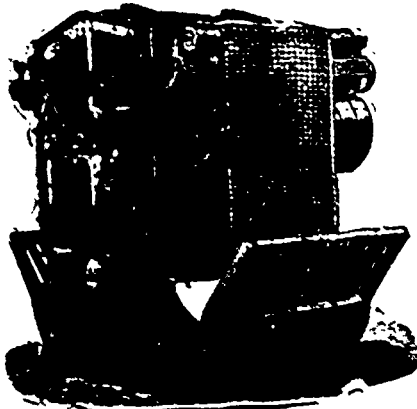
H. W. KARCH,

HESPELER, ONT.

MANUFACTURER
OF

Woolen Machinery,

Fulling Mills,
Cloth Washers, Wool
and Waste Dusters,
Drum Spool Winders,
Reels, Spooling and
Doubling Machines,
Ring Twisters, Card
Creels, Rag Dusters,
Dead Spindle Spooler
(For Warp or Dresser
Spools), Pat. Double
Acting Gigs, etc., etc.

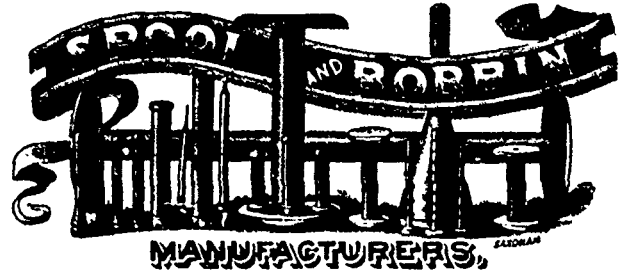


THOMAS KER

J. HARCOURT

KER & HARCOURT,

ESTABLISHED 1857

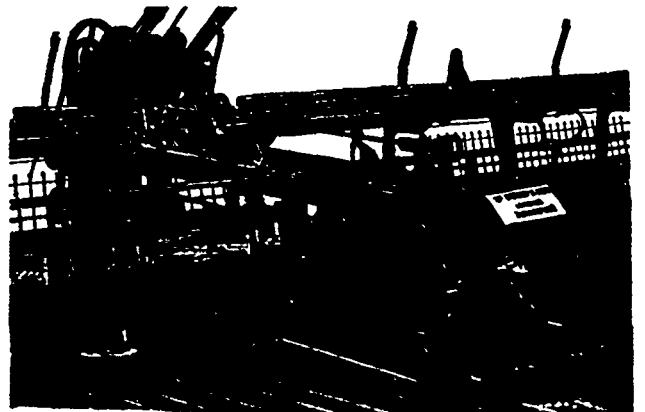


MANUFACTURERS,

Orders by Mail
will receive prompt
attention.

Walkerton, Ont.

WILLIAM WHITELEY & SONS,



LOCKWOOD, HUDDERSFIELD, ENGLAND.

Winding Machinery, Improved Self-Acting Mule, Suspended
Steam Driven Centrifugal Hydro-Extractor, Tentering and
Drying Machines, Patent Wool and Cotton Dryer, Patent Wool
Scouring Machine, Cross Raising Machine, Patent Crabbing and
Winding-on Machine, Warp Sizing, Cool Air Drying and Beam-
ing Machine, and other Woolen Machinery.

CATALOGUE ON APPLICATION

WM. SHAW & CO., Agents,

164 McGill Street, - Montreal.

Thompson & Co.

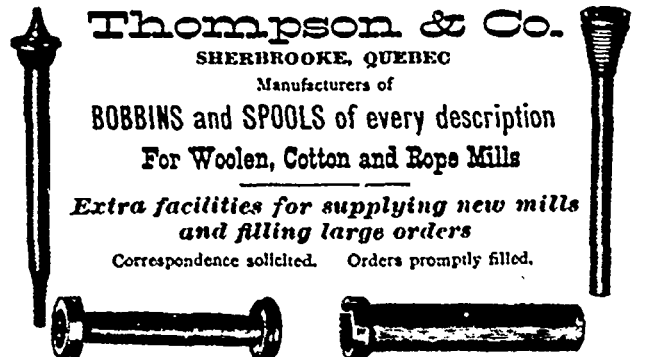
SHERBROOKE, QUEBEC

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.



JOHN HALLAM,
83 & 85 Front St. East, - - - Toronto,
and
88 Princess Street, - - - - Winnipeg.
Wholesale Dealer in
DOMESTIC AND FOREIGN WOOLS,
Sumac, Japonica, &c.

LONG & BISBY
DEALERS IN
Foreign and Domestic
WOOL AND COTTON
GENERAL COMMISSION MERCHANTS
HAMILTON, ONT.

A. T. PATERSON & CO.
Importers of **Foreign Wools**
35 St. Francois Xavier St.
MONTREAL, Canada

THE SMITH WOOLSTOCK CO.
Manufacturers and Dealers in all Lines of
Wool Stock, Shoddies, &c., Graded Woolen
Rags, Carbonizing and Neutralizing.
Best prices paid for Wool Pickings, Woolen
and Cotton Rags, Metals, &c. Hard Waste, &c.
purchased or worked up and returned.
219 Front St. E., Toronto | Foot of Ontario St

The Montreal Blanket Co.
Manufacturers of
**Shoddies, Wool Extracts
and Upholstering Flocks**
Office and Works: COTE ST. PAUL
P.O. Address: MONTREAL

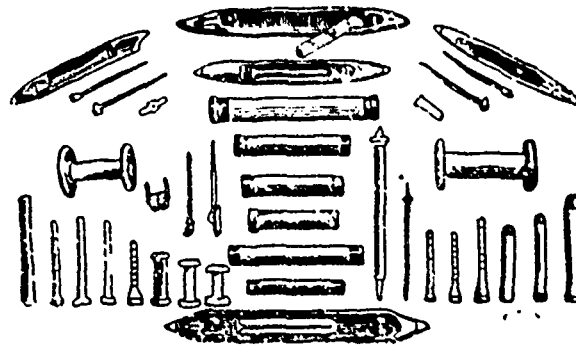
ROBT. S. FRASER
Wools, Cottons, Noils, Yarns
Specialties:
*English Pick Lambs and Downs
Foreign Wools and Noils
Egyptian and Peruvian Cottons
Fancy Yarns*
3 St. Helen St., MONTREAL

JOHN REDFORD
Dry Goods Manufacturers' Agent
Sample and Stock Rooms:
16 George St., **HALIFAX, N.S.**

DAVID KAY,
Fraser Building, - Montreal
REPRESENTING
WM. PARKS & SON, Ltd., St. John, N.B.
C. G. ELRICK & CO., Toronto.
ASCHENBACH & CO., Manchester.
PUTTMANN, Barmen, Germany.
Correspondence Solicited.

WM. D. CAMERON,
*Woolen & Cotton Manufacturers'
Agent,*
HALIFAX, N.S., & ST. JOHN, N.B.
Address P.O. Box 401, - HALIFAX, N.S.

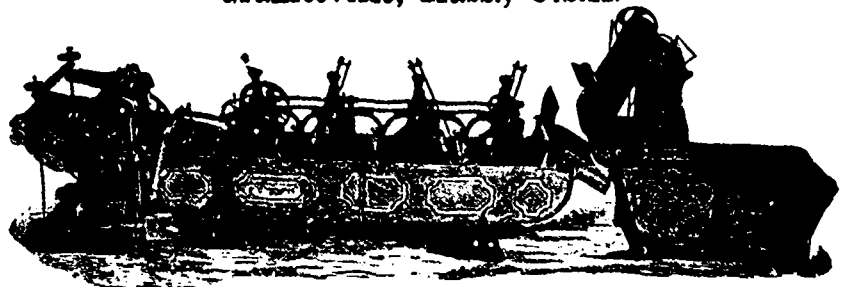
Lachute Shuttle and Bobbin Works



We are the largest Shuttle
Manufacturers in Canada.
*Slubbing, Roving and all kinds
of Bobbins and Spools for
Cotton and Woolen Mills.*
We have always on hand
a large stock of
Thoroughly Seasoned
Lumber.
Orders solicited and all work guar-
anteed to give satisfaction.
JOHN HOPE & CO.
LACHUTE, P.Q.

C. G. SARGENT'S SONS

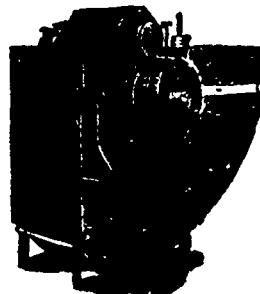
Graniteville, Mass., U.S.A.



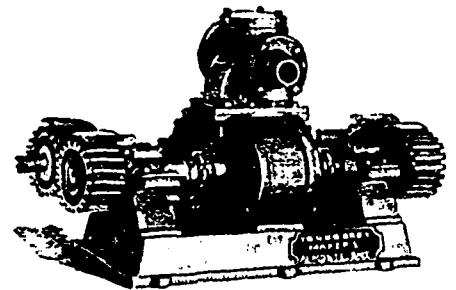
BUILDERS OF
**WOOL WASHERS, BURR PICKERS
WOOL DRYERS, etc.**

SEND FOR ILLUSTRATED CATALOGUE

MISSISSIPPI IRON WORKS



ESTABLISHED
1875



Manufacturers of English or American Fulling Mills and Washers, Wool Pickers, Ex-
haust Fan Driers, Dusters, Rotary Force Pumps for Fire Duty, Roller Feed Pumps,
Shafting, Hangers, Castings, Pulleys, Gearing, Forgings.
Full equipment of mills of every kind. **YOUNG BROS., Almonte, Ont.**

HAWORTH & WATSON

**COP
TUBES**

MANUFACTURERS OF
PAPER COP TUBES FOR MULE SPINNING.
LARGE PAPER TUBES FOR USE ON BOBBINS.
FULL LENGTH TAPERED TUBES.
PAPER TUBES SILK MANUFACTURERS.
PAPER CONES & TUBES FOR CONE WINDERS.
LOWELL, MASS.

HEMOLIN.

The dyestuff known as Hemolin has now been on the market long enough to show its value and to allow the promise of its still greater success. It consists of a dry powder, easily soluble in cold water and very easily soluble in hot, without appreciable residue. This property classes it, so far as convenience in use is concerned among the anilin colors. It contains the coloring matter of the logwood in a purer and more concentrated form than logwood extracts.

The ordinary liquid extract of logwood is, as every dyer knows, an essentially "nasty" article. It is thick, viscous and sticky, not easy to weigh out accurately, loss usually occurring during the operation. The barrels cannot be entirely emptied with ease. Extremes of heat and cold affect it injuriously, and, on slight provocation, it passes into fermentation. It is often adulterated to the last degree of endurance. The barrels are liable to leak. The extracts rarely dissolve clear in cold water, and the hot solutions in cooling often deposit a large amount of "muck." They are of very variable composition, some containing a good deal of tannin matter, some highly oxidized, some giving pure shades, while others give dull tones. Hence it is hard to say how an extract will work until considerable experimenting has been done.

The so-called solid extracts are really like thick pitch. They are slow to dissolve in hot water and are practically insoluble in cold water. The adulteration of the so-called solid logwood extract seems to be carried still further than in the case of the extract, for adulterations are less easily noticed in a solid than in a liquid extract. The use of chip, or cured logwood, has so greatly diminished of late years, that the industry may be considered as waning. The great bulk of the chip wood is against the use of it, as is also its extremely variable tinctorial power. The extraction of the chips by the dyer is tedious and wasteful.

The appearance of a dyestuff which contains the coloring matter of logwood, in the form of a dry powder, which is not affected by heat, cold or moisture, and which can be accurately weighed out, marks a decided advance in the technology of logwood. Hemolin is quite free from resinous matter, does not ferment and presents no opportunity for loss in shipping and handling. Its great strength is shown by the fact that 200 or 300 pounds Hemolin will do more and better work than a ton of cured or chip logwood.

The stability of Hemolin towards light has been put to severe test. The results show better than logwood extract dyeings; dyeings with chip wood are about equal to it.

The process of dyeing Hemolin is much simpler and less tedious than with the extracts and chips.

In ordinary black dyeing on wool, the wool is mordanted as usual with chrome, chrome and tartar, etc., and dyed in a bath of 8 per cent. If a jet black is desired, small amounts of red and yellow coloring matters are added. To get the fullest bloom in dyeing Hemolin on wool, a small amount of acetic acid should be added to the dye bath. To get a jet black without the trouble of mixing, Hemolin X X may be used. For lighter blues, Hemolin X S in smaller percentages gives better results than logwood extract. Many excellent shades and tones of color can be obtained with mixtures of Hemolin and anilins.

When it is desired to get a full black on unmordanted wool, Hemolin 4,300 is the best grade. To dye wool black with this, it is not necessary to mordant it. The color is dissolved in water, and the unmordanted wool, or woolen goods, are boiled in the solution. The black develops rapidly. It has a fine and full body, and its production is quick and economical.

In dyeing with bluestone, soda ash running kettle, Hemolin gives excellent results, and a decided saving of time is reported by dyers in serving the kettle, owing to the greater ease and quickness of handling the powdered Hemolin over the sticky extract. The kettle is prepared with Hemolin X O, bluestone and soda ash, and served with these substances as required.

To produce a cheap iron black on cotton the goods are mordanted in acetate of iron, fixed with lime water, washed and dyed with Hemolin X S. Only 5 per cent. of the dye is required to

develop a black. The addition of a little Morin Yellow gives a jet black.

Excellent slates are dyed on cotton by padding the goods in a weak solution of Hemolin X S, and then passing through a solution of copperas.

To speck-dye mixed goods of cotton and wool, they are mordanted with chrome and tartar, and dyed with Hemolin X S. This dyes the wool. To dye the cotton, the goods are next dyed with Hemolin X O, using bluestone and soda ash as mordants. In this way a handsome and fast cotton black is obtained.

Cotton piece goods are dyed black with Hemolin X S by padding in a weak alkaline solution of bluestone, then chromed, after which it is dried on the hot cans, sized and finished in the usual way. Or they may be padded in an acetic acid solution of Hemolin, dried, chromed and finished.

On silk a fine black is produced by padding with nitrate of iron, washing and soaping, dyeing blue with yellow prussiate and muriatic acid, mordanting again with nitrate of iron, and then, after washing, working in a bath of cutch and dyeing in a bath of Hemolin X S and soap, after which the goods are revived.

Tanned leather develops a fine black with Hemolin X S. The solution of the dye is applied with a brush. The color is struck with copperas, and the leather oiled and finished in the usual way. Chrome tannage is soaked in a weak solution of Hemolin. The color is developed by oiling, after which the goods are finished as usual.

NEW DYESTUFFS.

BENZO CHROME BLACK N. (PATENTED.)

This new Cotton Black differs from the older colors of its class, such as Direct Blue Black B, etc., as with an after treatment with bichromate of potash and sulphate of copper, it gives results exceedingly fast to washing and acid. When dyed boiling on cotton direct, with an addition of soda, Benzo-Chrome Black N gives a beautiful Indigo Blue, pretty fast to washing and alkali, and very fast to acid and light. Possessing these qualities, this dyestuff is recommended for the production of indigo and navy blue shades which can be discharged with tin and zinc.

If cotton dyed as above and well rinsed, is put into a fresh boiling bath and treated with four per cent. bichromate of potash, and three per cent sulphate of copper for half an hour, a black is produced which is exceedingly fast to washing and acid. This black is also very fast to light, air, rubbing, ironing and perspiration, and is only very slightly affected by alkalies. The *Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld*, are the inventors and only manufacturers. *Dominion Dyewood and Chemical Co., Toronto*, sole agents for Canada.

DIRECT DEEP BLACK G.

This new color (which is a self color, not a mixture) has same properties as the well known Direct Deep Black T, and Direct Blue-Black B; but is cheaper in price and gives a coal black shade at one dip. It is very fast to acid, alkali, perspiration, and faster to light than logwood. For further particulars, address the *Dominion Dyewood and Chemical Co., Toronto*, sole agents for Canada.

ALIZARINE-YELLOW 3 G (POWDER),

which surpasses the older products of this series by its intense greenish shade, as well as by its great clearness and purity.

1. *Dyeing*.—Alizarine-Yellow 3 G is dyed on wool with the ordinary chrome mordant (bichromate of potash and tartar, or bichromate of potash and oxalic acid, or fluoride of chrome), but the well-known one-bath method may also be applied. For the latter purpose the wool is dyed in a bath to which acetic acid has been added, and after same has been exhausted the wool is chromed with fluoride of chrome or bichromate of potash. With bichromate of potash similar shades are obtained to those produced by mordanting the wool first, while, by treating it afterwards with fluoride of chrome, the shade is far greener and clearer. The clearest shades are produced when mordanted first with fluoride of chrome. The color is easily soluble, dyes even without any difficulty, and is of equal value for dyeing pieces of yarn or loose wool. Shades

Difference in Dyeing.

Other firms would like to do good work; we have the plant, the knowledge, the machinery and the ability, as well as the wish.

It isn't a question of who would, but WHO CAN do your Dyeing and Finishing in the most satisfactory manner. What we do, you can rely will be well done, and our prices will be found as low as the best work can be done.

You don't want any but the best work, do you? Ship to us your off-colored Cashmeres, Serges, Henriettas, Tweeds, Yarns, Braids, Hose, Plumes, Union and Soft Silk Ribbons, and we'll transform them for very little money into choice saleable stock.

Send for Quotations.

R. PARKER & CO.

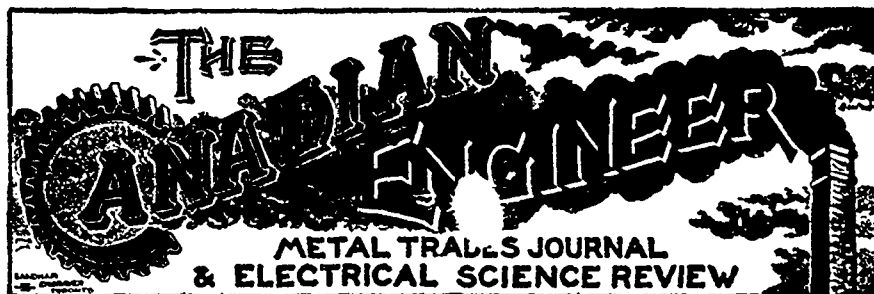
DYERS and FINISHERS,

Head Office and Works, 787 to 791 YONGE STREET

Toronto, Ont.

Telephones 3037 and 3640.

THE
BEST
ADVERTISING
MEDIUM
IN
CANADA



REACHING
ALL
BRANCHES OF
PROFESSIONS
AND TRADES
INTERESTED

Published simultaneously in Toronto and Montreal.

Subscription, \$1.00 a year.

THIS Journal is devoted to the interests of Civil, Mechanical, Electrical and Mining Engineers; Stationary, Marine and Locomotive Engineers Sanitary Engineers and workers in the metal trades. Machinists and Iron and Brass Founders, and generally to Mill-owners, Manufacturers, Contractors and the Hardware trade.

The success of *The Canadian Engineer* has been unprecedented in the history of trade journalism in Canada, for not only was it encouraged and assisted from the start by able Canadian writers in the various branches of engineering, but it achieved what was still harder to accomplish—a sound financial position within the first year of its existence. The number of subscriptions received, and the number of firms who have sought the use of its advertising pages, have justified the publishers in thrice enlarging the paper. It is now twice its original size. While this means a large growth in advertising patronage, it also means a greater variety of reading matter and illustrations for our subscribers.

CONTENTS OF SEPTEMBER, 1895, NUMBER:

	PAGE		PAGE
American Patents	135	Metal Trade Review	127
Boilers, Facts about	119	Metal Trade with Great Britain	125
Can. Association of Stationary Engineers	122	Mining Matters	131
Canada's Railway System	123	Montreal, Ottawa and Georgian Bay Canal	109
Canadian Electrical Association	123	Nova Scotia Steel Co.	125
Cast Iron, The first	123	Nova Scotia Tornado	122
Concrete Superstructures	114	Ottawa Canal	109
Car Fender	125	Packard Lamp Works	126
Delaware Breakwater	114	Patents, Canadian	135
Electric Flashes	133	Personal	134
Hayhurst, T. H.	124	Pipes, weight per foot	127
Indicator, and its use	117	Railway and Marine	130
Industrial Notes	127	Shepherd, R. W.	125
Kerosene Motors	113	Tidal Motor	124
Lake Erie Water Power Scheme	122	Tornado in N.S.	122
Literary Notes	127	Waterous Engine Works	123
Map of Ottawa Canal	114	Wright's Reducer for Indicator use	123

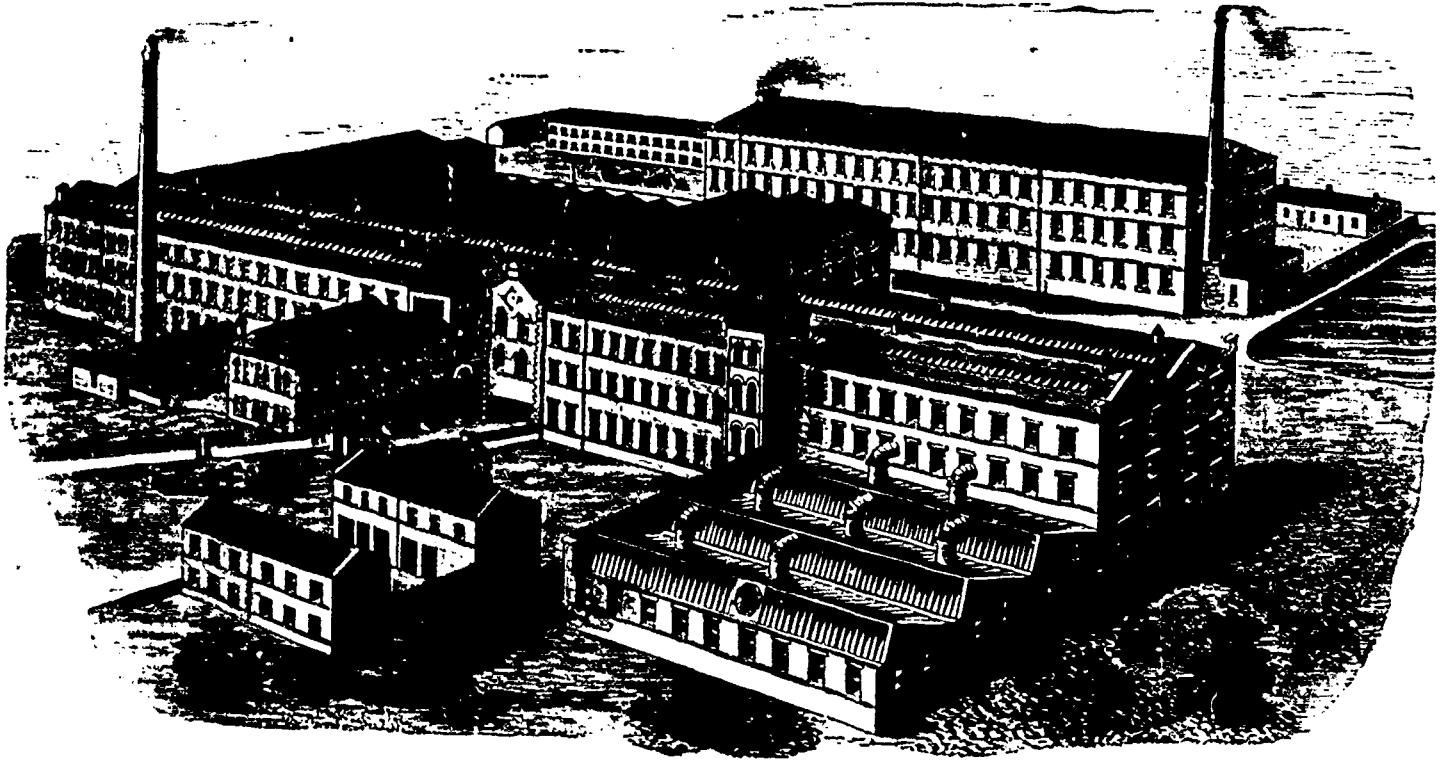
Send for Sample Copy and Advertising Rates

BIGGAR, SAMUEL & CO.

(E. B. BIGGAR—R. R. SAMUEL)

62 Church St., TORONTO, Ont., or Fraser Bldg., MONTREAL, Que.

CARD CLOTHING OF EVERY DESCRIPTION



SAMUEL LAW & SONS, LIMITED

Established 1816

MOORLAND AND ROUND HILL MILLS

Incorporated 1888

CLECKHEATON, - ENGLAND

Largest Manufacturers in the World of

CARD CLOTHING

— FOR CARDING—

Cotton, Wool, Worsted, Silk
and other Fibrous Materials.

MAKERS OF

Plough-Ground, Side-Ground, Needle
and Diamond-Pointed

CARD CLOTHING

With HARDENED and TEMPERED Cast Steel Wire

PATENTEES AND MANUFACTURERS OF

Patent Rolled and Compressed Double Convex Wire, Angular, Flat,
Round and Flat, and Ordinary Round Wire Cards.

Samples, Prices and Testimonials on application

AGENTS FOR CANADA:

ROBERT & COMPANY, - - 356 St. James Street, MONTREAL

whether dyed on wool mordanted first, or chromed afterwards, are very fast to alkali, acid, stoving, ironing and rubbing, and in artificial light they appear only very slightly altered. They are also very resistant to atmospheric influences; they stand milling fairly well, and only bleed slightly on to white wool or cotton, so that in cases where the material has only to stand a moderate milling it is quite satisfactory.

Alizarine-Yellow 3 G is very suitable for combination with all Alizarine-Diamond and chrome colors, and especially without Brilliant-Alizarine Blue G, or Brilliant Alizarine Cyanine 3 G, gives very fiery and fast greens.

Silk, which has first been mordanted with chloride of chrome, can be dyed a clear greenish yellow, and is very fast to water and soap.

2. *Cotton Printing.*—Alizarine Yellow 3 G is fixed on cotton with acetic acid, and gives a very greenish yellow. The best results are obtained when printing an oiled cloth, as when printed on oiled material the color runs into the white slightly. After printing it is steamed with or without pressure.

The fastness to washing as well as the fastness to light of this yellow is very good; by mixing with brilliant Alizarine Blue S P, beautiful green to olive shades of good fastness to washing and light are obtained, whilst by the addition of anthracene brown, beautiful shades of fashion colors are produced. Alizarine Yellow 3 G can also be dyed on cotton cloth, which has been first padded with chrome. For further particulars and information, address the Dominion Dyewood and Chemical Co., Toronto, sole agents for Canada for the Farbenfabriken, vormals Fredr Bayer & Co., Elberfeld, Germany.

THE WOOL MARKET.

During the past three or four weeks, the Ontario wool market has subsided into comparative quiet. The fact is that the market is pretty well cleared of wool, and the transactions are very light. In Toronto prices are quoted as follows: Super, 21 to 23c; extra, 22 to 24c; fleece, combing, 24 to 25c; clothing, 23c. There are still some enquiries for Canadian wools in the States, but as the stock here is exhausted there is less interest in our wools. In Ontario the current trade in foreign wools is also light, as the mills do not appear to be stocking up.

MONTREAL WOOL REPORT.

Our Montreal correspondent writes: "Things are booming in the local wool markets. There has already been a substantial advance in prices in the States and England. Montreal's wool stock is at present very low, the vessel expected last month having not yet arrived. The cargo of the delayed ship comprises 2,000 bales of wool. The price of Cape greasies has gone up, and these wools cannot be bought now for less than 14½ to 15½c., and another five per cent. advance is daily expected."

The fifth series of the London market wool sales will open on the 24th inst. The quantity to be offered for sale is rather small, being no more than 200,000 bales, and the prices are expected to be at least 10 per cent. in advance of present rates. There will probably be no American purchasers at the London opening, as Yorkshire manufacturers will snap up the stock at a price higher than it would be profitable for American buyers to pay. An example of the state of the market, at present, may be got from the action of a Belgium purchaser who bought wool that had been sold into the States, then shipped it back again to Belgium and realized a profit. A party of Boston, Mass., buyers recently bought a large quantity of wool in London, and before they were prepared to move it prices advanced, and they sold out their stock in London, at an increase of 1½ and 2 cents.

FRANK W. NEWMAN, dry goods manufacturers' agent, brought an action on behalf of his wife against the Montreal Street Railway Company for damages sustained in getting off a car while in motion. The court held that the accident arose through Mrs. Newman's own carelessness in getting off the car, and dismissed the action.

W. H. STOREY & SON, glove manufacturers of Acton, Ont., will extend their factory by the erection of a two story brick building and a new engine room.

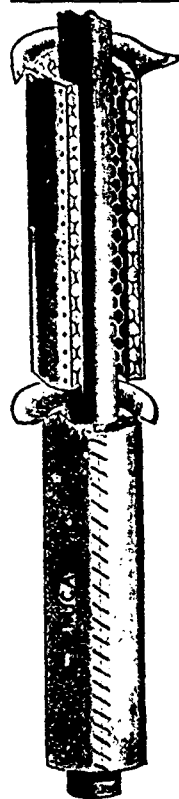
On August 26th more than 80,000 yards of sheeting manufactured at the Montmorency Cotton Mills, Que., were shipped from that place to Hong Kong, China.

D. WHITE, dry goods dealer, at Ingersoll, Ont., has assigned with liabilities of about \$30,000. Mr White began business in Ingersoll in 1857, and in 1880 was forced to assign owing to the failure of T. J. Claxton & Co., large dry goods dealers in Montreal. At that time he paid 60 cents on the dollar.

JUDGE DELORMIER, Montreal, rendered judgment a few days ago in the case of Haskell vs. the Montreal Silk Mills Co. Haskell sued for commission of 5 per cent. on sales made after the title of the company had been changed. The company resisted, and the judge rendered against them for the amount claimed.

A. PATTERSON, for a considerable time in the employ of T. Symington & Co., Sarnia, Ont., has severed his connection with that firm to travel for a Toronto wholesale dry goods firm. Before his departure from Sarnia, Mr Patterson was tendered a complimentary supper and presented with a handsome diamond ring.

The Consumers Cordage Company of Montreal is at variance with the National Cordage Company of New York. The controlling interest in the Consumers Cordage Company was formerly held by the National Cordage Company. After the former company had secured its independence a claim was put in against the National Cordage Company for \$50,000 for goods furnished. The case is still pending.



JUST OUT! MICA COVERINGS

FOR BOILERS AND STEAM PIPES
Fire Proof Linings
for Safes, Vaults, etc.

COLD STORAGE INSULATIONS.

Manufactured in Mats any size or shape, and can be applied or removed without injury.

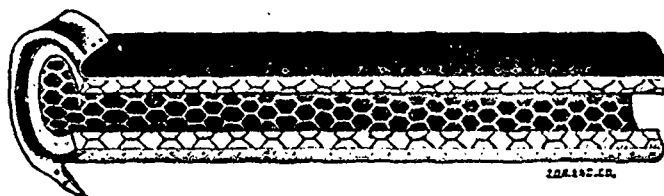
Thoroughly tested by leading engineers, and endorsed by best known authorities in Canada, and now in use by Toronto Street Railway Company, Niagara Navigation Company, Toronto Ferry Company, etc., etc.

Impervious to Heat, Cold,
Dampness or Vibration.

Write for full particulars to

THE MICA BOILER
COVERING CO.

2 Bay Street, TORONTO.



The September cotton report of the Department of Agriculture, at Washington, shows a decline from the August condition of the crop, which was 77.00 to 70.8 per cent

The Japanese Government has offered the California Cotton Mills Co., located at Oakland, Cal., immunity from taxation for 20 years, and furnish male labor at 18 cents a day, if it will remove its entire plant to Japan

In Spain more men are employed in the cotton industry than in any other, except agriculture. This fact is brought out in a report on the Spanish cotton industry recently made to the State Department at Washington by Consul Bowen, of Barcelona. It appears that in thread alone there are 3,000,000 spindles, \$40,000,000 of capital invested, and 34,800 workmen. In white woven cotton goods there are large exports from Barcelona. Ten thousand workmen are employed in cotton thread lace manufactures near Barcelona,

and 35,000 are at work in other parts of Spain. In dyed and printed cotton factories there are 10,634 looms and 32,000 workmen employed, producing 48,800,000 metres of cloth. Cuba and Puerto Rico received the most of this. The total number of spindles in Spain employed in cotton works is 2,614,500, and the number of looms is 68,300, with a total capital of \$60,000,000. Cotton thread workmen are paid by the piece, as are also the weavers. The average wages paid per week are as follows:—Directors and superintendents, \$12 to \$25, major-domos, \$8 to \$10, machinists, \$4 to \$16, firemen, \$3 to \$6, thread workers and weavers, \$4.75 to \$6, carpenters, \$4.75 to \$6, ordinary workmen, \$3 to \$4. The average workman's wages in Barcelona and vicinity are less than 70c a day. The most of the cotton that comes to Spain is from the United States, and amounts to about \$15,000,000 each year. Considerable cotton, however, also comes from Egypt. While Spain is poor, the consul says, the province of Barcelona is rich.

HARVIE & CO.,

70 and 72 Esplanade Street West,
Toronto.

Box Manufacturers and Wood Printers.

All kinds of Packing and Shipping Cases made and shipped on shortest notice. Cloth Boards and Box Shooks a specialty. Send for lowest quotations



**The Curtis Patent
Return Steam Trap**

will return all condensation back to boiler, and will operate equally well in connection with reduced pressure or exhaust steam.

Its general use during the past 10 years is best proof of its superior qualities.

Manufactured by the
D'ESTE & SEELEY CO., 29 to 33 Haverhill St.,
Boston, Mass.

NEW YORK: 109 Liberty St.
CHICAGO: 218 Lake St.

E. W. MUDGE & CO.

646 Craig St. - Montreal.

TRIMMINGS

—FOR—

Knitting Mills and Woolen Mills.

TYING-UP RIBBONS.

Pink & White Cotton Tapes

YARMOUTH WOOLEN MILL CO., Ltd.

Manufacturers of

Fine Woolen Tweeds, Hoespuns, etc.

YARMOUTH, Nova Scotia

JAS. A. CANTLIE & CO., Selling Agents
MONTREAL and TORONTO

CHAS. F. TAYLOR,

Successor to Burgess Cop Tube Co.

Manufacturer of

PAPER COP TUBES

48 Custom House St.

PROVIDENCE, R. I.
U. S. A.

ESTAB. 1886. OFFICIALLY RECOGNIZED.
RAILWAY, STEAMER, HOTEL,
COMMERCIAL, AND GENERAL
INFORMATION NOT TO BE HAD
ELSEWHERE. ADDRESS:
A. B. CHAFFEE,
33 ST. NICHOLAS STREET,
MONTREAL.
AND **DOMINION GAZETTEER**
PRICE, 25C. ISSUED MONTHLY. SUB'N, \$2.50.

S. GREENSHIELDS, SON & CO.

MONTREAL and VANCOUVER, B.C.

SCARCE GOODS:

White Swiss Spot Muslins
Black and Colored Satin Ribbons
Just to hand. Full assortment.

Large Clearing Lines in

CANADIAN COTTON GOODS:

Prints Small Check Gingham
Flannelette Skirtings
Crinkles and Cotton Crepons

Full stock of

PRIESTLEY'S SERGES AND CRAVENETTES
Just opened.

Our travellers are now showing complete ranges
of Fall Samples in

Imported and Canadian Goods

CHAS. E. STANFIELD TRURO, N.S.

Manufacturer of

WOOLEN AND KNIIT GOODS

Specialties:

CARDIGAN JACKETS and LADIES'
NON-SHIRINKABLE UNDERVESTS

G. B. FRASER,

3 Wellington Street East
TORONTO

REPRESENTING

Montreal Woolen Mill, Montreal; Naps, Tweeds,
Blankets, &c.
Miller Bros. & Co., Montreal, Paper Collars and
Cuffs.
A. G. Van Egmond's Sons, Seaforth Ont.; Tweeds
and Etoffes.
C. H. & A. Taylor, Galcar, near Huddersfield, Eng.;
Fancy Tweeds.
Hy. Langley & Co., Huddersfield; Worsted Coat-
ings, &c.
James Holdsworth, Upperhead Mills, Huddersfield;
Woolen & Cotton Card Clothing.
Peter Besenbrush & Co., Elberfeld, Germany;
Buttons, Braids, &c.
S. B. Sherrill & Co., Cotton Brokers, Jackson,
Mississippi.

R. M. FENNISTOWN, Pres. J. I. DAVIDSON, Sec'y.
 JAMES KENURY, Man. Director.

Auburn Woolen Co.
PETERBORO, ONT.

Manufacturers of

**FINE
 TWEEDS,
 ETC.**

Selling Agents { **D. Morrice, Sons & Co.,**
 Montreal and Toronto

The best results in
Card Grinding
 are obtained by using  **ATLAS**
DRONSFIELDS' PATENT
GROOVED EMERY FILLETING
 SPECIALITIES: MACHINES FOR GRINDING CARDS
 MACHINES FOR COVERING ROLLERS WITH LEATHER
DRONSFIELD BROS. LTD.
 Atlas Works, OLDHAM, ENGLAND

**You Want a Canoe
 OR ROWBOAT**



WE HAVE THEM

in all sizes, and at prices which will make you buy.

THE CANADIAN CANOE COMPANY, Limited
 Box 107, PETERBORO, ONT.

Send stamp for Catalogue and mention this paper.

See that all your

LINEN THREAD

and . . .

SHOE THREAD

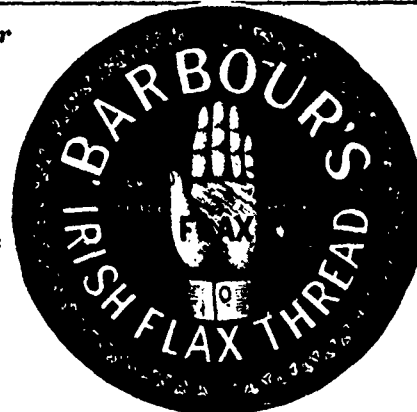
carries

this Trade Mark

IT IS

ALWAYS

RELIABLE



THOS. SAMUEL & SON, SOLE AGENTS

8 St. Helen Street, Montreal
 22 Wellington Street West, Toronto
 473 St. Valler Street, Quebec

FULL STOCK CARRIED AT EACH ADDRESS

GUARD AGAINST BOILER EXPLOSIONS

An efficient
 staff of
 Trained
 Inspectors

Prevention
 of Accident
 our
 chief aim

JOHN L. BLAIKIE Esq.
 PRES.

EW. RATHBUN Esq.
 VICE-PRES.



OF CANADA



CONSULTING ENGINEERS

G.C. ROBB CHIEF ENGINEER
 A. FRASER SEC. TRES

HEAD OFFICE TORONTO

When were
 your boilers
 last
 inspected?

Are they in
 safe
 working
 order?

MONTREAL OFFICE

Room 222, Board of Trade Building, MONTREAL

CARD CLOTHING **I**n English Oak
In Flexifort
In Cotton and Linen
In Natural Rubber
In Vulcanized Rubber **S**end in your
S orders early.
S All Clothing
S ground.

The J. C. McLaren Belting Co.

MONTREAL

: : : : :

TORONTO

SAMUEL LAWSON & SONS, LEEDS

MAKERS OF

**Machinery for Preparing and Spinning
 Flax, Tow, Hemp and Jute**

Special Machinery for the Manufacture of Binder and Ordinary Twines

SOLE MAKERS OF

**Good's Patent Combined Hackling
 and Spreading Machine**

**Patent Automatic Spinning Frames
 Improved Laying Machines
 and other special machinery for the
 manufacture of Rope Yarns**

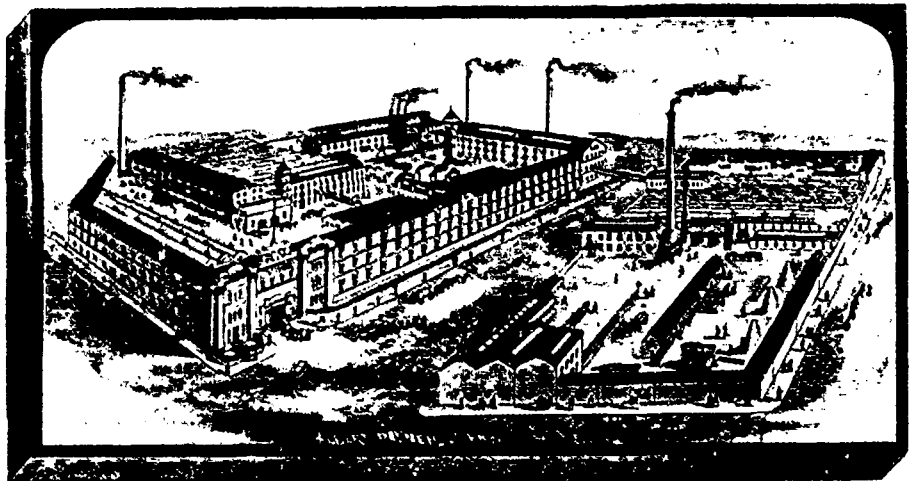
Sole Makers of

Bollman's Patent Sack-Sewing Machines

AND

**Brownell's Patent Twisting and Laying
 Machines for Twines**

Council Medal, London, 1851, Grand Medal,
 Paris 1867, Prize Medal, Moscow 1872, Diploma
 of Honor, Vienna, 1873, Highest Award, Phila-
 delphia 1876, Gold Medal, Paris, 1875, Highest
 Award (Medal), Melbourne, 1880



WRITE TO THE

PATON MFG. CO.

Sherbrooke, Que.

FOR

Worsted Knitting and Fingering Yarns

NEW TORONTO WOOL STOCK CO.

(ALFRED PARKER, Sole Proprietor)

A. S. PARKER, Manager

W. H. PARKER, Mechanical Supt.

NEW TORONTO, ONT.

**MANUFACTURERS OF ALL KINDS OF
 CARDED WOOL STOCKS AND GRADED SPECIALTIES
 in Carbonized and Hand-Seamed Stock**

The Proprietor asks for orders upon his long experience in the centre of
 the heavy Woolen Manufacturing trade of Yorkshire, England.

Schofield Woolen Co.

OSHAWA, ONT.

MANUFACTURERS OF

Carpet and Hosiery Yarns

Ladies' and Gents' Underwear

MEN'S TOP SHIRTS A SPECIALTY.

L. S. WATSON MANUFACTURING CO.

LEICESTER, MASS.



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.