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# CANADIAN Journal of Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, FEBRUARY, 1899.

No. 2.

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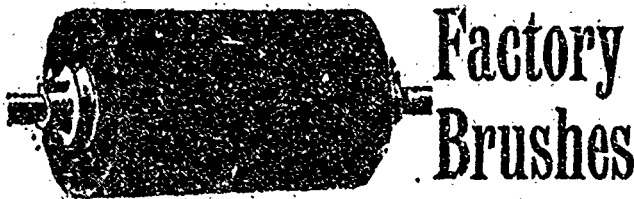
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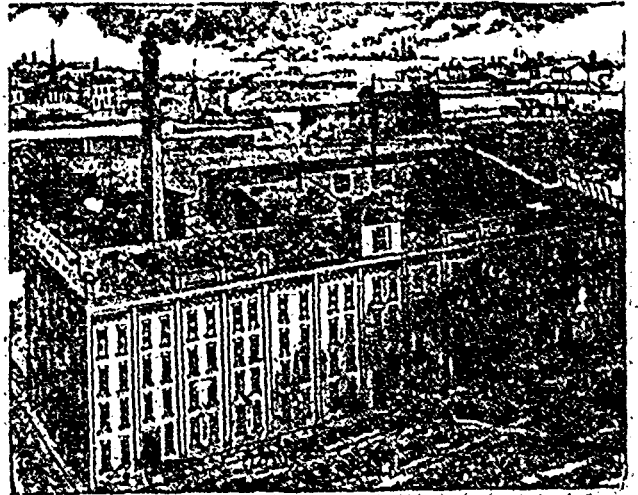
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Vol. XVI.

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No. 2.

## Canadian Journal of Fabrics

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

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### THE CANADIAN TEXTILE DIRECTORY

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### THE LONDON WOOL SALES.

During the first series of London wool sales, whose opening we described in last issue, out of a net available total of 184,500 bales, 173,000 have been catalogued and 11,000 left over, which, with 8,000 with-drawn, leaves 19,000 to be carried forward. Of 171,000 bales sold it is estimated that 83,000 have been taken on British account, 82,000 Continent and 6,000 America. The opening sale was marked with active competition from all sections of the trade, including America, and an advance of 5 to 7½ per cent. on December rates was established for both merinos and crossbreds. As the sales progressed merinos were

particularly in request on British and Continental account, especially medium and inferior combing sorts, values of which soon hardened into an advance of 10 per cent. since then they have met with strong competition and final rates show no falling off from that level. Fine and superior greasy and scoured parcels have met with a ready sale throughout on home account, and have sold in sellers' favor, closing about 5 per cent. in advance of December rates. A feature has been the continued spirited demand from Continental houses for fine locks and pieces, which all through the series were about the dearest wools on the market. Well grown and medium greasy crossbreds only were in request by American representatives, and such was the eagerness with which they operated that prices soon rose 10 to 15 per cent. above December parity. The demand slackened somewhat during the last day or two, but buying was resumed on closing day, the prices realized showing the above advance. The finer qualities, in sympathy with merinos, met with strong support at 5 to 10 per cent. improvement, principally on home account.

### COST OF KNITTING HOSE.

The improvements made in knitting machinery in the last few years have been very great, the resulting economies in production seem little short of marvellous. The following figures of the cost of producing hosiery, 50 dozen per day, men's half hose, have been supplied us by R. Schofield, Toronto. The cost of producing men's hose is as follows:—

Knitting	\$0.05 per doz
Topping	0.04 "
Looping	0.05 "
Knitting tops	0.00½ "
Dyeing	0.03 per lb.
Wet boarding	0.00¼ per doz
Pressing	0.01 "
Pressing and folding	0.01 "
Winding	0.01 "
Mending	0.01 "

To this 10 cents per dozen is to be added for general expenses, though in some mills general expenses are reduced to 3 cents per dozen. There are elements of the cost of hosiery production to day in the mills which set the prices in the market. A few hundred years ago the price depended upon the amount that a hand knitter working with four knitting needles could produce in a day. More recently an important factor in the market was the product of the hand-operated knitting machines, but these

are now unable to compete with machinery that can knit 50 dozen of hose in a day at a cost of 5 cents per dozen.

A firm of knitting machine mfrs doing business in Toronto, is advertising that it supplies hand-knitting machines upon which some operators can make a pair of hose in 30 minutes, at \$15. The firm states in its circulars: "We have many persons now in our employ who can knit from 25 to 30 pairs of socks or stockings per day: and where the family is devoted to the work, you can readily see that \$15 to \$20 per week can be easily earned. We furnish our workers all the materials," the circular states, "yarn, etc., free and every thing that is necessary for the work." "There is no limit to the trade of this class of work," to resume the quotation, "Our readers can depend upon it year after year, and if you engage with us (whole or spare time) we will keep you supplied with yarn as long as you knit it into salable goods for us and return it promptly."

We do not wish to make any comment on these facts, merely to express surprise that industrial enterprises conducted on principles so widely separated could compete successfully in the same market.

#### THE SOLUTION THEORY OF DYEING

A very interesting hypothesis has been advanced by Witt, which forms a connecting link between the chemical and mechanical theories of dyeing. He believes that dyeing is due to a "phenomenon of solution." The general idea of a solution is that a solid or a gas can only be dissolved in a liquid, says the *Textile Mercury*, but Witt extends this general idea, and assumes that it is possible for one solid to be dissolved in another. He considers dyeing analogous to the solution of colored metallic oxides in glass. It necessarily follows from his views that all coloring matters are soluble to a greater or less extent in the constituents of the various fibers, otherwise, all coloring matters could be easily washed off. Even cotton steeped in a solution of magenta, for which it has no direct affinity, cannot be entirely freed from the last traces of color by merely washing. The coloring matters capable of fixing themselves on the fiber directly are those which are more soluble in the substance of the fiber than in water, and consequently the fiber is able to draw them from their aqueous solutions.

Dyeing then, according to this definition, is exactly analogous to the extraction of solid bodies in aqueous solution by some other solvent. Thus, if an aqueous solution of resorcin is shaken up with ether, the resorcin, being more soluble in ether than in water, is withdrawn by it. By this theory many hitherto unexplained facts have been partly solved. The reason why the dye bath cannot always be completely exhausted is indirectly explained by an analogy. If an aqueous solution of resorcin is shaken up with amyl alcohol, the latter absorbs resorcin, but when it has extracted a definite proportion an equilibrium is set up. Again, why do certain dyes (such as Congo red) dye a different color from their solution? Another analogy indirectly explains this, for the same reason that a brown aqueous

solution of iodine dissolves out violet or purple in chloroform. It is true that the reason for this has never been discovered, but Witt argues that when it is it will also apply in the case of these dyeing phenomena. In the case of dyeing with the adjective dyes, the mordant is first dissolved in the fiber, then fixes color within the fiber by combining with it.

#### THE CANADIAN MANUFACTURE OF CHEMICALS.

Canada possesses unlimited water power, salt, sulphur, and other necessities for carrying on the industry of manufacturing chemicals on a large and profitable scale. We can produce more cheaply in Canada than can the Germans and we will pay but little more in freights than they will. We should therefore have the trade. That the chemical industry is passing from the hands of the English manufacturers to the Germans is evident from this plaint in a recent issue of the *Dyer and Calico Printer*: "The chemical trade has also been poor," says our contemporary, one of the best informed publications on this subject. "It would appear that too great a proportion of our existing chemical plant is obsolete, and that the new electrical process works that have been in operation for some time on the continent, and to a less extent in this country, are driving out the older works from the business." The successful competition of late years carried on by German houses in this important trade, which was formerly in British hands to a large extent, is striking. This is precisely one of the cases, says the *London Times*, in which we should expect the superior technical and scientific education of the Germans to show unfavorable results for us.

#### ALL LINEN.

Much interest is at present taken in the question as to what extent it is lawful for goods composed of more than one fiber to be sold under the name of one only. The linen case in which a merchant was recently fined for selling a cotton and linen weave as "linen" is the first decision on the subject:

Referring to the recent linen prosecutions, the president of the Belfast Merchants' Association recently said that early in the year the attention of the council was called to certain aspersions against the trade, in which their merchants and manufacturers were accused of systematically palming off cottons as linen or union, and union as linen. A special general meeting was held to take the whole question into consideration, and the following resolution was passed:—"That in face of the reports published in trade journals that union goods are being sold as linens, and cotton goods as union or linens, the council of this association are hereby empowered to take such proceedings as may be necessary to prosecute persons so deceiving purchasers, and to make the requisite arrangements for carrying this motion into effect." The council immediately set about putting this resolution into effect, which left it open for them to proceed either against manufacturers or retail dealers. With regard to manufacturers, no evidence was brought on which any case could be founded, and in

their belief the statement that it was the custom of merchants and manufacturers to invoice unions as linen was utterly false and misleading. They determined to initiate proceedings by a test case in order to have the technical question whether linen was a pure flax fabric clearly established by law. The result of this trial, so far as it had gone, was known to them. They wished it to be clearly understood by their members, by the linen trade, and by the public, that in opening up this question in the law courts they had no intention of impugning the honor of retailers collectively or individually, but they were determined to open the eyes of the consumers to the fact that under the clauses of the Merchandise Trade Marks Act nothing but a pure flax fabric could be sold as linen, and that the placing of cotton or union under the generic name of linen was nothing else but a breach of a law specially framed for the protection of the public.

A correspondent of the London Drapers' Record suggests the following names to designate unions so as to observe the Act: Lincot—for linen and cotton combined; Jucot—for jute and cotton combined; Hemcot—for hemp and cotton combined; Woocot—for wool and cotton combined; Silcot—for silk and cotton combined; Hemlin—for hemp and linen combined; Woosil—for wool and silk combined; Worscot—for worsted and cotton combined; Flancot—for flannelette; Lincot lining—for linenette.

#### THE ORIGIN OF COAL-TAR COLORS.

David Patterson, F.C.S., delivered a lecture on the origin of the coal-tar colors, before the Edinburgh University Chemical Society, last month, from which the following abstract is made:—

The study of the aniline or coal-tar colors forms that special branch of organic chemistry known as the benzene derivatives, or the aromatic compounds, and the rise and progress of the coal tar industry forms, perhaps, one of our most interesting examples of a fairy tale of science. Is this not so when we learn that from the black and nauseous substance, tar, whose touch, when smeared on the fences of our country roads, puts us in rather an indignant humor for the rest of the day, there can be evolved the gayest and brightest colors—all the colors of the rainbow, and hundreds more? Until the middle of this century dyers and calico printers were almost solely dependent on the animal and vegetable kingdoms for their various colors. These constitute the natural coloring matters, and the many colors now obtained by chemical means are generally styled the artificial coloring matters. As nearly all our artificial dyes are obtained from coal tar—a by-product of coal gas—the history of these colors is intimately connected with the history and manufacture of ordinary coal gas. There is no doubt that the introduction of coal gas for illuminating purposes has made the manufacture of these aniline colors possible. In the year 1814 the parish of St. Margaret's of Westminster, was first illuminated with coal gas, but it was not till over forty years later that the first aniline color, mauve, was discovered by Perkin.

During these forty years, however, many chemists

were engaged in investigating the constituents of coal tar, and thus a great amount of knowledge was being accumulated and the foundations of organic chemistry were being laid, foundations on which rested the subsequent rapid development of the great coal-tar color industry. We must go as far back as 1825, when Michael Faraday discovered benzene, to find the first investigation bearing directly on the question of the aniline colors. Benzene he called bi carburetted hydrogen, and it was discovered in the light oils, but it was not until twenty years later that Mansfield and Hoffman showed that benzene was present in coal tar. We have here a few of the principal dates of discovery:—

1820—Naphthalene was discovered by Garden.

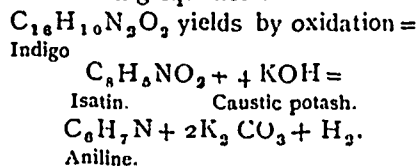
1825—Benzene was discovered by Faraday.

1832—Anthracene was discovered by Dumas.

1834—Phenol and nitro-benzene by Mitscherlich.

1845—Benzene recognized in coal tar by Mansfield.

It is an interesting fact that aniline itself was discovered independently by three investigators, Unverdorben, Runge and Fritsche, and each gave to it a different name. Unverdorben, in 1826, obtained his aniline, which he termed "crystalline," by the destructive distillation of indigo ( $C_{16}H_{10}N_2O_2$ ), while Runge discovered his in coal tar oil, and named it "kyanol," from the violet blue coloration it gave with a solution of chloride of lime (from kyanos, Gr.—dark blue). Fritsche, in 1840, obtained his aniline from indigo by oxidizing and treating with caustic potash. He named it "aniline" from the indigo plant *indigofera anil*. The reaction which takes place is readily seen from the following equation:



Hoffman showed that these three substances, "Crystalline," "Kyanol" and "Aniline" were identical, and he preferred the name given to it by Fritsche, hence it comes to be called aniline.

The quantity of aniline present in coal tar is so small that its isolation on the commercial scale would never be a success. The production of aniline on a sufficiently large scale for industrial purposes became possible when Zinin in 1842 showed that it could be obtained by the reduction of nitro-benzene  $C_6H_5(NO_2)$ —a substance discovered by Mitscherlich in 1834. It shows the wonderful patience and perseverance of those early investigators on aniline, that before the coal-tar industry was established all the aniline that could be obtained for experiment had to be made by the costly and laborious operation of Fritsche's, i.e., by distilling indigo with caustic alkali. Zinin's method of producing aniline is beautifully simple. Benzene, when treated with nitric acid, is converted into nitro-benzene  $C_6H_5(NO_2)$ . This, on reduction by means of iron filings and acetic acid or hydrochloric, produces aniline; the monad nitro group ( $NO_2$ ) is replaced by the amido group ( $NH_2$ ). This shows how, from benzene as the starting point, aniline may be produced, from which, with all

its many derivatives, we get the innumerable colors now at the command of every dyer. For forty years coal tar was considered a useless by-product, but now its value is such that indeed we must wonder how we could do without it. In the autumn of 1856 William Perkin was experimenting on aniline. He was engaged on a research for the production of artificial quinine. Many have been the stories written describing his discovery of the first aniline color, but they are all more or less fanciful. They describe him, tired and disappointed with a day of failures in his laboratory, mixing all the liquids with which he had been working into a tall glass vessel, when lo, to his delight, a lovely and brilliant color was produced. But, unfortunately, like many other pretty stories, it is quite untrue. The real facts of the discovery were not romantic or encouraging. He obtained, by the oxidation of aniline sulphate with bichromate of potash, a dirty, unpromising looking precipitate, which, after investigating and purifying, he found could dye cloth a violet or mauve color. This was the discovery of the first aniline color, and it ever went by the name of "Perkin's Mauve." Two years later, 1858, Hoffmann discovered the splendid color magenta, or fuchsine, and during the following ten years violet, blue, green, red, and yellow coloring matters came in quick succession, and at the present day the number and variety of the aniline colors is simply bewildering. Few people, except those engaged in the chemical trade, have any idea of the immensity of the coal-tar industry. Its influence is world-wide; all other chemical industries are benefited by it, and hundreds and thousands of people are busily employed in its development.

#### THE PREPARATION OF RHEA FIBER FOR TEXTILE PURPOSES.\*

BY PERRY F. NURSEY.

(Continued from last issue.)

In another letter to the author, Sir Joseph wrote: "The real question is now spinning machinery suitable for these long fibers. Cotton machinery is of no use; flax little better; silk and wool expensive, and the waste too great. Some practical machinist must take the matter up and prepare specially for the ramie fiber." Considering the amount of time, ingenuity, and money expended upon the Fremy-Urbain process, it is perhaps a matter for regret that the author is unable to record its commercial success. It will doubtless have been observed that there were somewhat complex elements in the treatment, and that its success moreover depended to some extent upon the skill of the examiner in deciding, at an early stage, what chemicals should be used. But whatever points of detail may have been responsible for failure, the fact remains that the works at Louviers were run but for a short time on the Fremy-Urbain process.

Besides the steaming box for the stems devised by M. Favier, that gentleman also brought out a combined mechanical and chemical system for the complete treatment of rhea fiber. Of this system the author has no

personal knowledge. He came across a description of it a few years since, but cannot now find it. He is therefore unable to give any particulars further than that the preparing machine had no fewer than fifty-two pairs of rollers. It worked very well on dry stems, but its output was limited. It was in fact complicated, ponderous, and expensive.

Intimately associated with Brogden & Co, in connection with the Fremy-Urbain process, was Edward Casper, who, after having carefully followed the development of that process, came to the conclusion that the employment of decorticating machinery and caustic soda was not only unnecessary but prejudicial to the fiber. He held that the beating caused fractures in the fiber and caustic soda reduced its strength. He therefore devised a system in which decortication was effected by hand, and from which the use of caustic soda was excluded although other chemicals were employed. In Casper's process the stems are made into bundles of 100, as soon as cut, and are placed in a tank on the field where they are grown, and boiled for half an hour. The bark is then stripped from the stem, coming off in ribbon form and leaving no fiber adhering to the stem. As soon as they are stripped the ribbons are laid across girds and placed in a boiler containing a chemically charged liquid, in which, however, it is stated there is no caustic soda. Steam is admitted to the boilers and the ribbons are boiled under pressure for two hours, at the end of which time the grids, with their charges, are withdrawn and conveyed to a washing apparatus in which the effect of a continuous heavy rainfall and a constant dipping into a running stream are produced, pure water alone being employed. This completes the treatment, the grids being removed to the open air, where the filasse is exposed to the action of sun, wind, and rain, which is said to perfect its color and quality. When dry the filasse is conveyed to the packing shed and packed ready for the market. Although Mr. Casper expended time and money upon this invention it never reached the commercial stage. He was, undoubtedly, correct in principle in preparing the filasse from the rhea on the plantation, and thus justifying the motto "from planter to spinner," which was adopted by the syndicate formed to develop his invention. At the same time the author cannot help thinking that difficulties would arise in many localities with respect to water and fuel for boiling and steam-raising.

Turning to that part of the question under consideration which relates to the mechanical treatment of rhea fiber, the author will next describe a fiber-extracting machine which was invented by H. C. Smith in 1882, and was manufactured by Death & Ellwood, of Leicester. In the autumn of 1883 the author inspected the working of this machine, which answered its purpose very well, and gave a very clean separation without apparently damaging the fiber. This machine consisted of an iron framing about 3 feet high, 2 feet wide, and 3 feet deep from front to back, carrying a revolving drum about 18 inches in diameter and 12 inches wide. The drum was fitted with a series of beaters which passed near to the edge of a feed-

\*From a paper read before the Society of Engineers.



ing table about 12 inches wide, the drum being covered in with an iron hood. From beneath the feeding table a thin sheet of water was made to play in a constant stream which impinged upon the drum at a given pressure and angle. The fibrous stems were fed by hand on the feeding table, and were simply held up to the beaters by a cushion or backing of water, by which means the whole of the extraneous matter was removed, and the fiber extracted in a remarkably short time and in excellent condition. A number of these machines were sent out to India, where they were reported to be doing good work upon various kinds of fibrous plants, including rhea. In November, 1884, a competition trial of fiber-extracting machines took place at Calcutta, at the instance of the Government of India, a prize of 2,000 rupees being offered. Nine machines were entered and tried. Smith's machine proved by far the best, and the prize of 2,000 rupees was awarded to its proprietors.

Satisfactory as this machine was, and capable as it appeared to be, it was found to be still open to improvement in detail, especially as regards the feeding, which was done by hand. This improvement was effected by William E. Death, the senior partner of the firm of manufacturers already referred to, who completely remodelled Smith's machine. The principle of the drum and beaters and the impinging sheet of water was retained, but in practice it was worked out in a different manner, and acted in conjunction with a traveling feed table. No pressure of water is necessary for supplying the machine. When the fiber leaves the machine wet it only requires drying and putting into hanks, and baling ready for market. The out-turn of any fiber depends upon the percentage contained in the leaves or stems, but taking aloe, which yields an average of 3 per cent., the machine turned out 4 cwt. of dry fiber per ten hours. The machine was driven by a 5-horse power engine, but machines of larger sizes are made. This machine was brought out in 1892, at which time there is said to have been a demand for it, as it was capable of treating all kinds of fibrous plants. The author, however, is informed that owing to various causes, such as an irregular market for fiber and the development of other systems, there has been no demand for this machine for treating rhea for some time past.

The next machine for notice is that of J. Orr Wallace, of Belfast, which the author inspected in the Irish Exhibition at Olympia, in the autumn of 1888. This was really a flax scutching machine, although it was so constructed as to be capable of dealing with rhea stems, but not to the best advantage. It consisted of an upper feed table on which the rhea stems were fed to three pairs of fluted rollers, which delivered the crushed stems downwards between five pairs of pinning tools, alternating with six pairs of guide rollers. The pinning tools somewhat resembled hand hackles, being simply coarse wire brushes. They were attached to two vertical frames, to which a horizontal to-and-fro motion was imparted, the pins interlacing as the two sides approached. The fibrous material was drawn downwards by the rollers, which had an intermittent motion, and at each momentary pause the pricking

pins entered the material and were rapidly withdrawn from it. By degrees this fibrous descending curtain was delivered on to a sloping receiving table at the bottom of the machine, over which table the woody substance of the stems had previously passed to a receiver in a crushed and semi-pulverized condition, and perfectly free from fiber. So far as the mechanical separation of the fiber from the bark and wood was concerned, the machine acted very efficiently on some green rhea stems about 6 feet high and of fair size, which were grown at Kew. Mr. Wallace subsequently improved the details of this machine, and fitted it for the treatment of rhea fiber, for which purpose he sold several machines, some being repeat orders. But notwithstanding this, they have not come into general use in the present connection.

We now come to a system of extracting the fiber from the rhea ribbons, and of preparing it for the spinner, invented by Mr. Henry Ferguson. A plant for the commercial working of the invention was laid down at the Phoenix Spinning Mills, Brighouse, Yorks, and was inspected and reported upon by the author in March, 1896. In this process the ribbons are packed in openwork iron cages, each measuring about 4 feet square, and 3 inches deep from front to back. The cages hold the ribbons in separate layers, which prevents them becoming matted or entangled during the process of preparation. Each cage holds about 20 lbs. of ribbons, and, when charged, the cages are immersed in a solution of caustic soda, which is maintained at the boiling point by steam coils. The fiber remains in this solution for about three hours, during which time the extraneous matters, consisting of bark and gum in which the fiber is imbedded, have become softened. The cages with their charges are then transferred to a tank of warm water, in which they remain for from two to six hours, according to circumstances. By this means the complete separation of the extraneous matter from the fiber, while stationary, is effected, the former settling at the bottom of the tank as sludge. The cages containing the fiber are then taken out of the warm water bath, and the fiber is washed in cold water, after which it is immersed for a short time in a cold bath consisting of an oleaginous composition, and afterwards dried. This final steeping is claimed to be an important feature in Mr. Ferguson's process, as by its means the fiber is rendered supple and pliant, its appearance being also improved. The finishing touch is thus given to the fiber as regards its preparation for the spinning mill, where the author saw it made into sliver and spun into yarn, which was pronounced by competent judges to be of the highest quality. Ferguson's system was certainly the simplest and most effective the author had inspected up to that time, as well as being the most economical. Mr. Ferguson informs the author that this process is still in operation at the Phoenix Mills, and is giving satisfactory results.

(To be continued.)

The Hawthorn Woolen Co., Carleton Place, Ont., is increasing its lighting plant, and has placed its order with the Royal Electric Company for a 25 k.w. bipolar direct current generator.



**COP-DYEING.**

The real key to the difficulty is in matching lots dyed at different times, says D. Harwood Huntington in the Year Book for Textile Colorists just issued. To a layman nothing appears easier than to obtain the same color by taking precisely the same amount of chemicals and the same weight of goods, and in this way to obtain uniform dyeings, day after day, and week after week. It is a fact, however, that no one who has had any experience in colors will gainsay, that it is impossible, even where the most conscientious care is used, to get identically the same results day in and day out. All of this seems absurd to the theorist, but it is a sad fact that the dyer cannot get uniform shades even when using, to the very best of his ability, identically the same amounts. Therefore, as the order always comes from the commission house, "Dye THIS red," and not "Dye A red," it is not possible to make a commercial success on a commission basis of a process which does not enable the dyer to return the goods to the commission house dyed precisely and identically THIS red. Per contra, if a mill uses its own dyeings, the dyeing of the cops can be used to effect a material economy.

Another cause for a great deal of trouble in carrying out to a practical success the idea of cop-dyeing is that, if the cops are handled in the least roughly or squeezed so that the shuttling is the least delayed, there is a loss, because, in this country, where several looms are kept in operation by one hand, this operation of shuttling must be easily done, or the whole bobbin is thrown in the waste heap. We have not the careful labor in this country, and it is made more careless because of the migration of mill help from one manufacturing centre to another. Abroad this migration is not so easy, and consequently the mill hands stay longer in one place and get used to a certain kind of work.

**IMPORTED WORSTED YARN.**

The changes made in the yarn tariff some time ago were commented upon at the time in this journal. Now that time has been given for the effects of these changes to make themselves felt it appears more possible to estimate. No subject in science is more complex than the incidence of taxation and no one can foretell with the slightest certainty the results of a change in the amount of a duty. Certain near and immediate results can be confidently expected, but the ultimate incidence of the taxation and the more remote effects of the incidence are subjects of pure speculation. The duties on worsted yarns were lowered. The immediate result was an increased importation. The foreign worsted yarns imported are not of as good quality as were those spun from Canadian yarns, though they are bright and of good appearance. The result of this is that the Canadian hosiery mills are at present turning out inferior goods to those made under the former tariff. The mills formerly spinning Canadian demi-lustre wools have given up the production of these yarns, and the Canadian wool grower finds his market narrowed. The results are then so far: inferior hosiery for the consumer; lower wool prices for the wool producer.

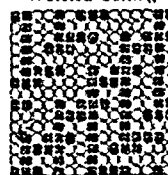
**TEXTILE TRADE WITH BRITAIN.**

We give below a summary of fourteen years of textile exports from Great Britain to Canada, compiled from the British Board of Trade returns. The December returns will be found in another place --

	1885.	1886.	1887.	1888.	1889.
	£	£	£	£	£
Raw wool.....	36,958	32,276	18,317	10,153	26,914
Cotton piece goods	629,195	634,158	620,378	499,230	494,752
Jute piece goods..	.....	.....	.....	.....	92,278
Linen piece goods	145,287	153,242	178,039	149,116	181,249
Silk broad-stuffs..	24,186	287,672	7,501	17,521	6,710
" ribbons ....	10,485	8,338	7,097	3,893	1,788
" laces .....	.....	.....	.....	.....	.....
" mixed goods..	63,929	98,540	74,149	70,822	54,974
Woolen fabrics ..	642,347	703,306	636,424	539,691	497,132
Worsted fabrics..	465,820	599,485	626,710	488,418	640,824
Carpets .....	185,979	216,329	240,910	186,993	221,291
Apparel and slops	240,000	260,397	227,080	291,904	331,285
Haberdashery ..	*507,217	480,699	535,946	436,683	432,940
(* Estimated )	2,959,403	3,222,417	3,212,551	2,694,424	2,982,037
	1890.	1891.	1892.	1893.	1894.
	£	£	£	£	£
Raw wool.....	24,173	25,035	21,623	22,310	14,317
Cotton piece goods	404,417	420,005	453,017	515,711	431,259
Jute piece goods..	91,444	106,811	114,140	137,860	99,040
Linen piece goods	138,343	142,527	177,047	139,406	111,637
Silk broad-stuffs..	3,433	3,876	.....	.....	.....
" ribbons ....	496	538	.....	.....	.....
" laces.....	.....	.....	53,381	41,080	32,023
" mixed goods..	34,923	44,136	60,438	70,990	41,788
Woolen fabrics ..	336,417	335,792	386,163	343,977	255,525
Worsted fabrics..	518,354	588,581	637,042	661,949	463,873
Carpets .....	171,860	206,695	201,405	227,607	162,113
Apparel and slops	346,568	377,408	395,676	338,091	298,305
Haberdashery ..	373,201	401,684	394,784	252,483	144,647
	2,443,691	2,653,088	2,900,716	2,751,464	2,054,527
	1895.	1896.	1897.	1898.	1899.
	£	£	£	£	£
Raw wool.....	16,312	13,210	48,018	39,317	39,990
Cotton piece goods	447,919	421,157	399,887	487,990	437,990
Jute piece goods..	98,057	151,808	126,180	133,804	133,804
Linen piece goods	142,597	135,252	120,768	148,859	148,859
Silk ribbons.....	21,842	7,638	26,017	.....	.....
" laces .....	.....	.....	.....	.....	7,683
" mixed goods..	35,234	27,232	.....	.....	32,219
Woolen fabrics ..	228,875	255,511	219,784	288,811	288,811
Worsted fabrics .	551,454	519,445	579,248	582,811	582,811
Carpets.....	166,450	153,582	139,343	177,555	177,555
Apparel and slops	351,059	343,901	300,532	322,362	322,362
Haberdashery ....	148,370	150,911	138,101	141,677	141,677
	2,208,169	2,179,653	1,097,887	2,363,188	2,363,188

**Textile Design**

Worsted Suiting.



Ward (face)

2 dark shade } Repeat  
 2 light " } 80  
 threads  
 1 dark shade } Repeat to 10  
 1 light " } threads  
 15s reed, 5s.

Backing 2 dark shades, 2 light shades, 2.28s worsted face, 14 cut back. Filling as warp 75 picks per inch. Finished weight 29 ounces, 56 inches.—From the A. W. & C. R.

### PROGRESS IN DYE MAKING.

Notwithstanding the thousand and one coal-tar dyes already known to textile colorists, which would seem to be sufficient to satisfy all the wants of the modern calico printer and dyer, the color chemist still perseveres in his search for new ones, in the hope of finding something possessing some points of superiority. This has always been the case. Dyes have been placed on the market and used for some time, then something better has been discovered, and the old one has gone to the wall and fallen out of existence. One can call to mind such dyes as iodine green, resorcin blue, cyanosin and Perkins' mauve, which have thus been driven out of use by the advent of superior dyestuffs. In the brief notes which follow, says *The Textile Mercury*, an endeavor is made to indicate the lines on which progress in the discovery of new coal tar colors has been made of late. Some of the dyestuffs noted as having been discovered have been placed on the market, but others have not and will probably never be offered to dyers, as they are deficient in some respects. Still, a note about them will serve to show how rich a store for colors is coal tar and that the field of discovery in dyes is not yet worked out. New dialkylated rhodamines are got by taking rhodamine hydrochloride and heating with phosphorous oxychloride for some hours. Any excess of oxychloride is removed by means of benzine, and the residue heated with diethylamine or diamylamine dissolved in chloroform to form the alkyl-rhodamines. These dissolve in water, giving yellowish to bluish red solutions with a yellowish fluorescence. From paranitraniline a blue dye for unmordanted cotton can be prepared in the following manner: The paranitraniline is diazotized and combined with R salt of naphthol disulphonic acid. This is treated with iron borings and acid to the amidoazo compound, and can be combined with the paranitraniline azo dye to form the blue dyestuff. In the same manner a violet dye can be obtained if the R salt be replaced by alpha naphthol alphasulphonic acid.

As constituents for the production of azo dyes there have been discovered two new chlorosulphonic acids of naphthylamine. Naphthalene is converted into its chlorosulphonic acid in the well-known manner. It is then nitrated with nitric acid, and finally reduced with iron borings, when both the chlorosulphonic acids are formed. These are converted into their sodium salts, and as one acid gives an easily soluble and the other a difficultly soluble salt they can be separated from one another. The formula of the new acids is  $C_{10}H_7NH_2ClSO_3H$ . When one of these acids is combined with tetrazodiphenyl a bluish red direct dye for cotton is obtained, or if tetrazoditolyl is combined with one of the new acids and naphthionic acid a direct dyeing bluish red coloring matter is the result. Other dyes may also be made on the same lines. A bluish black coloring matter dyeing wool from acid baths can be obtained by diazotizing naphthylamine disulphonic acid, combining the product with alpha naphthylamine, rediazotizing, and combining with one of the new acids. The two acids yield dyestuffs varying in shade from one another.

Rosolic acid, when heated with hydrazine sulphate and caustic soda, gives a red coloring matter of the triphenylmethane series. By using methyl or ethyl-hydrazine other dyes of the same group can be obtained. Dinitro anthrarufin disulphonic acid and the corresponding anthrachrysazin compound, which are derivatives of anthraquinone, are prepared by taking either anthrarufin or anthrachrysazin, sulphoning with fuming sulphuric acid at  $100^\circ C.$ , and nitrating at a low temperature. By treatment with potassium chloride the potassium salt of the sulpho acid is obtained in the form of yellow crystals. These

potassium salts are treated with a mixture of stannous chloride and hydrochloric acid, the result being that they are converted into diamidoanthrarufin or anthrachrysazin disulphonic acid which form dyes for wool that produce even blue shades from the ordinary acid baths; they will also dye mordanted wool in greenish blue shades. By dyeing the wool with the dinitro compound and then treating the dyed fiber with suitable reducing agents, the blue dye can be formed direct on the fiber. Judging from analogy, these new dyes should yield fast shades of blue.

When the following mixtures are heated with sodium and sulphide and sulphur, or sulphur only, to a temperature of  $200^\circ C.$ , dyestuffs are obtained which dye unmordanted cotton in various shades of gray to black, while some are soluble in sulphuric acid, and may be used to dye wool: Hydroquinone and metaphenylene diamine, resorcin and para-amidophenol, hydroquinone and meta-amidophenol; resorcin and para phenylene diamine; and others of similar character. When diethyl amido oxybenzoyl benzoic acid and para amido ortho cresol and similar compounds are heated with sulphuric acid they undergo condensation. The products are alkylated, when phthalein dyes are obtained, which will dye unmordanted cotton in pure yellow red shades. If dimethyl amido oxybenzoyl benzoic acid is condensed with resorcin by means of sulphuric acid, dimethyl rhodol is obtained. In a similar manner diethyl rhodol may be got if the diethyl benzoyl compound be used. If the rhodols are converted into ethers by means of sulphuric acid and alcohol and these ethers into hydrochlorides in the usual way, phthalein dyes which will dye wool, silk, and tannin-mordanted cotton in yellow red tints are obtained. When tetra ethyl para diamido benzhydrol is condensed with meta methoxy benzene sulphonic acid, there is obtained the leuco base of a dye of the triphenylmethane series. By oxidation with lead peroxide the dyestuff itself is obtained. If other benzhydrols having an analogous composition to the one named and other oxybenzene or naphthalene sulphonic acids are used, dyes can be obtained which dye wool from acid baths in shades which are fast to alkalis. Fast azo blues are much to be desired. It is stated that the blue dyes produced by diazotizing a periamido naphthol sulphonic acid with phenyl amido naphthalene sulphonic acid possess the property of dyeing wool in acid baths various shades of blue, fast to acids, alkalis, and light. When the diazo compound of a para amido azo sulphonic acid, such as can be got from amido azobenzene amido azotoluene, etc., is combined with nitro-metaphenylene diamine or the corresponding toluylene compound, dyes are obtained which dye cotton in orange to orange red shades of considerable intensity. The shades are fast to acids, alkalis and light. By taking dimethyl safranin and condensing it with formaldehyde in the presence of acid and then oxidizing with potassium bichromate, a dyestuff is obtained which dyes tannin-mordanted cotton in reddish gray shades, which are fast to washing, soaping and alkalis. If diethyl safranin is used in a similar manner a pure neutral gray dyestuff is obtained when eosine or dibromofluorescein is heated with sulphuric acid and boracic acid, it is converted into a dyestuff which produces fast green shades with chrome-mordanted wool.

Yellow coloring matters possessing the composition of asymmetric diamido phenyl acridines are prepared by the following process. Dimethyl-para amido benzaldehyde is mixed with phenyl meta toluylene diamine hydrochloride and heated to  $150^\circ C.$  The melt is extracted with water acidified with hydrochloric acid and the dyestuff is precipitated out of the liquor by salt. Para-amido benzaldehyde heated with phenyl meta toluylene diamine hydrochloride, with or without alcohol, yields asymmetric diamido methyl phenyl acridine. The new dyes are basic products dyeing tannin-mordanted cotton, and

more particularly leather, in bright yellow shades. The production of direct dyes goes on apace, and there seems to be no end to the efforts of color chemists to develop this important group of dyestuffs, the capabilities of which in the dyeing and printing of textile fabrics enlarge year by year. At the same time the complexity of the dyes increases. In the early days the constitution of the direct dyes was simple, containing only two color constituents, but soon color chemists discovered that it was possible to make them more complex—they used more colored constituents, with considerable advantage as regards fastness of the shades dyed with them to soaping, light, etc. One series of direct dyes is made by taking a paradiamine (like benzidine or tolidine), tetrazotizing it, and then combining successively with naphthylene diamine sulphonic acid, amido naphthol sulphonic acid and diazotized paranitraniline, or some other diazotized amine. Or, starting with the paradiamine, it may be combined with naphthalene diamine sulphonic acid, alpha-naphthylamine, amido naphthol sulphonic acid, and the diazotized amine, as before. Another series is formed by starting with the tetrazotized diamine, combining first with salicylic acid or creosotinic acid, then with alpha-naphthylamine, and afterwards diazotizing with amido naphthol sulphonic acid and diazotized amines. Or again, the paradiamine may be taken combined with salicylic acid or amido naphthol sulphonic acid, and then with amido naphthol sulphonic acid and diazotized amine. In the ways here indicated quite a range of direct dyes are obtained which dye brown, blue, green or black shades on unmordanted cotton and wool. When such basic dyes as magenta, safranin, Lauth's violet, phosphine, etc., are heated with formic aldehyde and sodium bisulphite in an aqueous solution acidified with sulphuric acid, there are formed new dyes which have acid properties. They dye wool from the usual acid baths, while they have lost their basic properties and will not dye cotton which has been mordanted with tannin. The shades of the dyestuffs obtained are somewhat different from shades of the original dye. For instance, magenta thus treated dyes shades of a more violent hue.

Oxy naphthaldehyde sulphonic acid, aldehyde naphthol disulphonic acid R, aldehyde oxy naphthoic acid, and aldehyde oxy naphthoic sulphonic acid are representatives of a new group of aldehyde acids obtained by taking naphthol sulphonic acids and naphthol carboxylic acid (or naphthol sulphonic carboxylic acid), and boiling them with chloroform and caustic alkali in an aqueous solution. These aldehyde acids are converted into blue or green dyes of the diphenyl naphthyl methane sulphonic acid series by combining them with diethyl aniline or dimethyl aniline in the usual way. Leuco bases are obtained which are oxidized by ferric chloride or lead dioxide into the dyestuffs. The coloring matters so obtained dye wool and silk from the usual acid baths in green to blue shades that are fast to alkalis. Direct dyes for cotton or other vegetable fiber are obtained by employing as a base a new compound diamido-diphenyl disazo-resorcinol, to produce which the following process is employed: Two molecular proportions of paranitraniline are diazotized in the ordinary way. These are combined with one molecular proportion of resorcinol dissolved in sodium carbonate, the caustic soda solution when there is obtained dinitrodiphenyl disazoresorcinol. This is mixed with water and sodium sulphide and heated to 50 C. when the new base is formed, this can be precipitated out by adding ammonium chloride to the solution. By taking this new base, diazotizing in the usual way, and combining with such color constituents as naphthol sulphonic acids, amido-naphthol sulphonic acids, salicylic acid hydroxy naphthoic acids, etc., a variety of direct dyes for vegetable fibers can be made, which dye green, green blue, blue, violet and black shades. Some of these can be further diazotized and developed up into very fast shades after being dyed on the fiber.

### QUALITIES OF PINEAPPLE FIBER.

A Calcutta journal states that it appears somewhat curious that pineapple fiber was years ago experimented with and condemned by English spinners. In India also, although no difficulty apparently attends the separation of the fiber, it is turned to very little account. The far-famed weavers of Dacca, when long since an attempt was made to induce them to bring the staple into use, would have none of it. In Burma again, where the plant is so abundant, the fiber seems to be utterly neglected. On the other hand, there is a considerable amount of information extant which seems to furnish corroborative evidence as to pineapple fiber actually possessing the essential properties required to make it a good substitute for flax. It has even been claimed that in both its wild and cultivated forms the pineapple yields fibers which, when spun, surpass those obtained from the ideal flax in strength, fineness and lustre. It has been stated that a certain quantity of the fiber prepared at Singapore tested against an equal quantity of flax sustained 350 lbs., while the latter could not bear more than 260 lbs. Another advantage held to be peculiar to pineapple fiber is imperviousness to moisture. Ropes made of it are thus said to withstand constant immersion in water; and for the same reason and its non-liability to rot it is used in India for threading necklaces. As to the characteristics that render it readily adaptable for textile purposes, it has been observed by one writer on the subject that the mere process of bleaching suffices to destroy the adhesion between the bundles of fibers, and so renders it fit for spinning in the same way as flax. The isolated filaments are described as very fine, of a tolerably regular diameter from end to end, but of different size, of remarkable flexibility, curling and crisping readily under mechanism. It has been confidently asserted that the fiber can be employed as a substitute for silk, and as a material for mixing with wool and cotton, as silk is now so extensively employed. For sewing thread, twist, trimmings, laces, curtains, and the like, its particular qualities seem to render it specially applicable. From the pineapple of the Philippines a famous cloth is manufactured, much esteemed for its fine hair-like fibers, but this is considered as perhaps belonging to a different species. Reference has also been made to a plantation established years ago at Singapore by a Chinaman, who there prepared pineapple fiber for export to his native country to be used "in the manufacture of linen."

### THE HISTORY OF TURKEY RED.

Madder and alizarine are principally used to dye cotton cloth different shades of red, and by far the finest hue of all is that which is known in this country and on the Continent by the name of Turkey or Adrianople red—one of the most durable colors known. Everything seems to prove that the method of dyeing this tint, the characteristic of which consists in previously impregnating the goods with an oily or fatty substance, was first discovered in India, where, as travelers affirm, the natives have been wont from time immemorial to steep the yarns which they intended to dye in liquids containing fatty matter, such as milk, for example. It was not, however, till after it had made its way into other parts of Asia, and became known in all the countries of the Levant, undergoing at the same time some important modifications, that the art of dyeing turkey red was first introduced into France towards the middle of the last century. In 1747, MM. Ferquet, Gondard, and d'Haristoy brought a party of Greek dyers into that country, and formed two establishments—one at Daxetal, near Rouen, and the others at Aubenas, in Languedoc. Nine months later, a person named Flachet, who had long resided in the Ottoman Empire, brought over some workmen, with whom he formed at St Chamot, near Lyons, a third establishment for the dyeing of *Adrianople red*—

so called from the high celebrity then enjoyed by the productions of that city. But these foreigners could not long keep their art secret, and soon had numerous imitators. In 1765, the French Government, convinced of the value and importance of this method of dyeing, made the processes known to the public. Many establishments were formed in various parts of the country, but it appears that the only successful ones for some years were those at Rouen. From these parts the turkey-red dye gradually made its way into Alsace, Switzerland, Great Britain, and different parts of Germany. At first the cotton was only dyed in the yarn, and it was not till 1810 that the cloth itself was directly dyed with this color at the establishments of Messrs. Koechlin, and at that of L. Weber at Mulhouse. The late Dr. Thompson, of Glasgow, said that the first turkey-red works in Great Britain were established in that city about a century ago by M. Papillon. It appears, however, from a paper on the "Art of Dyeing," read before the Literary and Philosophical Society of Manchester, by Thos. Henry, in 1786, and quoted by Mr. Baines in his "History of the Cotton Manufacture," that M. Berelly, another Frenchman, introduced the dyeing of turkey red into Manchester probably some years previous to its introduction at Glasgow, and that he obtained a grant from Government for the disclosure of his plans, as M. Papillon afterwards did from the Commissioners and Trustees for Manufacturers in Scotland. But the method of Papillon was the most successful. It was in the year 1783 that Mr. Danvers, David Dale, and George Macintosh, engaged Papillon, who was a dyer at Rouen, to settle in Glasgow, and he there founded and carried on for many years, in partnership with Mr. Macintosh, the celebrated turkey-red business later conducted by the firm of Monteith and Co. The period having expired in 1803 when the process was to be divulged, the Commissioners and Trustees above mentioned laid a complete account of it before the public. Since that period turkey-red dyeing has been conducted in Glasgow and also in Lancashire on a very extensive scale. Prior to 1868 madder only was used for the production of turkey-red, and the process adopted was a most elaborate one. In 1868 alizarine was introduced, and this has completely replaced madder in dyeing this red. At the same time the process has been much improved and materially shortened.

#### BOILING AND ITS EFFECT ON WOOL FIBERS.

To understand how a process is going to act on the wool fabric or fiber, and how the goods are going to finish up after treatment by a set of operations which are necessary to fit them for the market, it is necessary to know in a particular and specific way what the various effects will be of the different elements that enter into the operations in all their details. Perhaps there is no one elemental process that has such a marked effect on the wool fiber and fabric as the boiling in water. Sometimes boiling is attended with the very best and most desirable results, while sometimes it means total disaster to cloth and fiber. A process which has such a wide range of effects upon the material, and between such extremes, must naturally be attended with some care and judgment in its use at all times.

Anyone who observes and watches the various work of a manufacturing concern, will observe that dark-colored dye wools are very much easier to clean when it comes to scouring them either in the wool, in the yarn or in the piece, than wools that are white or vat-dyed, says "Textile" in The American Wool and Cotton Reporter. This is perhaps the opposite of what we would expect. Everyone knows that in the coloring of a vat-dye or of a white, there is always more care exercised in the preliminary cleaning to get the yarn or wool perfectly free from all dirt and grease before the dyeing takes place, than there is in the dark colored wools. Of course, theoretically, we

know there ought to be no difference, a wool that is to be dyed a dark color ought to be just as clean and free from impurities before the dyeing is undergone as a lighter shade, but practically, we are always a little more particular about a white wool or a light and delicate shade. So that, after coloring, we would expect that the wool that had previously been most carefully cleansed, would be at the later stage most easily cleansed again. But this we find not to be the case. It is the wool that was least particularly washed before dyeing that washes easiest after dyeing takes place. We can discover no reason why this difficulty in cleansing after coloring could be due to the chemicals and materials employed, because in both cases, in the case of the dark colored dyes and in the case of the vat dyes, there is no difference that would affect the body and characteristics of the fiber, such as would show itself in a greater difficulty in removing the impurities that still attached themselves to the fiber of the goods.

The only explanation we know of that can be brought forward to account for the difficulty of cleansing in the vat dyed materials, is just the difference in effect on the wool stock which boiling has brought about. Boiling in water for any length of time softens and disintegrates the gelatinous material which enters so largely into the structure and composition of the wool fiber. This, of course, means that a structural change to a certain extent has taken place in the fiber, which has been subjected to a water boiling. Besides this effect, the fiber has been rendered more elastic and pliable, and the inherent lustre and richness of gloss in the wool fiber has been in some unknown way developed and increased. The boiling in water has had also the additional effect of dissolving and breaking up the fatty and oily particles on the fiber, which helped to make up the grease and dirt present in the wool. This is perhaps the specially cleansing feature of the process, the feature for which the process is intended, while the above mentioned effects are attendant effects which do not really enter into the cleansing of the fibers, but which have to be from the nature of the case. It is an easy and simple matter to compare for purposes of observation and experiment a boiled wool with one that is not. Take a small quantity, a pound or two of wool out of a larger lot, and boil the same portion for about an hour in good clean water. Then take it out and dry it and compare it with the part which was not boiled. The wool that has been boiled will be more elastic and pliable and more agreeable to the feel in every way: it will possess a lustre and gloss that is almost entirely absent from the main body of the unboiled wool, and it will occupy a larger amount of space in proportion, because its various fibers have been partially disintegrated and swollen. It will also be found for some reason or other that the boiled wool will take up in absorption more water than the unboiled, and that what water it does absorb, will be absorbed more quickly. This is partly due to the more open fibers, whose structural make up has been altered, and to the absence of grease and oil which will hold off water from absorption to a certain extent and for a certain length of time. The boiled wool has the same action in absorbing more readily than the unboiled, dyes, mordants or whatever liquids are brought in contact with it, and this fact must be borne in mind in the treatment of the wool in any stages of its manufacture where liquids are employed. By reason of this peculiarity, it will be found well to boil wools that are to be white or vat dyed, in clean water in order to prepare them for coloring, rather than to use alkalis. This, we say, because alkalis affect the fibers more markedly than the boiling in water if the latter is properly done. From these results which follow the rational boiling of wool in water, it is evident just how the boiling process is going to affect the wool cloth and just why the boiling is entered into in certain kinds of goods and at certain stages on all goods. The boiling that the goods

receive in the crabbing processes, in the steaming operations, and in the old boiling operation, which formerly was practised regularly on the higher and better grades of fine woolen cloths, all these operations are explained. They have the effect of developing and insuring a pleasant and agreeable feel or handle they increase and render more brilliant the rich full lustre of the wool fiber and they cleanse and purify the wool from all obnoxious and foreign materials. On the other hand, great care must always be exercised in the employment of the boiling process, since it so readily affects the fiber structure and also so quickly attacks colors, if colors have not been all that they ought to be.

## Foreign Textile Centres

**MANCHESTER.**—In the cotton sections of the trade the advance in raw material attracts attention, but not alarm. The Stock Exchange manipulator is understood to be at work in New York. Spinners have advanced quotations, but it scarcely needs saying they are not getting the increase. In cloth the movement, as far as the shipping trade is concerned, displays no features of special interest, says The London Drapers' Record. China business has been put through where requests as to delivery could be complied with, and favorite makes of shirting for Japan have been in moderate request. But after all, the erratic movement of futures attracts much more attention than matters of this kind. A comparison of current rates with those prevalent in November is, in this connection, interesting.

**LEEDS.**—Among worsted coating makers there is a large production of summer middle-class specialties, with expectations that America will soon again become a good customer. Serges, vicunas, fancy tweed and cheviot coatings are in moderate request at former prices. The turnover of covert coatings has fallen off, but prices are firm. Common costume cloths are dull and cheap. There is little doing in army cloths, and orders are scarce for white blankets, with prices irregular.

**BRADFORD.**—There was a decided improvement in the tone of the Bradford wool market before the present series of colonial wool sales opened in London, and the values of all classes of raw material had commenced to harden; but when the sales opened it was at once evident that, with the assistance of continental and American competition, a still higher standard of values had been established in London than had been reached here, says the Bradford correspondent of The London Drapers' Record. The upward movement has gained strength at each succeeding day's sale in London, and the competition becomes keener, especially from the Germans and Americans; as the latter had been practically absent for some time past, their advent at this series has been a feature of distinct importance. The prices of fine merinos have more than recovered the ground lost since last October, and are to-day higher than at any time during 1898. Should the present rate of consumption increase to any great extent, considerably higher rates will be obtainable, as the supply, both on this side and at the sources of supply, is known to show a large shortage. As has been repeatedly pointed out in previous letters, the long downward course of the prices of the cheaper classes of colonial crossbred had certainly reached very nearly as low a level as possible in December last, and there were signs at that time that an upward movement might set in at any time. This movement towards higher values set in early in the New Year, but has been greatly helped by a very large and somewhat unexpected demand for combed wool tops of lower crossbred colonial wools for the Continent, where a very large quantity has been taken largely for hosiery purposes. The fact that the American representatives in London appeared

to be ready to absorb very considerable quantities of the cheaper class of colonial crossbred wools has also had a distinct effect on the market, the more so as their operations recently had been practically confined to fine merinos, and it was understood that the American domestic wool could compete successfully with all classes of lower crossbred colonial wools. As there has been an increased demand in the home trade for crossbred worsted yarns for the dress serge trade, and also in the export yarn trade for the same purpose, and for braids, the present position of the crossbred wool market will be seen to be much stronger than for some time past. In English wools of a pure lustre character there is a much better demand, and holders are asking more money, and are not at all forcing sales. In most other classes of non-lustrous home-grown there is a perceptible tendency towards hardening prices. Mohair continues very firm at the recent advance, and as a very large percentage of this year's clip is now in the hands of consumers, the course of the market will depend very much on the fact of spinners being well under order or otherwise. There is no change in the price of raw alpaca, but prices are quite firm. In mohair yarns the recent advances demanded by spinners appear to have to some extent checked business for the time being, but it is probable that users will have to pay these advances sooner or later. Spinners of worsted yarns have been compelled by the advances of raw material to demand a distinctly increased price for all kinds of both warp and weft worsted yarns, but great difficulty is found in getting either the home trade manufacturers or the export merchants to offer prices equal to the increased price of raw material. In piece goods, as far as dress materials are concerned, the winter trade may now be looked on as past, and the wet, open weather which has prevailed all the time has had a most adverse effect on that season's trade. The spring trade is opening out with great promise, one of the most hopeful factors being the improved demand and prospects of the American trade, where good-class crepons are in particularly good demand, and seem likely to hold the field for at least a season to come. Bradford manufacturers have certainly in the past few seasons been to some extent left behind by their continental competitors in the manufacture of such goods as all-wool bengalines and poplins; but a few of the leading makers here are now producing fabrics of this class which will bear comparison with any foreign goods, and as the finish is quite pure the wear must be satisfactory. All the leading makers of plain and figured mohairs are busy with home, continental, or American orders, and although blacks are most in request, there is also a fair demand for navy blues, silver grays, and creams. All the makers of fancy silk blouse and lining cloths here are very busy, and this trade has recently shown very great development.

**HALIFAX.**—The following are the Chamber of Commerce trade reports for January: Wool—The market has assumed a more confident tone, and has latterly been much more cheerful, business having reverted to something like the normal condition of things. Woolens—During the month there has been a good enquiry, and most manufacturers consider the situation more hopeful. Spun Silk—The past month has been marked by some improvement, and values have a tendency to harden. Cotton—Bundle yarns continue quiet and unchanged, and only very unimportant sales have taken place. There has been more doing in warps, both single and two-fold, during the month. Fustians and Ready-mades—These industries are fairly well engaged, and employment keeps good. Carpets—The opening month of the year has been marked by considerable activity, and there has been a largely increased production of goods. Pieces—Manufacturers have received more orders during the month. The advance of the price of wool seems to have stimulated buyers, who are now more anxious to place orders at the old

rates if possible; but spinners are compelled to advance the price of yarns both in merinos and crossbreds, but for the time being it is a little difficult to obtain orders at higher prices, though there is much more confidence. **Worsted Yarns**—The firm tone and decided advance in the price of wool and tops, especially of merinos and fine crossbreds, also super-grown Colonial grades, have been the means of some good sized orders being placed. Spinners are still finding it difficult to get out of the rut of low and unprofitable business.

**ROCHDALE**.—At the flannel market recently there has been a general sorting-up business, and some preliminary enquiries respecting goods for next season's trade. It will be some time, however, before this business is in full swing, as there are always merchants who are considerably in advance of the rest in making their arrangements. Notwithstanding the reduced demand through the mildness of the weather, the market keeps fairly cheerful, and there are no reports of forced sales. Prices have not yet undergone any great change, although some descriptions of work have gone up to per cent.

**KIDDERMINSTER**.—A steady trade is doing in all qualities of Brussels carpets, and the demand for high-class Wiltons quite keeps up to the promise of last season. The Axminster branch is very busy, and in places there is difficulty in executing orders in the time given. The yarn trade has gained more strength during the week. With the market so irregular, it is difficult to estimate the effect of the general improvement of the wool and yarn trade on the price of carpet yarns. Generally speaking, prices have gradually hardened up to an advance of  $\frac{1}{4}$ d. to  $\frac{1}{2}$ d. per lb. on the price of a month ago, and at the advance spinners are chary of selling for future delivery.

**NOTTINGHAM**.—A better tone is observable in most departments of the lace trade. Some manufacturers are tolerably well employed, but care has to be taken to prevent the accumulation of stocks. As the general trade of the country is in a prosperous condition, and the foreign outlook is brighter than for some time past, hopes are entertained that business here will once more get on the up grade. Considering the long period of depression, which has hung like a pall over the trade of this city, a change for the better would be exceedingly welcome. Both for the home trade and for shipment more activity is noticeable in the demand for fancy millinery laces in cotton. In addition to Valenciennes, many of which are made in ivory and butter, and with thick threads, Duchesse and Malines, with cotton and linen threads, are again in evidence. Fancy insertions are also increasing, and some of the newest galons are meeting with considerable favor, as they are produced in various widths, and can be used for a variety of purposes in regard to trimming. Torchons in linen and cotton are in fair request. The production of Brabant and Bretonne laces is still somewhat restricted, and ordinary Maltese and Irish guipure laces are not in buoyant request. Silk millinery laces are still in a depressed state. In the plain branches there is still a very large business being done. Certain qualities of mosquito nets cannot be produced fast enough to keep pace with the demand. Prices consequently run high. Bobbin nets are more easily obtainable, but as there are no stocks, prices are kept steady at a fairly remunerative level. Mechlin nets, Brussels and zephyr tulles and point d'esprit are meeting with about the usual demand. Paris and Paisley nets only move slowly. There is but a limited enquiry for ordinary stiff foundation nets. Caps, aprons, ruffles and colarettes are only selling just now in moderate quantities, but manufacturers are looking forward to more prosperous times in this department. A fair amount of business is being done in plain and fancy silk veilings. There is a steady sale of purls, Honiton braids, and beadings for trimmings and for the manufacture of point laces at home and abroad.

**LEICESTER**.—The hosiery trade is flat, but orders for the spring and summer trade are being freely offered on account of the hardening of values. The turnover in Cardigan jackets has been smaller than for many years, says *The Textile Mercury*, Manchester. In the yarn market there is most business doing under old contracts, and better offers of new business. Prices are much firmer, and consumers are covering their requirements as far as possible, but old prices are declined. Lambs' wool and fancy yarns sell more freely, but cottons are quiet. French cashmere yarns sell very freely at the extreme limit of the advance.

**SOUTH OF SCOTLAND**.—There is little or no change to report in the condition of the South of Scotland tweed trade. Orders are not plentiful, as merchants' stocks are full. Those makers who are engaged on worsted cloths are doing well. The spinning trade is extremely dull. As a result of the advance in wools, an early increase in the price of tweeds can hardly be avoided. The outlook generally is not very promising. The Ayrshire lace trade is in a fairly satisfactory condition. Makers have good orders in their books, but their operations are hampered for want of instructions as to delivery. Manufacturers are busy at work on the styles for next season. Floral effects are not much in demand. In the home markets well-covered designs are in request. Continental buyers prefer sprig patterns, while from the States there is a demand for light fancy effects.

**KIRKCALDY**.—The linen factories are generally busy, some very considerable orders being in hand, while prospects of better business are again more hopeful. The floorcloth and linoleum manufacture continues very busy, all the firms being fully employed, while preparations are proceeding, by the erection of new buildings and machinery, for the further expansion of the trade.

**BELFAST**.—Business in the linen market continues to improve. In several instances prices have advanced. Orders are being received to a satisfactory extent. The tone of the yarn market is firmer. The demand for linen yarns has improved, and for the finer descriptions of tows an advance in price has been secured. Stocks have been reduced, and spinners are holding out for higher rates. There is increasing activity in the market for brown cloth. Business is steadily progressive, and manufacturers occupy a still stronger position than before. There is an absence of speculation, but substantial orders for the various classes of goods have been placed and rates all round are hardening. Thirty-eight-inch power-loom linens for bleaching are in improved demand in both boiled yarn and green yarn qualities, and prices have advanced. Tow-made goods are in slightly better request. The demand for unions is fully maintained, and rates are likely to go higher. For damasks and household linens demand keeps very steady, and prices are firm. Handkerchiefs are selling freely, especially in bordered goods. The trade in hand-loom linens for bleaching continues steady. In the bleached and finished end of the trade there is considerable activity. The home warehouses are placing orders more freely and steadily, and though prices show no quotable increase, there will likely very soon be an advance. The shirt and collar manufacturers and makers-up generally are placing substantial orders for white linens and unions. Damasks and handkerchiefs are in steady demand. The United States market continues to show signs of improvement in various directions. Stocks across the Atlantic are reported low, and orders are improving in number, size and value. South American trade is developing steadily, and the Cuban market is doing better.

**LYONS**.—The spring season is late in beginning. The deliveries which were under way have been very readily accepted



and no difficulties are anticipated anywhere, as, aside from the higher prices asked by all manufacturers for repeats, indications clearly point to the coming season once more pre-eminently favoring silks. The lateness of the season may be caused in part by the hesitancy of buyers to pay the higher prices, which naturally have an influence on the selection of grades and styles. No doubt is, however, entertained here that the ultimate volume of trade will be in every way satisfactory. Some purchases from stock were made, apparently with the intention of adding particularly desirable styles to existing assortments, and from these some conclusions may be drawn as to the tendency of the fashion. It appears that plain colored taffetas will receive the preference over glace effects, and while of the latter many combinations could be found ready in stock, there is an unmistakable scarcity in plain colors. Among the fancy styles light-colored printed taffetas were most in request and will no doubt see a good season. Striped taffetas retain their popularity, but checks are neglected. Velvets were in good demand again, particularly in plain colors from stock, and some fair sized repeat orders were received. Fancy velvets were sought in different grades, those on taffeta grounds receiving the preference. The ribbon trade was rather better. Black satin ribbons in good quantities were sought and some styles in striped and printed designs. Staple grades, however, remain rather quiet.

**CREVELD.**—Recently there has been increased activity in this market. It is usual at this time of the year to see many new orders, but a particular stimulus has been added by the steady rise in the raw silk prices, which, until lately, failed to make any impression on the buyers. Now the trade begins to realize that higher prices for all grades are unavoidable, and many orders have been offered at the former figures, apparently with the intention of securing supplies before the new prices would come into effect. A great volume of business has resulted therefrom, mostly at higher figures, and all the looms throughout the district are busy for months ahead. The bulk of the orders has been for plain goods, principally taffetas, mervilleux and satin duchesse, but fancy taffetas were also much sought. Aside from these an active demand was experienced for black damas, on which a number of looms had to be re-mounted, as stocks have disappeared. The same applies to broches or faille and on satin ground, in which the production seems inadequate on account of the limited number of looms, which are now already provided with work until May. The trade in necktie silks and umbrella silks, on the other hand, has been rather slack. In the velvet trade no change can be reported. There is a fair demand for goods from stock, but no new business can be discussed on account of the strike.

**ZURICH.**—The raw silk market has been very active with prices advancing for all grades. Fine sizes of Italian greges, suitable for organzines, were in particular request. Japan grades attracted more attention than before, owing to the reports from Yokohama, which seem to indicate much higher prices. The figures of the conditioning house showed an increase of 30 per cent. The market for manufactured goods, on the other hand, gives no signs of being influenced by the rise in raw silk. The buyers seem to ignore the advance in the cost of the material, offering prices which are far below the cost of production. The situation will, however, soon be cleared, as the ordering season for the fall goods draws nearer, with probabilities strongly in favor of a good silk season. No doubt is entertained that the buyers will have to place their orders and that prices commensurate with the cost of the material will be obtained.

**CHEMNITZ.**—Although the duplicate orders have not come in as in previous seasons business has picked up considerably recently. A good number of cable orders has been received and quite frequently manufacturers are unable to fill orders at dates

wanted. That lace hosiery is sold up until June, I reported before, says the correspondent of The New York Dry Goods Economist, but also in extracted goods the orders placed are far more than can be turned out on time, the production of those goods being very limited, while the demand has been much larger than in former years. These goods are not only bought with white spots. Red or blue spots are selling readily and tan and navy ground is used a good deal. Black, however, is still having the biggest success. In striped goods, black ground with white stripes are in good demand now, and several manufacturers are showing a large assortment of styles at the popular prices. A novel feature this season is embroidered hosiery with a front of real lace. On these goods the cloth of the stocking is cut out, the lace is sewed in and the stocking ornamented with fancy embroidery. In split soles the demand is still very large and manufacturers have booked orders enough to keep their plants running for months. The glove business is still good and deliveries do not come at dates promised. Generally, goods are delivered with a delay of two to three weeks, or even more. But owing to the scarcity of help manufacturers cannot do better, even if they work overtime. Prices are stiff and no reductions will come, as nearly all raw materials are higher in price than last year, and also macos have gone up.

#### IMMEDIAL BLACK V EXTRA, AND G EXTRA, PATENTED.

Immedial Black V and G belong to a new group of cotton dyestuffs for which patents have been granted or applied for in all countries. They are peculiar dyestuffs possessing the property to combine directly with the vegetable fiber, dyeing it an intense black. This combination with the fiber is an extremely solid one and consequently the resulting dyeings are absolutely fast to alkalis and acids, standing crabbing and dyeing in acid baths without being impaired. Oxydizing agents such as bichrome, metallic salts as f. i. copperas have only very small chemical influence, they however somewhat improve the intensity of the shade. The dyestuffs are not materially affected either by sunlight or by direct chemical influences, and consequently dyeings done with Immedial Blacks are eminently fast to light. They will therefore prove in most cases good substitutes for Aniline Black, which is not nearly as fast. For piece dyeing Immedial Blacks are of secondary importance at present, whilst for dyeing cotton in the loose state, in the yarn, in wares or on bobbins, instructions will be found in their pamphlet. It deserves especially to be mentioned that Immedial Blacks are also very suitable for dyeing mercerized cotton yarn.

Immedial Black V extra dyes a more bluish, G extra a more greenish shade, both products may be mixed with each other. Use as concentrated a bath as possible, about 15 times as much water as the goods weigh: the more concentrated the bath, the more intense will be the black obtained. Charge the first bath with 8 oz soda ash 2 lbs common salt, per 10 gallons liquor and 10 to 15 per cent Immedial Black and 2 to 2½ per cent sulphide of sodium of the weight of the cotton. For subsequent lots add to the standing bath 8 oz soda ash and 3 lbs common salt for every 10 gallons water used for replenishing, and 8 to 10 per cent Immedial Black and 2½ to 3 per cent sulphide of sodium of the weight of the cotton. Temperature.—Either keep the bath boiling or very near to the boiling point during the whole dyeing operation or boil only during the first 15 minutes and then continue dyeing in the bath while cooling off. Dye vessels and steam pipes.—Wooden vats or iron vessels are most suitable; the steam pipes may be of iron or lead, whilst copper vessels or copper pipes are to be avoided. Indirect steam is in all cases preferable.



Treatment during the dyeing process—To ensure evenness of the dyeings the goods may be turned as usual in the beginning, but during the latter part of the operation it is more advantageous to let the liquor well cover the cotton and give the same only an occasional turn. Before lifting the goods give a few more turns, but first removing the bronzy film which sometimes forms on the surface of the liquor, by stirring with a stick. (Working with India rubber gloves, as recommended in similar processes, can be dispensed with in the case of Immediate Black as the quantity of sulphide of sodium used is only small and the bath altogether not very alkaline. Yarn however is best turned with sticks).

Treatment after dyeing.—In order to obtain good level dyeings it is of the greatest importance that the cotton as soon as it is lifted from the dye-bath should be immediately pressed, squeezed or by some other means freed from the adhering dye-liquor, as by the action of the air solutions of Immediate Black deposit dyestuff on the fiber. If i. e. a cotton hank is taken from the dye-bath without being squeezed by hand or rinsed at once, those parts which contain more dye-liquor will become darker; this is however easily avoided if loose cotton is immediately rinsed or each pound of yarn squeezed by hand or by rollers the moment it is lifted from the dye-bath. When the goods are rinsed or treated with metallic salts they may be exposed to the air without detriment. The action of the air will then have no influence any more. The fastness of the direct dyeings of Immediate Black being very great, an after-treatment with metallic salts is not absolutely necessary, nevertheless coppering and chroming may be desirable in some cases, as thus both evenness and shade are improved. For this purpose work the cotton for half an hour in a bath of 160° F. charged with 2 per cent. bichromate of potash, 2 per cent. sulphate of copper and 2 to 3 per cent. acetic acid of the weight of the cotton, and rinse well in fresh water. The chrome-copper bath must be perfectly clear and any precipitate that may happen to form can easily be brought to solution by adding a little more acetic acid. In order to improve the levelness and the shade of the dyeings it is recommendable to finally soap hot or still better to brighten in a bath of 160 to 175° F. containing 2 to 4 per cent. potato starch and 1 to 2 per cent. fat (tallow or cocoa-nut butter) well boiled together with water and then to dry. Cotton treated by this latter method is fast to rubbing, whereas soaped dyeings smut somewhat. For further particulars apply to Wm. J. Matheson & Co., Ltd., Montreal.

### DRESSING COTTON SAIL CLOTH.

By ED. GRUENE.

It is a fact generally appreciated that cotton sails which have not been impregnated or dressed will, if allowed to remain wet, or, worse still, if furled whilst in a wet condition, before long exhibit spots or patches of mould which can never be completely removed by washing and scouring with soda and soap, or even with bleach and acids, but still remain after the operation, their presence being unpleasantly manifested by numerous little black specks. On the other hand, if the sails are—as they should be—immediately taken down and exposed to the drying influence of wind and sun this evil can be avoided, and on large ships this precaution is rigidly observed. Where it is neglected, as is most frequently the case in small sailing and pleasure boats, the warmth generated in the furled sails co-operates with the moisture in facilitating the development of mould nourished by the materials ordinarily used in dressing the cloth.

Provided the danger is recognized at once and the sails immediately well scrubbed with soap, and dried, then further injurious consequences can be obviated, even though it may not

be feasible to entirely prevent spotting. Usually, however, the practice followed is to merely swill the sail with water alone, and leave it to dry in the sun, the result being that the sail becomes quite rotten in the mould-infested parts, and is consequently spoiled. To prevent this unwelcome occurrence it has become the custom of many makers to dress the cloth with metallic salts to prevent the development of mould. The ordinary dressing applied by the weaver plays an important part in mould formation, since it has been found that sail cloth entirely free from such dressing will remain free from mould a much longer time than that dressed in the ordinary manner when exposed to the same conditions—i. e., rolled up whilst wet, and kept in or out of the sun. Hence it is necessary to remove this dressing before proceeding to impregnate the cloth with the new one. This operation is most satisfactorily accomplished by boiling with malt, which can, however, be replaced by caustic soda or water-glass. The goods coming from the loom are sewn together, four to six pieces in one, according to their length and thickness, and are then boiled. Take, as an example, goods of which each piece is 30 metres (32 yards) long, 62 centimetres (24¾ inches) wide, and 6 kilos. (13¼ lbs.) in weight. Six pieces are sewn together, and then boiled in the jigger along with a solution of 10 grms. (1-3 oz.) of malt per litre (0.22 gal.) for one hour. The pieces are afterwards left rolled up for six hours, then rinsed, entered eight times in a bath of ¼ % Be. (cold) hydrochloric acid, and washed on the full-width washing machine until all traces of acid are removed; they are then hung up to dry, without wringing. It is important that the goods should be dried in this manner instead of in the drying cylinder, the wringing necessary previous to the last-named process causing the goods to suffer in feel and appearance, a condition to which the rapidity of the drying also contributes. If caustic soda be employed, the six pieces are boiled for one hour with 150 litres (33 gals.) of water and 200 grms. (7 oz.) of 77% caustic soda, after which they are washed, acidified with ½ % Be. hydrochloric acid (lukewarm), washed in water until the acid is entirely got rid of, and then dried as above. A fresh extracting or boiling-out bath is required for each fresh set of six pieces, but the acid bath can be used over again after it has been made up to the requisite strength of ½ % Be. once more. If water glass (alkali silicate) be used for the boiling-out bath, then 150 litres (33 gals.) of water and 1,500 grms. (3 1/3 lbs.) of 66 % water-glass are taken for the six pieces, which are boiled therein for one hour, and subsequently treated as in the preceding case. The water-glass bath must be renewed for every set of pieces treated. As far as the washing out of the acid is concerned, this is only essential when stress is laid on the cloth being of very good color, and since the hard and close material parts with the acid with difficulty, the protracted operation of washing can in many cases be dispensed with. In the boiling-out process each piece loses between 400 and 500 grms. (14-18 oz.) in weight, and shrinks in width, the shrinkage being, however, inconsiderable when the cloth is dried by hanging, though a greater loss in width is experienced when the drying cylinder is used.

For dressing or impregnating the washed goods they are passed through a padding machine provided with two rollers, the upper one of metal and the lower one of compressed paper pulp. The trough is fairly large, and is provided with several guide rollers, over which the cloth is passed, the excess of dressing liquid being squeezed out by the machine rollers. To avoid pressing the goods and disfiguring their appearance a light pressure only is employed. The dressing bath is prepared from 30 kilos. (66 lb.) of alum, dissolved in 180 litres (40 gals.) of water, 12½ kilos. (27½ lbs.) of acetate of lime being then introduced, with continued stirring. After settling, the clear liquid is drawn off, the sediment swilled out, and the wash-

water used to dilute the bulk to 5% Be. The liquor is employed at this strength, and is kept at a temperature of 30° C. by indirect steam throughout the operation. After the pieces have been thoroughly and regularly soaked through—which usually necessitates their being entered two or three times into the bath—they are hung up to dry at a temperature of 40 to 45° C., the acetic acid vapors being carried away by the aid of a fan. The next stage is to fix the dressing with water-glass, for which purpose 150 litres (33 gals.) of water and 500 grms. (18 oz.) of water glass are required for each set of six pieces. The goods are entered six times, at boiling temperature, in the jigger, then rinsed and hung up to dry. For each succeeding set of six pieces the bath is regenerated by the addition of 200 grms. (7 oz.) of water-glass, and after five such sets have been treated it is discarded and a fresh bath prepared. Caustic soda is preferably used for boiling out the goods in the first place, since it facilitates the removal of the seed cases of the cotton which are generally found present in the cloth. If these seed cases are allowed to remain behind, they will swell up in the subsequent dressing bath, and becoming compressed and flattened out during the passage through the squeezing rollers of the padding machine, give rise to the formation of ugly red brown stains on the material. The cloth weighing, as stated, 6 kilos. (13.25 lbs.) as it comes from the loom, decreases to 5.6 kilos. (12.32 lbs.) after boiling out, the final weight after dressing being 6.18 kilos. (13.6 lbs.). It will keep for a considerable time, but the dressing should be renewed at intervals, if the sails are in constant use. Moreover, the sails require careful handling, since, if the alumina is removed by rubbing or tears in the cloth, such places are liable to become mouldy if carelessly treated. The author states that he has used the foregoing method for some time, and has never had any complaints of the sails getting mouldy. To renew the dressing on a sail that has been in use for one to two years, the best plan is to soak it in a vat filled with a 3% Be. solution of acetate of alumina. For large sails which require a considerable quantity of the liquid it is best to lay the alumina solution on with a brush, and then dry the stretched sail, fixing with water-glass is then unnecessary.—Farber Zeitung.

#### SOME CAUSES OF STAINS, STREAKS, ETC., IN FABRICS.

Stains, blotches, mildew, odors, streaks, slats, etc., will probably appear more or less in fabrics of all kinds as long as the goods are manufactured. There are many reasons why these defects cannot be entirely overcome. But they may be kept down to the least possible quantity with care. This is demonstrated by the varied condition of goods from different mills. Mildew stains, as is probably known to most finishers, are the result of heat and moisture causing fungi, resulting in a destruction, or part destruction, of the colors in the goods. If the dyer, washerman, fuller, or finisher permits a piece of wet goods to lie in a hot place for a number of days, fermentation begins after a certain time, and soon mildew is developed. The mildew stage is almost reached time after time in very many mills. This is the case where one department is ahead of the other to such an extent that the goods are piled up in the washing, dyeing, or fulling rooms. The underneath pieces frequently reach that stage of fermentation where, even if the dyes are not affected, the fiber is touched and weakened, resulting in tenderness of the goods. Such goods will not stand the tension strain.

The remedy for the mildew evil is, according to a writer in an English contemporary, to prevent the piling up of wet goods for any length of time. But the trouble may not be detected until too late. There are two stages of the mildewing period: and if taken at the first stage, when the goods are lightly

touched, a good soaping and washing will remove the stuff and leave the goods apparently in as good condition as before. When the last stage is reached, however, a fungus growth is produced, and there is no known process for completely removing it. Of course, some energetic scouring, washing of the goods, and redyeing to cover the staining, will so cover the affected portions that the goods may be sold; but still the goods are not right. There is a final stage of the mildewing which so works upon the cloth that the appearance after washing is as if the places affected were scorched. The coloring is permanent and the places so tender that one can push his finger through the texture. Such pieces should not be sent to market except as remnants to be cut into shirts, using such portions as are not touched.

The cause of slatting, blotching and streaking of many a fine piece of goods may be directly traced to the bunching or twisting and knotting of the pieces in the washing, dyeing, and fulling. Some men put the goods into the machines and expect to run for hours without attention. Strung pieces have been known to keep in touch with the one side of the mill for the whole period of milling. The other side and the centre not coming into contact with the knockers, sides, or friction rollers, would of course receive a different treatment, resulting in streaking the goods from end to end. The difficulty is remedied by occasionally turning the strings, opening them out, and seeing to it that all portions of the fabric are getting equal treatment.

If there are four pieces under way, and the pieces are solid colors or all white, they can be left to run with only an occasional examination. But if the pieces are fancies, they require to be watched from start to finish. Some fancy colored pieces are so delicately colored that the tints are altered or dulled by simply stopping the washing fulling long enough to change the run of the goods. The liquor has a chance to cool and change. In such a case put the goods back without renewing the liquor. Odors arising from mould usually result from the cloth having been stored in a damp place; but odors of oil, grease, dye, etc., are the result of defective manufacturing, and can be remedied only at the mill. To prevent streaks from flocking, the goods should be tacked to keep the flocks from the face. Automatic flocking devices work well as a rule, but for ordinary purposes the fuller will find that a contrivance fixed up in the following manner will answer all purposes: A slot about 4 inches wide must be cut into the front of the mill, and bearings for the rollers arranged. The flocks box is nailed or screwed up and the flocks introduced into this box, from whence they are carried between turning rolls down to an apron. The latter revolves over the rolls. Another leather apron runs over the top rolls, thus carrying the flocks along and depositing them into the mill through the slot. The rolls are the width of the mill. They can be made of wood.

Sometimes sizing stains result from the use of ingredients of improper strength. The flour in the sizing is generally allowed to ferment for some time before it is introduced. It is then mixed and applied. The mixture should be tested before using. Twaddle's instrument No. 2 is adapted for ascertaining the specific gravity of liquids. It consists of a tube, in one end of which two globes have been blown, forming a sort of double bulb. The lower one contains mercury enough to partly sink the apparatus in water, the upper bulb being filled with air cells to keep the apparatus vertical. Mercury is used for weight in the lower bulb. The tube sinks in water to a given point, which is either marked permanently upon the stem or is indicated upon a slip of paper placed inside of the tube before the top thereof is sealed. Usually this slip carries a scale of equal spaces or degrees. To read this scale, multiply the number of degrees by five, and add 1,000, which gives the specific gravity of the liquid

The production of streaks and slats may be due to poor carding or spinning. A great trouble with some carders is that they depend too much upon subsequent processes to remove lumps, even in the sliver. The product from the card in the ordinary mill goes right to the spinners to be spun, and the carder knows that there is no other chance to remedy bad work. If we examine his work and find it irregular, broken, twitty, full of specks and burrs, the conclusion may be drawn that the machines are not kept up. A glance at the carding engines will probably reveal that the wire carding points are clogged with lint and dirt, journals gummed with dried oil, rollers not set right, belts loose and flapping about, and the steel points of the clothing bent and dull. Then, again, the cause of nits lies with the carding, through careless setting and grinding of the cards, or the strippers neglecting to strip regularly. Use good wire, well ground, to avoid this. One of the principal advantages of hardened and tempered cast-steel wire is its durability. On account of its stiffness, resulting from its treatment during its process of tempering, the wire does not get out of place. This, as will be seen, secures a positive carding surface. This condition of the card wire enables it to hold well to the fibers during the process of carding. When we speak of self-clearing, we mean that the carding surfaces will not load up.

Insufficient twist in the yarns is the great evil. The aim of the spinner is to produce yarns that will weave well, yet show a fine, soft finish in the goods. To do this, it is frequently necessary to reduce the twist of the yarns, otherwise the goods finish hard and wiry. In order to avoid the harsh feeling, the spinner is liable to go to the other extreme, and make the yarn a little too soft; and soft yarns, or yarns with not enough twist in them, will result in baggy goods every time. To attain the correct amount of twist for a lot of yarn is something that requires much skill.

### THE ADAPTABILITY OF TEXTILE FIBERS.

It is quite common for people unacquainted with the actual facts to refer to the various textile fabrics of to-day as being inferior to those produced before the introduction of machinery. To those who have made any study whatever of ancient fabrics, from a practical point of view, this statement is absurd, for not only has the present-day fabric the advantage of being built up from fibers which were then unknown as textile fibers, and from each of which effects can be produced peculiar to that fiber, but to-day this fiber can be produced in a range of colors altogether beyond the scope of the ancient dyer. Not only are the various textile arts of to-day far in advance of those of any previous age, but gigantic strides are everywhere being made. One feature that presents itself to a student of textile fabrics is the enormous range of goods which it is possible to make from any particular class of fiber. To such a pitch of perfection has this adaptability shown itself, that fabrics are now made which almost defy any but an expert to say from what class of raw material they have been produced. Cotton, silk, and flax can readily be made into almost any style of yarn, but wool is rather more difficult to deal with, and requires a fair amount of humoring to get all the possible results. Much useful information on this point was given in a recent lecture before the Bradford Textile Society by J. W. Turner, who pointed out that there was no sharp dividing line between the various classes of wool. Many qualities of merino, for example, could be made into either woolen cloth, worsted coatings, worsted stuffs, or flannel. Leicester wool or colonial crossbred when combed, produces a top which is available for almost any purpose except the production of woolen goods; whilst the noil or short wool, obtained from the same process, can only be used,

according to its fineness, for the manufacture of fancy woolen goods, flannels, blankets or hosiery. Merino wool when combed produces a proportionately long wool or top, suitable for the manufacture of the finer grades of worsted coatings, cashmeres and Italians, but the noils are only available for making fine woolen-faced cloths, fine flannels, and fine felt hats. A lustre Orleans piece cannot be made out of pure merino wool, or worsted coating out of Lincoln hogg. To take pure lustre as an example of the way in which wools can be used, the chief sources are mohair and alpaca, which can be supplemented by the wools of Lincoln, Yorkshire and Nottingham. It must be noted in this connection that white and delicate colors are made out of mohair and English lustre wools, whilst blacks, browns and melanges can be made of alpaca, llama, or other goats' hair. Leaving the range of pure lustre, there is a large production of goods known as demi-lustre, made of such wools of Irish, North, Kent, etc., and colonial crossbreds, which make serges, cords, reps, poplins, various fancies and lastings. Among these might be mentioned the coarser kinds of demi-lustre, such as Gloucester, Oxford, Warwick, and Northampton, and sometimes Devon and Cornish. These are manufactured into camlets, lastings, braids, and buntings. Next in order come the mixed breeds, which form a very large proportion of the growth of the United Kingdom—i.e., wools which contain in a greater or less degree a cross of the Scotch black-faced or mountain wools. These can be made into almost anything. The pure black-faced usually finds its way into carpets; but the various crossbreds are accounted for by the manufacture of moicens, damasks, and Scotch mixtures. To the same class belong the cheviots and the superior classes of Welsh and Irish mountain wools, which are made into goods of a quite unique character. Large quantities of the so-called cheviot goods, however, are produced from the crossbred wools of Australia and Buenos Ayres. Some of these are known as cheviots, tweeds, Scotch fancy suitings, Scotch fingering yarns, etc. In the olden time the finest wool to be obtained in our own country was the English Southdown, excepting, of course, the very fine Saxony wool, which was largely imported into Bradford in the early part of this century. Both English Southdown and Saxony wool have now been supplanted for dress purposes by the enormous imports of colonial and Buenos Ayres wools. There remains, however, one market for Southdown which it is not likely to lose—viz., hosiery,—for it possesses an elasticity and a springiness which are not to be found in any other wool. It is principally grown in the South of England, but the Southdown blood is to be found, in various proportions of admixture, in almost every county in the United Kingdom.

### THE MERINO SHORTAGE

The present shortage of merinos, and the decline in price of crossbreds, has been the cause of a great deal of speculative reasoning among wool men. An important addition to the literature of the subject was made in a paper read recently before the wool merchants of Bradford, Eng., which is reported in *The American Wool and Cotton Reporter* in a late issue. It is necessary to allude at the outset to the beginnings of the export trade by Australia of frozen mutton. Up to 1886 this was a very small business, only 123,695 carcasses being exported to England. This increased in 1890 to 3,605,000 carcasses, and in 1898 the imports of frozen Australian mutton amounted to six and a half million carcasses by this country. All of these carcasses were crossbred sheep. The farmer in Australia has discovered that it is now profitable to raise sheep for the mutton without considering the wool at all, and so he crosses his sheep in order to get flesh, and lets the quality of the wool take its luck. Let us see how this works out in figures. It is estimated that at the present time there are twenty-

six millions of lambs or sheep in Australia being prepared for the English market for mutton. It should be remembered that these are crossbred sheep, for the merino is altogether too small an animal to be worth much to the butcher. The merino carcass will not weigh more than 28 pounds, while the crossbred will average 56 pounds. Now, reckoning the average crossbred sheep to carry a fleece of eight pounds, the twenty six million sheep destined for this market will give an annual clip of 208,000,000 pounds. Probably the grower will get 5d. per pound for this wool, which will amount to £4,400,000. But we see that 62,000,000 sheep are killed for this market every year, and taking the average sheep to weigh 56 pounds, and the grower gets 3d. per pound for the mutton, this gives him £4,500,000 for mutton, making £9,000,000 gross income for wool and carcass. But suppose the Australian growers say, "We see that merino wool is fetching double the price of crossbred, we will keep only merino sheep." That would give 26,000,000 sheep only giving four pounds of merino wool each, and thus, although the wool was worth twice as much per pound, he only gets half the quantity, and the return on the wool is the same. But he could not sell the mutton because merino carcasses are no good for the butcher, and so 26,000,000 merino sheep produce £4,500,000, while the same number of crossbred sheep bring in £9,000,000. This shows that in consequence of the demand over here for Australian mutton, the merino sheep have been neglected, and the crossbred sheep, which produces more flesh, takes its place. Sheep are being raised first for meat, and wool is a by-product. The Australian farmers, like all sensible businessmen, will raise that which brings them in the best return, and so long as they can get more money by raising crossbred sheep, they will not breed merinos. This brings us to the issue of the question, which is, that in face of this new factor operating on the wool supply, merino wool is likely to keep at the present high price, and may go even higher. I hope I have, in brief form, been able to put before your readers clearly the argument that the chief influence at work in increasing the supply of crossbred wool, and diminishing the supply of merino, was not the recent drought, or increased demand for merino, but the appetites of the European working classes for Australian mutton. Our manufacturers must now set to work to utilize the crossbred wool for finer qualities of goods. I observe that your manufacturers have already become alive to the situation, and the staple article now showing in the States is serges. This is a class of fabric which is capable of development.

#### LITERARY NOTES

The Midwinter Number of *The Century* (February) is remarkable for the variety and interest of its articles. Walter Wellman, commander of the Wellman Polar Expedition, writing under date of August 2, 1898, from "the mostly northerly inhabited house in the world," describes the experiences of his party thus far "On the Way to the North Pole." The opening paper, entitled "Harnessing the Nile," is ex-Consul-General Penfield's account of the proposed creation of a vast reservoir at the first cataract, having two or three times the superficial area of Lake Geneva, its object being the irrigation of agricultural Egypt. "What Charles Dickens Did for Childhood," with full-page illustrations by Albert Sterner, is the title of a very interesting paper by James L. Hughes, Inspector of Public Schools, Toronto, showing that Dickens was one of Froebel's earliest supporters in the English-speaking world. Prof. Wheeler's "Alexander the Great" recounts this month the conquest of Asia Minor, and Paul L. Ford's "Many-Sided Franklin" shows the philosopher's attitude toward religion. Boutet de Monvel, the distinguished French portrait-painter and illustrator, now visiting America, is the subject of an article

by Miss Marie van Vorst, illustrated with a portrait of the artist at work, and reproductions of several of his paintings. "How Other Countries Do It" summarizes the results of an enquiry by the State Department into the consular system of other nations. Marion Crawford continues in "Via Crucis" his fascinating romance of the second crusade. The frontispiece of this Midwinter Number of *The Century* is Cole's engraving of Opie's portrait of Mary Wollstonecraft.

W. J. Matheson & Co., Ltd., keep up the publication of that most instructive monthly publication, *Dyestuffs*. Every one interested in dyeing should write for a copy of this little magazine.

*The Glove Trade Directory, 1899*, has reached us from the publishers, O. H. Bane & Co., Gloversville, N.Y., U.S.A. It is a handy volume of over one hundred pages, and contains a very complete list of the glove trade of the continent.

The Bradstreet Co. has issued a pamphlet, entitled "Record," which sets out the valuable work of commercial agencies in the mercantile world.

Andre Castaigne, whose brilliant pictures illustrating the "Life of Alexander the Great" are now appearing in *The Century Magazine*, has just been created a "Chevalier de la Legion d'Honneur" through the personal interest and action of M. Faure, late president of France.

The British Fire Prevention Committee has just issued as No. 12 of its official publications, the *Effect of Fire*, which is a report on the Horne building fire in Pittsburg, U.S.A., by G. Kaufman, C.E.; E. Swenson, C.E., and F. L. Garlinghouse, C.E.

The Canadian General Electric Co. has issued a handsome calendar for 1899, which is decorated with a picture of a female figure operating an electric search light whose rays fall upon the extensive works of the company at Peterboro, and show up brightly that huge industrial hive.

We have before us the profusely illustrated catalogue of the Unbreakable Pulley and Mill Gearing Co., Ltd., West Gorton, Manchester, Eng. It is a most valuable work on power transmission, entitled the *Economical Transmission of Power*, and contains over 150 pages of the most condensed information, many pages of statistics and other tabulated facts, which are of interest to all users of power.

We have received a circular from the Committee of Organization and Administration of the Congreso Industrial of Argentino, Lorea & Co. It is proposed to hold an Industrial Exhibition at Buenos Ayres, capital of the Republic, in the month of May next. Exhibits will not be received after April 15th. Foreign exhibitions besides receiving diplomas without cost will have all the rights in connection with the exhibition that belong to natives of the country.

It is proposed to hold at Toronto in May an Historical Exhibition under the auspices of the Ontario Historical Society. The exhibition is intended to be both attractive and instructive, to illustrate the history of Ontario in particular, during the century now ending, and to demonstrate the progress of our people along commercial, social and intellectual lines; the history of localities as well as of the entire province; the advancement made in social and domestic comforts; and in scientific and domestic economy. It is not intended, however, to confine the exhibits to Ontario, although it should be given first place, but to include anything relating to the history of Canada. The Ontario Historical Society has already available the nucleus of such an exhibition, and it is believed that the various local societies and a large number of generous citizens will lend enough additional material to make this one of the most comprehensive and representative exhibitions of the period. All exhibits loaned will be properly taken care of and their safe return guaranteed. The

proceeds of the exhibition are to be devoted towards the establishment of a permanent historical museum. Miss Fitzgibbon, 1 Avenue Chambers, Toronto, is the secretary of the exhibition committee.

The Canadian Magazine for February contains some interesting Canadian matter, the portraits of forty editors of Canadian dailies and biographical sketches of each, St. George's Cathedral, Kingston, which was destroyed by fire recently, is the frontispiece, Joanna E. Woods' novel is continued, and the usual complement of short stories and poems finds its place. Unfortunately the series of papers on actors and actresses is kept up. The public will not pay twenty-five cents for a magazine which publishes theatrical portraits. It is distinctly a "marked down" commodity and should be dropped.

Diane of Ville Marie is the title of a new romance of French Canada by Blanche Lucile Macdonell, of Montreal. Miss Macdonell is the author of a number of charming sketches of French Canadian history and folk-lore, and the present tale, her most ambitious venture, founded on events which took place on the Island of Montreal at the close of the 17th century, shows her to be well versed in early Canadian history. It is well for English-Canadians to know how rich French Canada was in the material of heroes and heroines, for the story is woven around the personalities and lives of actual historical personages, as stated in the preface. The work is handsomely produced from the press of Wm. Briggs, Toronto.

We cannot too highly commend the work done by the Thorold and Beaver Dams Historical Society in giving to the public such a comprehensive record of the events which have made that quarter of the Niagara peninsula the Peloponnesus of Canada. The heroic tramp of Laura Secord, 19 miles through a snake-infested woods to warn Lieut. Fitzgibbon of the enemy's approach, the capture of the whole American force by a handful of British as a result of this warning, and many other deeds of daring during the war of 1812, are recounted here, while the less dramatic but equally heroic achievements of peace—the tedious assaults on the primeval forests, the transformation of the woods into wheat fields and of the marshes into gardens—are recorded with a faithful pen. Nor is the industrial and social progress of the township and town overlooked, many instructive bits of history and biography being scattered through the 289 pages of the volume. In fact it is only by the light of such work that the real history of the Canada that is yet to be can be compiled. Much interesting information is given about the Welland canal. The family of Keefer, of whom Thos. C. Keefer, C. H. Keefer and others have been so prominent in the engineering annals of the country, are found among the many sturdy early settlers. The pre-factory days, when the spinning-wheel and the hand-loom were in evidence and the stage coach and ox-wagon were the only means of transport, are truthfully sketched, while the record of the first mills and industrial establishments is very instructive. It is interesting to find, for instance, that Thorold had in 1847 what was undoubtedly the first cotton mill in Ontario, though not the first in Canada, as alleged, for a cotton mill existed in Sherbrooke in 1844, and it is equally worthy of record that this town had the first regular electric railway in Canada, the Thorold and St. Catharines line having been opened on the 5th October, 1887. Taken altogether, the Jubilee History of Thorold is a model of its kind, and is eminently creditable to John H. Thompson, the compiler, and to The Thorold Post Printing and Publishing Co., whose establishment did both the printing and binding.

The Pearce Company of Marmora has turned its woolen mill into a roller flour mill, and is fitting up the old grist mill for a customs woolen mill.

## THE MANUFACTURE OF WALL PAPER.

The printing of textiles with dry colors is one of the most ancient arts. Pliny describes a dyeing process employed by the ancient Egyptians in which the pattern was probably formed by printing from blocks. The use of printed stuffs is of antiquity among the Hindoos and Chinese, and was practised in western Europe as far back as the thirteenth century. In the South Kensington Museum there are specimens of thirteenth century black printed silk made in Sicily of very beautiful design. It was in the eighteenth century before wall papers began to come into common use in Europe, though they appear to have been used much earlier in China. A few rare examples which may be as early as the sixteenth century exist in England, but these are imitations, generally in flock, of the old Florentine and Genoese cut velvets, and hence the style of the design in no way shows the date of the wall paper, the same traditional patterns being reproduced with little or no change for many years. It was not till the end of the last century that the machinery to make paper in long strips was invented. Up to that time wall papers were printed on small square pieces of hand-made paper and were very expensive. On this account wall paper was slow in superseding the older mural decorations, such as tapestry, stamped leather and paper cloth. A work printed in London in 1744 throws some light on the use of wall papers at that time: "The method of printing wall papers of the better sort is probably the same now that it has ever been. Wooden blocks with the design cut in relief, one for each color, are applied by hand, after being dipped in an elastic cloth sieve charged with wet tempera pigment, great care being taken to lay each block exactly on the right place so that the various colors may 'register' or fit together.

"In order to suit the productions of the paper mills these blocks are made in England, 21 inches wide, and in France, 18 inches wide, the length of the block is limited to what the workman can easily lift with one hand—two feet being about the limit, as the blocks are necessarily thick, and in many cases made heavier by being inlaid with copper, especially the thin outlines, which if made of wood would not stand the wear and tear of printing. In 'flock' and gold or silver printing the design is first printed in strong size, the flock (finely cut wool of the required color), or metallic powder, is then sprinkled by hand all over the paper; it adheres only to the wet size, and is easily shaken off the ground or unsized part. If the pattern is required to stand out in some relief, this process is repeated several times, and the whole paper then rolled to compress the flock. Cheaper sorts of paper are printed by machinery, the design being cut on the surface of wooden rollers under which the paper passes. The chief draw-back to this process is that all the colors are applied rapidly one after the other without allowing each to dry separately as is done in hand printing. A somewhat blurred appearance is usually the result." To-day with the great improvement in machinery, and a thorough knowledge of preparing the colors, equally as good effects are produced by machine work as by hand printing. The principal difficulty has been that a sufficient number of colors to produce artistic effects could not be procured in machine work, but as wall paper printing machines are now made which will print twelve, eighteen and twenty-four colors, as fine results may be obtained this way as by hand printing, at one-third the cost, thus bringing artistic wall papers within the reach of a large portion of the population who thoroughly appreciate mural art decorations in their homes, and no wall paper factory is complete to-day without one of these many colored printing machines. Appreciating the growing demand for art papers the Watson, Foster Company, Ltd., Montreal, in addition to the twelve color machine which it has in its factory, is putting in another

machine for printing twelve colors, which will enable it to keep pace with the demand for high grade goods.

The trend of fashion in wall papers shows that among the fine trade there is a growing tendency toward using bold floral effects in natural colorings for drawing and sitting rooms. There is a disposition toward using brighter and more pronounced colors among the wealthier people than for some time past. Floral effects, especially the large rose designs in English and French colorings, will be the leading features for next season. Tapestries are coming rapidly into favor, a tendency being shown to adopt the "Renaissance." Ingrains are as popular as ever, bright dark effects being preferred such as blues and fine reds. Cheap goods are now considered almost a thing of the past, as householders see the folly of spending twice the amount the paper cost in hanging a poor paper.

#### DETECTING IMPURITIES IN SOAP.

Certain impurities may be discovered in soaps in a very simple manner. Weigh off accurately parings from your soap and place in a heated oven to dry. Here allow it to remain until the indications are that it will become no lighter. Weigh again and the difference will give you the amount of water the soap contained. This will tell you sometimes that you are purchasing water at the price of soap. Further, immerse the soap in alcohol. Then apply heat. This will dissolve all the soap. The residue left is the adulterations. These are simple tests, and will give fairly good results.

#### FABRIC ITEMS.

The partnership existing for the last twenty years between Campbell & Pentecost, dry goods merchants, Hamilton, has dissolved by mutual consent.

Oscar Beauchamp, who was for several years in the dry goods business in Montreal, has been appointed deputy warden of St. Vincent de Paul Penitentiary.

Incorporation has been granted to J. Flett, H. Lowndes, C. B. Lowndes, G. A. Baker and R. Mary Flett, wife of J. Flett, Toronto, Ont., as Flett, Lowndes & Company, Ltd., to do a general wholesale and manufacturing business in dry goods; capital, \$50,000.

At the general annual meeting of the Montreal Chambre de Commerce the annual election of officers for the ensuing year resulted as follows: President, the Hon. A. Desjardins; first vice president, L. E. Geoffrion; second vice-president, D. Masson, secretary, S. Cote.

D. W. Glass, employed by the Merchants Dyeing and Finishing Co., Toronto, for eleven years, was presented by his fellow workers with a gold chain and locket on the occasion of his departure for Montreal to fill a position with Gault Bros & Co.

Donald Mackay, J. Drummond Mackay, James Woods, John Douglas and A. Gillacohn have been granted a charter under the Ontario Joint Stock Companies' Act. Gordon, Mackay & Co., Ltd., will be the style of the new company; the capital \$750,000, and its object the taking over and continuance of the business of Gordon, Mackay & Co.

McFarland, Gray & Southgate is a new Toronto firm who will on 1st March begin business as ready made clothing manufacturers and wholesale dry goods merchants at 38 Yonge street. Mr. McFarland is a wealthy merchant of Markdale, Ont., Mr. Gray is a dry goods merchant of Owen Sound, Ont. and Mr. Southgate has for several years been warehouse manager for Wyld, Grasett & Darling, this city.

A big shipment of silk, occupying seven cars, passed through Toronto over the Canadian Pacific from Japan, en route to New York, recently.

A charter has been granted to G. Duffy, J. G. Potts, D. J. Lauder, N. J. Bourdon and T. Brennan, Toronto, as the Twentieth Century Tailoring Company of Toronto, Ltd., capital, \$10,000.

Detweiler & Co., dry goods merchants, Sault Ste. Marie, have assigned to James Glanville, of John Macdonald & Co., Toronto. Liabilities are placed at \$20,000, and it is expected that the assets will be about the same.

J. E. DeHertel, who for the past fourteen years has been connected with W. H. Shorey & Son, wholesale clothiers, of Montreal, has formed a partnership with F. G. Campbell in the tailoring and gents' furnishing business in Perth, Ont.

The Merchant Tailors' Manufacturing Company of Toronto, Ltd., recently tendered a dinner to the retail merchant tailors of Toronto at Webb's parlors. Mr. John R. Marshall, president of the company, occupied the chair, and about two dozen were present. The speakers who responded to the various toasts were: Messrs. Austin, Ald. Score, Geo. Duffy, A. M. Hobberlin, Sherlock and R. J. Salisbury. During the evening the Sherlock Male Quartette rendered a number of part songs and solo numbers, with excellent effect. The company which gave the dinner has been recently organized for the purpose of economizing in the manufacture of clothing, the idea being to have one large shop, instead of the many small ones now maintained by the retail merchants.

Some slight difference seems to have arisen between the operators in the mantle department of S. F. McKimmon & Co. Ltd., and their employers. The operators say that over twenty hands have quit work because they cannot live upon the wages they are now getting. They assert that their wages have been reduced 35 per cent. since last year, and ask for an advance of from 10c. to 15c. per garment. The female operators make from \$3 to \$5 per week and the men from \$8 to \$10. This they claim, on account of the shortness of the season, is not a living wage. The managers of the company state that the trouble is very trifling. They are now between the seasons and are adjusting the prices on piecework, as they are accustomed to do every year at this season. They say that there are only seven or eight men who are complaining. They are endeavoring to satisfy all concerned, but, if the men cannot work at their prices, they will have to go elsewhere.

John Y. Reid of the well-known firm of Buntin, Reid & Co., who died recently, was one of the business pioneers of the province of Ontario. He was born in Berwickshire, Scotland in 1823, and entered the stationery business there. When 23 years of age he came to Canada, entering the late firm in Hamilton, and when the firm moved to Toronto he was managing partner, opening the first office at Colborne and Yonge streets. There the firm did business for 33 years, finally occupying the present quarters, which Mr. Reid erected on Wellington street. Mr. Reid, though a zealous business man, took a great interest in agriculture, being associated with the Hon. George Brown in Bow Park Farm, himself also conducting a fancy stock farm near Paris. Mr. Reid retired from active co-operation with the business firm, in 1894, as old age came on, and has been more or less of an invalid ever since. He was a member of St. Andrew's Society, the Board of Trade for many years a director of the British America Assurance Company, and was deputy governor when that company united with the Western The Canada Landed Credit Company also claimed him as a director, and he was one of the directorate of The Globe Printing Company.



### THE WOOL MARKET.

Montreal.—Stocks of merinos in first hands are very low, and prices are advancing. What lots arriving via steamers, are quite 10 per cent. higher than this market at present. The manufacturers are very busy, some of them working overtime, but they say they find it very hard to get an advance on last year's prices. Canadian wools are very low in price, owing to the United States tariff, we not being able to export any as usual. Capes, 15 to 17½c.; Natal, 17 to 20c.; Canadian fleec 16 to 17c.

Toronto.—The market is very quiet, and though small lots of Canadian wools are changing hands the volume of business is so slight as to leave the market practically as last month. The mills are all busy and foreign wools are in demand at advanced prices, but Canadian wools are a drug on the market, and prices nominal.

### RECENT TEXTILE PATENTS OF CANADIAN INTEREST.

61,891.—Circular loom; Karl Harold, Kronigsfeld (near Brunn, Austria.

61,900.—Treatment of wool, grease, soap suds, etc.; John Hopkinson, Bradford, Yorks, England.

### THE CONSUMERS' CORDAGE CO.

Some time ago the appeal to the Privy Council of Edward F. C. Young, receiver of the National Cordage Company of New York, in his suit against the Consumers' Cordage Company, Montreal, was allowed, and the Consumers' Cordage Company was condemned to pay some \$50,000 interest and costs. The company gave security for the amount by a deposit receipt issued by the Canadian Bank of Commerce, and deposited with the prothonotary pending final decision. The New York receiver now wants the amount secured by the deposit receipt in satisfaction of the Privy Council judgment. After having fought the Consumers' Cordage Company to the last court in the Empire, the receiver has now to meet the claim of a shareholder in the Consumers' Company. F. Robertson has placed an attachment on the deposit, and asks to be paid out of it the sum of \$5,000, the price paid by him for 50 shares of stock which he alleges he was induced to purchase through the representations contained in a prospectus and financial statement, which he claims to have been false and erroneous. The plaintiff alleges that Receiver Young is representative of the parties who issued the prospectus in question, and he now tenders back his stock certificate, and asks that he be refunded the \$5,000 paid by him out of the amount of the deposit, and that his claim be satisfied before the sum now held by the Bank of Commerce is allowed to go out of the province, and out of the jurisdiction of the court. As a large amount of the stock of the Cordage Company was taken up by the public after the issue of the prospectus referred to, the result of this suit will be awaited with considerable interest.

### ABOUT BANDING MACHINES.

It is an acknowledged fact that work that can be done by machinery is superior to that done by hand. It is also an acknowledged fact that work that is being done by hand that can be done by machinery, is expensive. This will apply as well to loop bands as anything else. All manufacturers are aware of the necessity of uniform bands in the spinning room, and there have been many ways devised to get this uniformity, but there has been, in all cases, something lacking. While there are some so-called automatic machines which make very good bands, they are also very expensive machines after all, as it

is absolutely necessary to employ someone to operate them, at a cost of at least one hundred and twenty-five dollars a year, and some mills are paying two hundred and fifty dollars a year to have this work done. This kept up, year after year, amounts to quite a sum.

This machine now comes to the front and fills the bill. In the first place it is, its makers state, the only automatic loop banding machine on the market. This statement is made without hesitation or fear of contradiction. A machine that requires the constant attention of an operative cannot be called "entirely automatic." This machine requires no attendant, and when once started continues its operation as long as there is material for it to work on. The bands are all cut off exactly the same length, and are all twisted alike, the twist being governed by cams and gears, and cannot be affected by damp weather, as machines must be whereon the twist is governed by the contraction of the band. As the bands are finished they are taken off automatically and carried to hooks at the side of the machine, and are all kept neatly straightened, so there is no difficulty in taking them off as wanted for use. It will furnish all the bands needed for 60,000 spindles, it is said, saving a large percentage over bands formerly used, and at no expense aside from first cost of machine, which is less than some mills are paying an operative on other banding machines in wages in one year. All this goes to show the advantage of an automatic machine. Some parties using these machines claim they do not use more than half as many bands made from this machine as they did before. The machine is designed to take the place of any and all machines for making loop bands that require an attendant to put them on and take them off. All the changes are automatic, and closely follow each other. Recent improvements have made this machine even more satisfactory than before. The makers are Cole Bros., Pawtucket, R.I.

### A REMARKABLE DISCOVERY.

The Vienna correspondent of The London Daily Chronicle in a recent despatch says: Van Szozeapanik, the inventor, has just presented the Emperor Francis Joseph's art museum with a remarkable web woven by a photographic process he has invented, not necessitating a designer. It is a production in silk of the old-time Gobelins. It measures two squares metres and contains 200,000,000 crossings. It would have required years to make this by the old process.

—The recent examination at New York city into the affairs of Allan Macnaughton, former president of the New York Wool Exchange, has been brought to an unexpected and somewhat startling end by the arrest of Allan Macnaughton and his brother James, the ex-president of the Tradesmen's National bank. The brothers are charged jointly with conspiracy to defraud, and James Macnaughton is also charged with a violation of that section of the revised statutes which makes it a crime for an officer of any bank to certify a check when there are not sufficient funds in the bank to cover the amount of the check. The prisoners were taken to the office of United States Commissioner Shields and arraigned at once. The check transaction, upon which the warrants were obtained, occurred on the morning of February 10, 1897. Allan Macnaughton drew a check on the Tradesmen's National bank to the order of the United States Trust Co., and the check was certified to by James Macnaughton as president of the bank. It is alleged that Allan Macnaughton had no deposit with the bank at the time adequate to cover the amount of the check, \$510,000. The hearing in the matter occurred January 28. The Tradesmen's bank, owing to the revelations, has voted to liquidate.—Ex.



## Among the Mills

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

The Thunder Bay Pulp and Manufacturing Company, Ltd., is applying for incorporation.

The machinery for the ropewalk at the Central Prison, Toronto, is now in operation.

Thos. Clarke, broom manufacturer, Almonte, Ont., will remove his plant to Bryson, Que., in a short time.

The cotton mill at Windsor, N.S., was closed down for a couple of weeks recently, owing to an accident to the engine.

The Thompson grist and carding mills, Nashwaaksis, N.B., were burned down last month. C. E. Hill owned the carding mill, which had three sets.

F. Scantlin has given the Almonte, Ont., firemen a cheque for \$20, as a mark of his appreciation of their services at the recent fire on his mill premises.

The Dominion Trades and Labor Congress has sent a deputation to the Ontario Government to protest against the alleged lax enforcement of the factory acts.

L. Boisseau & Co., wholesale clothiers, Toronto, are opening a permanent sample room in Winnipeg in the new McIntyre block. S. M. James is their western representative.

The Anchor Knitting Co., Ltd., Almonte, Ont., decided at a recent meeting of the directors to make a number of improvements in the mill. The business of the new firm is very satisfactory.

The Dominion Oil Cloth Co., Ltd., is applying for a charter to carry on the business of the Dominion Oil Cloth Co.; capital, \$50,000. The directors are: Andrew Allan, Hugh A. Allan, J. O. Gravel, J. J. McGill and J. Baillie.

W. R. Simpson, before leaving the Gillies woolen mill, Carleton Place, Ont., a short time ago, in which he had been boss weaver for fourteen years, was presented with an address and a gold chain and locket by the weavers.

The Peterborough Underwear Company, capital \$40,000, has been formed by James Kendrey, B. F. Ackerman, R. J. Kidd, R. H. Kells and Robert Fair, Peterborough, Ont. The business will be carried on in the old Blyth mill recently dismantled.

The members of the Silk Association of America held their 27th annual banquet at Delmonico's, New York, on February 2nd. The guests and members included many of the most distinguished men in the United States as Theo. Roosevelt, and President Seth Low of Columbia University.

E. A. Small & Co., the Montreal clothiers who recently assigned, have offered their creditors (Feb. 3rd), the sum of 30 cents on the dollar cash. The committee recently appointed by the creditors received the offer with some reluctance at first, but after consideration it was decided to accept the offer, and recommend it to the creditors.

The Waterloo, Ont., brush works are now running thirteen hours a day.

The town of Seaforth, Ont., is applying to the Legislature for power to make a loan of \$10,000 to W. D. Van Egmund to enable him to enlarge his woolen mill. The loom will be secured by mortgage.

J. S. Leys, S. Goldstick, A. S. Leys, F. B. Leys, London, Ont., and F. D. T. Leys, M.D., Detroit, have been incorporated as the London Hat, Cap and Mantle Manufacturing Company, Ltd.; capital, \$20,000.

A fire occurred at Almonte, Ont., recently, which partly destroyed F. Scantlin's shoddy mill. Some new machinery had only recently been added to the mill, which was damaged by the fire. The loss is partly covered by insurance.

Negotiations are now pending for the erection of a large clothing manufactory in St. John's, Nfld., says The Herald of that city. The intention is to import machinery necessary for this purpose and give employment to about 200 persons.

Joseph Bradshaw, formerly of Montreal, has been appointed to the charge of the weaving and overseer at Gambriell & Co.'s, Havre de Grace, Md., U.S.A. This is said to be the largest manufactory of turkey-red duck in the United States.

After making an investigation of the different makes of drying machines the Toronto Carpet Manufacturing Co. Toronto, has just placed an order for a very large "Cyclone" automatic yarn dryer with the Philadelphia Textile Machinery Co., Philadelphia, Pa., U.S.A.

D. Mitchell & Son, who were formerly located at Marmora, Ont., have bought the Tamworth woolen mills at Tamworth, Ont., and have thoroughly overhauled it, making this mill one of the most complete in the district. Messrs. Mitchell start up on blankets on the 1st of March, with a number of good orders in hand.

A public meeting of the ratepayers of Yarmouth, N.S., was held a short time ago to consider the resolution re free water for fire protection and exemption from taxation to be extended to prospective industries to be established in Yarmouth, as proposed by the town council. The meeting was enthusiastic in support of the council's position.

At the annual meeting of the Montreal Cotton Company held in Montreal recently, A. F. Gault, presiding, A. F. Gault, Jacques Grenier, Charles Garth, Hon. J. K. Ward, S. H. Ewing, R. R. Stevenson and Samuel Finley were elected directors, and at a subsequent meeting of the board A. F. Gault was elected president, and Charles Garth vice-president.

The seventh annual drive and dinner of the employees of the Dominion Cotton Mills Co. was held in Magog, Que., January 28th, dinner being served at the Park House. During the evening W. T. Whitehead, the retiring manager, was presented with a handsome punch bowl by the employees of the Print Works, in token of their esteem and good wishes for the future. W. Herrick acted as chairman and made the presentation. Mr. Whitehead responded in a few well chosen words. Among the guests were A. H. Moore, M.P., Dr. W. W. Chalmers (mayor), L. A. Audet, N.P., John R. Wilcox, E. P. Olivier, manager Eastern Townships Bank, and Rev. R. M. E. Wright.

# Wool Washers

Dryers and Carbonizers

KITSON - - -  
MACHINE CO.  
LOWELL, MASS.

Jos. Beaumont, woolen manufacturer, Glen Williams, Ont., met with a serious accident a short time ago. He has added glove-making to his business, and a quantity of benzine, which is used in this department, had been placed in a large drum. He approached the vessel with a lighted lantern when the benzine exploded, blowing out the windows and burning Mr. Beaumont severely about the face and hands.

Users of belting will be pleased to note that the well-known firm of D. K. McLaren, with head office and factory in Montreal, and branches at Galt and Ottawa, Ont., has opened a stock depot at Toronto, where the firm will endeavor to keep an assorted stock of the "Genuine Oak" belting, which it is claimed gives entire satisfaction to all who use it. This branch is in charge of James T. Craig, late Craig & McArthur, who will be found at the old stand, No. 69 Bay street.

At the annual meeting of the shareholders of the Merchants' Cotton Company held in Montreal recently there were present: R. B. Angus, Robt. Mackay, J. P. Cleghorn, James Crathern, T. B. Brown, J. K. Ward, Jas. Tasker, John Turnbull, Geo. A. Greene, J. H. Scott, Jas. Walker, A. Robertson, Hy. Barbeau, and others. The report presented was considered most satisfactory, and the following were elected for the ensuing year: President, A. A. Ayer; directors, R. B. Angus, J. P. Cleghorn, James Crathern, Jonathan Hodgson, Robt. Mackay and W. G. Cheney. The company has within the last year increased its capacity by the erection of a large addition to the plant so as to be in a position to meet more fully the requirements of the trade. The number of operatives now employed is 1,200.

A somewhat exciting episode occurred at the Kingston, Ont., penitentiary, January 23rd, when a small revolt occurred. Forty men who are engaged in the binder twine factory refused to eat soup offered them for dinner. They ate the bread and drank the water and were marched out to work. Thirty-three refused to work and the balance demurred. The guards were called in and the men marched to the dome. Five of the ring-leaders were put in the cells and the majority of the balance said they would return to work provided they could see the warden at a later period. The food is that provided by the inspector. The officers say that they have assurances that the strike was to have been general, but that a misunderstanding must have occurred as to the time. The men concerned will likely be punished.

The Cornwall, Ont., town council was recently petitioned to exempt from taxation for a further period of ten years the portions of the Canadian Colored Cotton Co.'s mill on which the exemption had expired in January, and the part on which exemption would expire in 1902. This was not granted, but the council has passed a by-law commuting the taxes on all the company's property, both the Canada and Stormont mills,

for ten years to an assessment of 40 per cent. of a \$625,000 valuation. The by-law takes effect when ratified by the Ontario Legislature. This by-law revokes the one passed some years ago, commuting the taxes on the Canada mill to 40 per cent. The company has entered into an agreement to expend a hundred and fifty thousand dollars in new buildings and machinery before January 1, 1904, to employ at least 900 hands for not less than an aggregate of nine months of twenty-six days, ten hours each, in each year, exclusive of all stoppages caused by accident or otherwise. Failure to observe this agreement will be penalized by the cancelling of the by-law and collection of the full amount of taxes.

Recently the machinery in the newly constructed addition to the factory of the Merchants' Cotton Company, Montreal, was set in motion for the first time. A. A. Ayer, the president of the company presided at the ceremony, and Miss Ayer, daughter of the president, and Miss Hawksworth, daughter of Alfred Hawksworth, superintendent, opened the valve and the engines turned. The rope drive consists of thirty ropes, or cables, are  $1\frac{3}{4}$  inches in diameter, and the combined power is 1,500 indicated horse. There are many things in favor of this style of transmitting power from the engines to the shafting. Its weight is less; it is noiseless in operation and the slip is reduced to the minimum. The drive-wheel is 26 feet in diameter, and is 76 inches across the face and weighs sixty tons. Upon the face are thirty grooves two and one-half inches from centre to centre. These contain the cables. The engines, built by the Laurie Engine Co., are of the cross compound variety with twenty-four and fifty-two inch cylinder and each has a stroke of sixty inches. The total weight of engines, drive wheel, etc., is 150 tons. The Holly system for carrying condensed steam back into the boilers is also used. Four Babcock and Wilcox boilers manufactured in Glasgow and fired by four automatic stokers made by the same firm give the necessary steam. The smoke from the fires passes through a Green's economizer, thus heating the water before it is introduced into the boilers. At the base of the chimney an automatic damper has been placed. This acts by the rising and falling of the steam and water pressure. When the steam rises the damper closes and when the water rises the damper opens. Every device which in any manner will save labor or coal has been introduced. The addition to the mill is of brick and in general architecture the same as the older portions. The new building is 100 by 286 feet and is four stories and a basement in height. The chimney is of brick and is 166 feet high and has a 7 foot flue. This addition will give the mill some 750 additional looms, making a total of 2,300 in the factory. It was on the 17th of April that the new building was started and in June the first of the machinery was put in place. The plant is ready to operate immediately.

# The Royal Electric Co. MONTREAL TORONTO

CANADIAN MANUFACTURERS OF THE

## S. K. C. TWO-PHASE APPARATUS

Alternating Current Generators

Alternating Current Motors

Alternating Current Arc Lamps

Served from the same circuit

## S. K. C. TRANSFORMERS

Correspondence solicited for all kinds of Electric Installations.

D. Pike, J. Stewart, A. Coyell, Ellen Pike, Laha Pike, Toronto, Ont., have been incorporated as the D. Pike Company, Ltd.; capital \$40,000; to manufacture awnings, sails, tents, etc.

--The Gilmour Woolen Mill, Johette, Que., manufacturers of tweeds, blankets, etc., has gone into knitted goods also.

--The Canadian Rubber Co., Montreal, has ordered a 30-h.p. engine from the Robb Engineering Co., Amherst, N.S.

Kingston, Ont., is offering the American Boot & Shoe Company exemption from taxes for ten years and a free site to locate their factory there.

--Woodstock, Ont., Board of Trade proposes to raise by taxation \$25,000 "to be given to new industries which may locate in Woodstock."

--Guy Bros., proprietors of the steam laundry, Cornwall, Ont., have added an improvement to their large mangle in the shape of an endless apron, which quadruples the output of the machine. They are thinking of patenting it.

--The Watson Mufg Co., St. Catharines, Ont., is removing to its new factory at Paris, Ont., and has placed an order with the Canadian General Electric Co. for the wiring up of the factory, and installing a plant to furnish some 250-16 c.p. lamps.

--The Pall Mall Gazette says that from information gathered in North Lancashire there is good reason to believe that a great combination is being formed in the English bleaching trade, which has been one of the most prosperous businesses allied with the textile industry

--At a meeting of the creditors of W. C. Pittfield & Co., wholesale dry goods, St. Johns, N.B., held in Montreal, a statement of affairs was submitted showing liabilities of \$260,000, with a very considerable deficiency. No offer was submitted, and a committee, composed of seven or eight of the principal creditors, was appointed to look into estate affairs, and more particularly to take legal advice with regard to the liability in connection with the special partnership, which expired Jan 1st.

--The United States wool market is sized up by The N.Y. Journal and Bulletin of Commerce as follows. "Manufacturers who visit the market, while complaining of too much uncertainty regarding the future, evidently are taking a more cheerful view of the situation, with the result that they manifest a greater interest in wools suitable to their wants. Sellers of wool, whether broker or dealer, are also basing their hopes upon this and claim that the situation is ripe for a prolonged steady market"

**WANTED:** A thorough competent JOB DYER AND SCOURER, who understands the dyeing of mixed goods, also dry-cleaning. Must be strictly sober and furnish references; steady job all the year round to the right man. Address "DYER," care of Canadian Journal of Fabrics, Fraser Building, St. Sacrament St. Montreal.

**WANTED** by a young man, a position as second hand in a large cotton mill. Had experience as weaving and cloth-room overseer in small mills. Good technical education. First-class certificate (London and City guilds exams). Address "TECHNICAL," care of Canadian Journal of Fabrics, Montreal, Que.

**A NATURALIZED** New England spinner of old English birth, would like a good steady job in Canada. Can introduce improvements. Have worked in English mills. Address "SPINNER" care of Canadian Journal of Fabrics, Fraser Building, Montreal, Que.

**SITUATION WANTED** as carder by a man of sixteen years' experience as overseer; could also take charge of jack spinning. Temperate habits, well recommended. Address, DONALD MACH, P.O. Box 333, Peru, Ind.

**POSITION WANTED.** Young man of good education, at present employed as superintendent in a large woolen mill in the south of Scotland, would like similar position in Canada. Can assist in designing. Address "SUPERINTENDENT," care of Canadian Journal of Fabrics, Montreal, Que.

**SITUATION WANTED**

Wanted situation as manager or superintendent of woolen mill by a man who has had a large and most successful experience on shoddy goods. Married, 39 yrs of age. Address J. E. C. L., care Canadian Journal of Fabrics.

--Glycerine added to the caustic alkali used in mercerization prevents the cotton from shrinking. The goods are treated in a mixture of soda lye of parchment-like appearance. It is then washed and dried. This treatment increases the strength of the cotton by 23 per cent., without, however, contracting it, and also increases its affinity for dyestuffs. The glycerine will prevent ever 50° B lye from causing any shrinkage. Instead of adding the glycerine to the mercerizing bath the stuff may be first soaked with the glycerine and then passed through the lye. This process has been patented by the Farbenfabriken.

**CHEMICALS AND DYESTUFFS.**

The demand for chemicals and dyestuffs continues fair. Blue-stone is higher, lowest figure now for round lots is 6½ cents. Sumac has again advanced \$5. Gambier firm, advance this week ¼ cent per lb. The following are current quotations in Montreal:--

Bleaching powder .....	\$ 1 95	to \$ 2 00
Bicarb. soda .....	2 00	" 2 05
Sal soda .....	0 70	" 0 75
Carbolic acid, 1 lb bottles .....	0 35	" 0 37
Caustic soda, 60° .....	1 75	" 1 80
Caustic soda, 70° .....	2 00	" 2 10
Chlorate of potash .....	0 13	" 0 15
Alum .....	1 35	" 1 50
Copperas .....	0 70	" 0 75
Sulphur flour ..	2 00	" 2 50
Sulphur roll .....	3 00	" 3 50
Sulphate of copper .....	4 50	" 5 00
White sugar of lead .....	0 07	" 0 08
Bich. potash .....	0 09	" 0 10
Sumac, Sicily, per ton .....	60 00	" 65 00
Soda ash, 45° to 58° .....	1 15	" 1 25
Chip logwood .....	1 90	" 2 00
Castor oil .....	0 09	" 0 09½
Cocoon oil .....	0 06½	" 0 07

**A. KLIPSTEIN & CO.**

122 PEARL STREET, NEW YORK.

*Chemicals & Dyestuffs*

Fast Color for Wool--Dry Allzarine, Phenocyanine, Gallocyanine.  
Direct Cotton Colors--Auramine, Congo Red.  
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Caustic Potash 90%      Carbonate of Potash  
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**Wade's Overseers' Bureau** Canadian Manufacturers should notify us when in need of employees. Overseers out of work should enter our bureau. Textile books and directories furnished at publishers' prices.  
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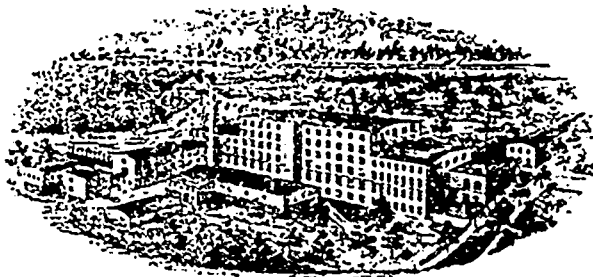
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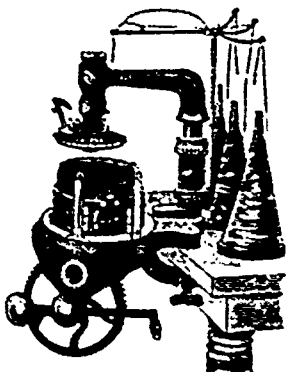
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"THE WORLD'S STAR," for  
Knitters

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Manufacturer of all kinds of

### Power Knitting Machines

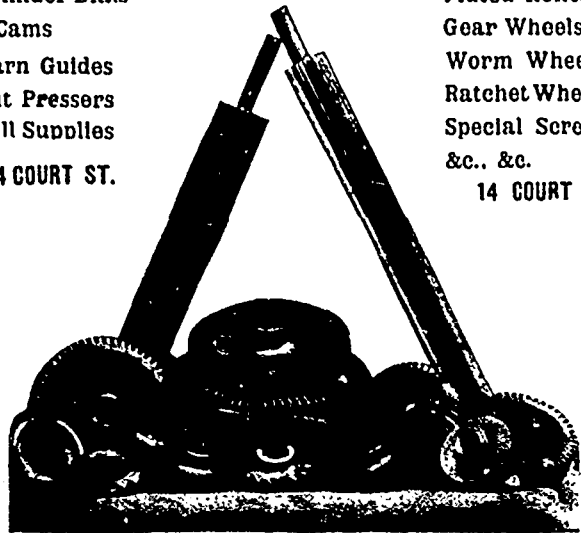
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Pluted Rollers  
Gear Wheels  
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&c., &c.

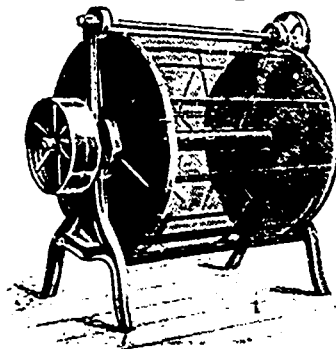
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Does not Damage the Staple.

Loses Nothing but the Dirt.

Over 500 at Work.

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Production 1 to 6 lbs. per day.  
Weight packed, 14 cwt.

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See that all your

LINEN THREAD

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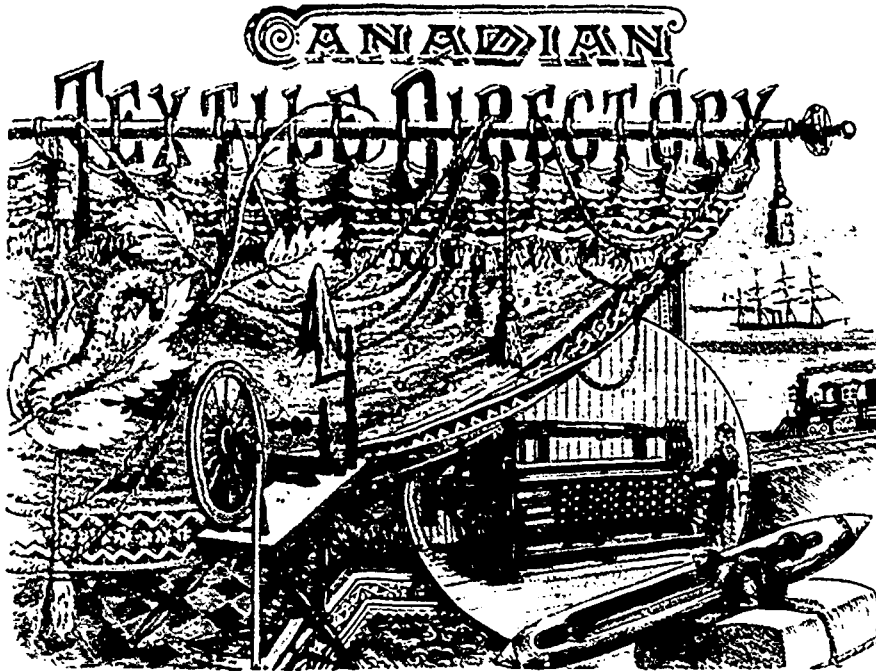
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ALL who have seen the advance sheets of the Fourth Edition of the Canadian Textile Directory say it is the best issue yet made. Over 300 pages are now printed and the balance is now going through the press as fast as possible. It is the earnest hope of the publishers to have it issued next month. The neglect of some firms to send in reports has been the cause of much trouble and delay to the publishers. The prompt response of all who have received circulars or who see this notice, is urgently requested. The Canadian Textile Directory is a cyclopædia of textile information to which everyone concerned in the business should contribute their quota. Please read the list below and see if it relates to you.

## DO NOT NEGLECT

## TO SEND YOUR REPORT FOR THE NEW "CANADIAN TEXTILE DIRECTORY"

It costs you nothing, and will be to your advantage. If you do not report, do not complain if your name and business are incorrectly given, or, possibly, omitted.

The following is the information required in the various branches of trade—

**Woolen Mills, Cotton Mills, Carpet and other Factories where Weaving is done:** Name and address of Proprietors, and names of the Officers if a joint stock company; the capacity in sets of cards, looms and spindles (in the case of knitting mills, the number of knitting machines, and whether hand or power machines); when established, whether water, steam or electric power; description of goods manufactured, whether the mill has a dye house; and names of selling agents, if any. When situated in cities, the street address is desired.

**Carding or Fulling Mills:** Name; address, capacity (number of carding machines); date established, and whether steam, water or electric power.

**Cordage and Twine, Jute and Flax Mills.** Name, address, date established, capacity in spindles, steam, water or electric power, kind of goods made and material used (whether cotton, hemp, flax, etc.), selling agents, if any.

**Sail, Tent and Awning Factories; Furniture, Upholstery, Wall Paper and Window Shade Factories; Rubber, Oil Clothing, Felt, and Miscellaneous Factories in Textile Fabrics:** Name; address; date established; steam, water or electric power; description of goods made; and selling agents, if any.

**Clothing, Glove and Mitt, Collar and Cuff, Suspender and other Factories in Men's Furnishings; Button Factories; Corset and Ladies' Wear Factories:** The same as in preceding list, adding, whether selling through agents, or to the trade direct, or whether manufacturing for custom work only, or for the wholesale or retail trade.

**Hat Factories:** Name; address; date established, steam, water or electric power; whether manufacturing Wood Felt, Fur Felt, Silk, Cloth or Straw Hats and whether selling to the wholesale or retail trade.

**Fur Manufacturers.** Name, address, kind of goods manufactured, and whether selling to the wholesale or retail trade.

**Bleachers, Dyers and Feather Dressers:** Name; address; whether Job Dyers, etc. of garments only, or feathers, etc.

**Laundries:** Name, address, and state whether a machinery or hand laundry.

**Paper and Pulp Mills:** Name; address; Officers, if a stock company; capacity, in tons per 24 hours; date established; steam, water or electric power; number and capacity of engines and cylinders; kind of paper manufactured; selling agents, if any.

**Manufacturers Agents or Commission Merchants.** Name and address, and in what branch of the Textile trade, whether Woolens, Cottons, Hats, Furs, Carpets, etc.

**Wholesale Dealers.** Name, address and line of business; specifying whether dealing in any or all of the following branches: Dry Goods, Clothing, Men's Furnishings, Tailors' Trimmings, Carpets, Upholstery Goods, Hats, Furs, Millinery and Ladies' Wear. In case you manufacture Fabrics also, state in what lines.

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For Driving Spindles.

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Will make a saving of 50 per cent. in cost of making bands, besides the superior  
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These machines are now in use by the Montreal Cotton Company.

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Revolving Flat Cards

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Correspondence solicited.

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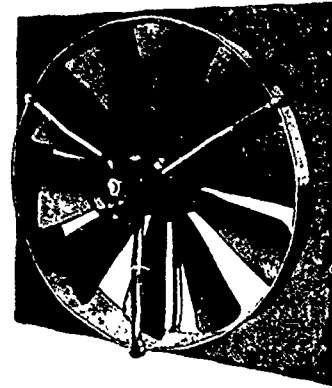
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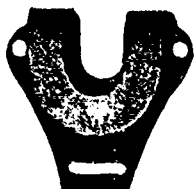
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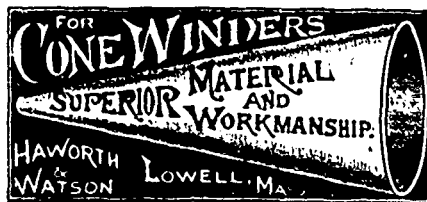
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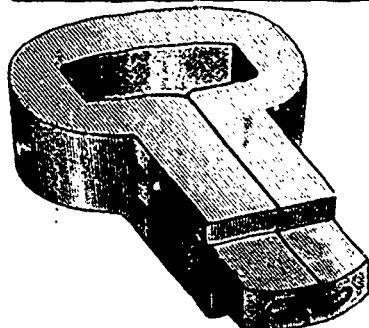


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Manufacturer of

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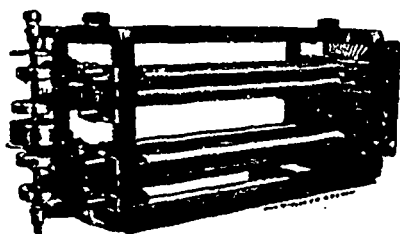
This cut represents Barlow's Pat. Bow Picker with solid interlocking foot. Pat. Feb. 26, 1889.

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**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.

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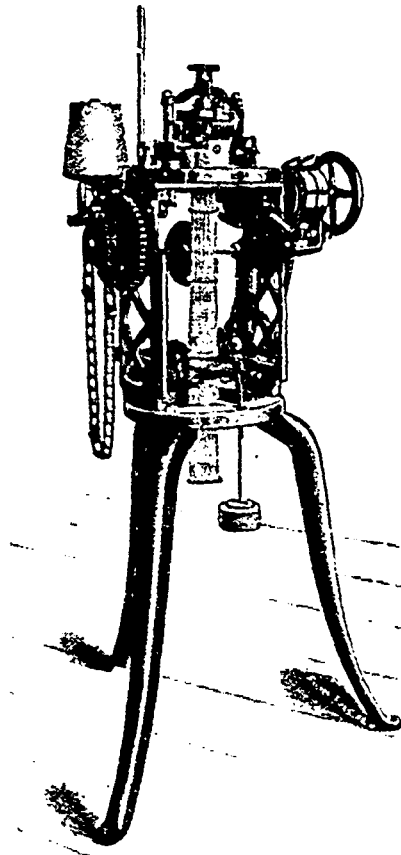
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Plain and Automatic Rib  
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Improved Automatic Rib  
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Plain and Automatic Rib  
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Improved Seamless  
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Attachment.

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—The excellent annual report on trade prepared by the London Times sums up that on the whole 1898 has been a fairly prosperous year to the textile trade of Great Britain, the fourth in succession since the improvement set in in 1894. One of the most prosperous industries has been the cotton trade. Spinning has been more active and more profitable than for many years past, and a considerable amount of new plant was put in operation. Many new mills are also being erected, probably too many. In the past a period of high profits in the Lancashire spinning trade has usually been brought to an end by excessive creation of new spindles. The weaving department has also done well, though not so well as the spinning branch of the staple trade of the County Palatine. Most minor textile trades, except the Belfast flax and linen departments, and jute in Dundee, have been fairly active and lucrative. The Dundee linen manufacturers are fairly well satisfied, and even in Belfast signs of improvement were perceptible towards the close of the year.

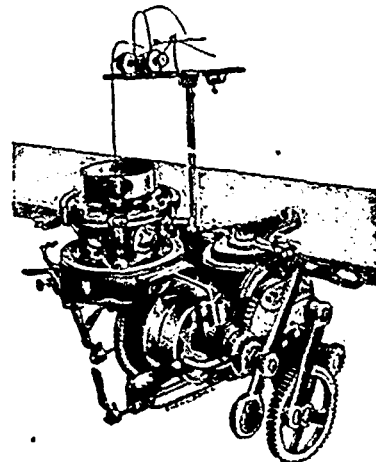
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Hand or Power, Open Top or Hold Down,  
1-2, 3-4 or

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All Sizes and all Ganges.



Went or Two-Feed Ribbers. Loopers and  
Parts. Presses and Boards. Estimates  
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Branson 3/4 Automatic Knitting Machine.

**WINDERS and BOBBINS.**

**HAND FORGED STEEL CYLINDERS.**

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Manufacturers and Dealers in all Lines of  
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Rags, Carbonizing and Neutralizing.  
Best prices paid for Wool Pickings, Woolen  
and Cotton Rags, Metals, &c. Hard Waste, &c.,  
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Paper Stock and Metals. Graded  
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**Wools, Cottons, Nolls, Yarns**  
Specialties:  
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use at greatly reduced prices. Send  
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Knitting Mills and Woolen Mills  
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Pink & White Cotton Tapes

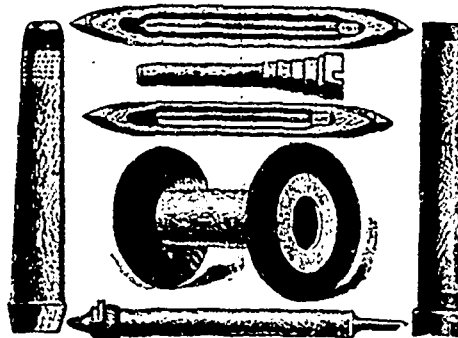
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DEALERS  
IN ALL KINDS .....  
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CORNER FRONT AND CHURCH STREETS,  
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**Lachute Shuttle and Bobbin Works**



We are the largest Shuttle  
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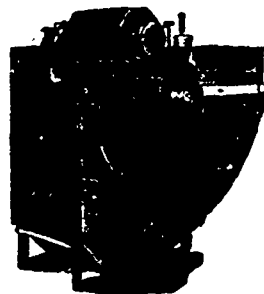
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We have always on hand  
a large stock of  
Thoroughly Seasoned  
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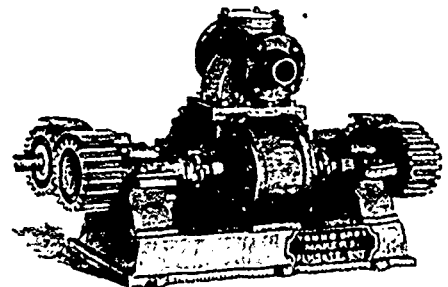
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LACHUTE, P.Q.

**MISSISSIPPI IRON WORKS**



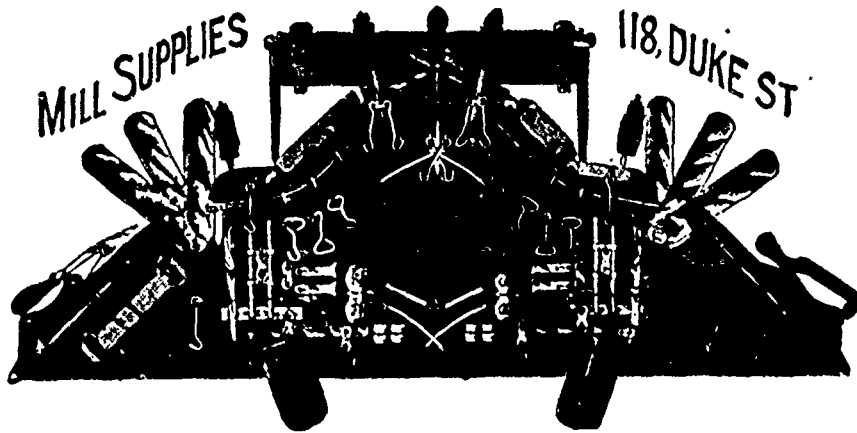
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Manufacturers of English or American Fulling Mills and Washers, Wool Pickers, Ex-  
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Shafting, Hangers, Castings, Pulleys, Gearing, Forgings.  
Full equipment of mills of every kind. **YOUNG BROS.,** Almonte, Ont.

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Cards, Mules, Looms, Pickers, etc. All kinds for sale.

## WOOLEN MILL SUPPLIES

Every description kept in stock

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Sole Agents for FRANCIS WILLEY & CO., Bradford, Eng. A large stock always on hand.

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## WOOLEN AND WORSTED YARNS

For Hosiery and other work

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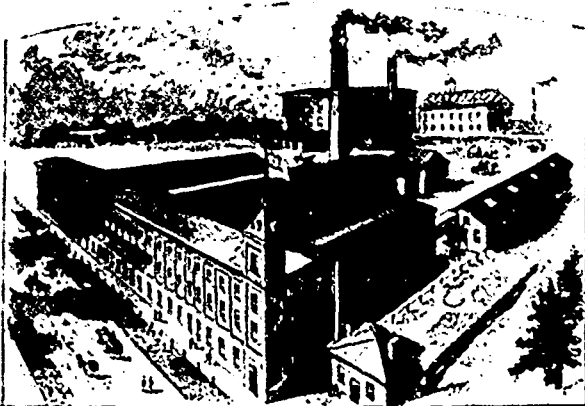
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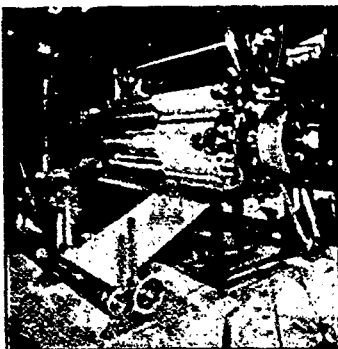
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We build

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up to 50 inches wide, to nap one or two pieces in width. The machine naps cotton or woolen goods; can either furnish folders or winding attachments, this machine is so geared that the changing of small gears changes the nap on cloth that is needed. The main shaft is 3 1/2 in. in diameter. All roller bearings are bronze and self-oiling. All Rolls are made of hydraulic piping—and every part of the machine is first-class in every respect.

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Leonard-Ball Engine, 8 1/2 x 10 cylinder, 42 h.p. indicated, nickel plated fittings.

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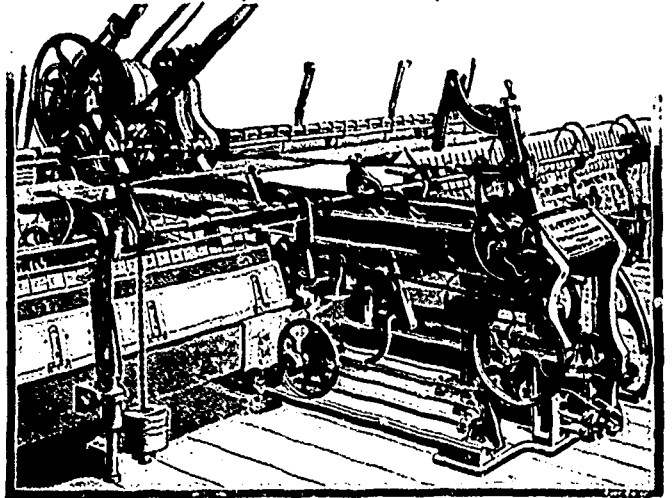
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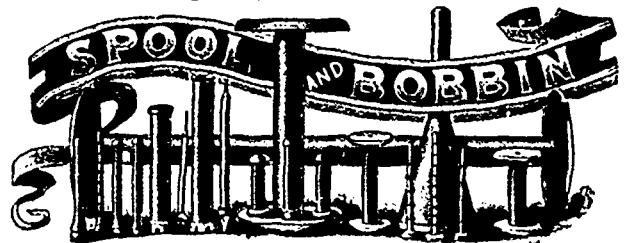
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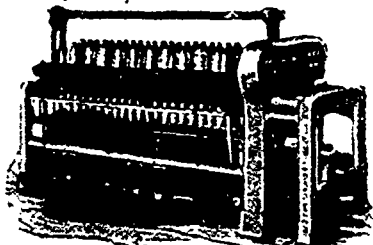
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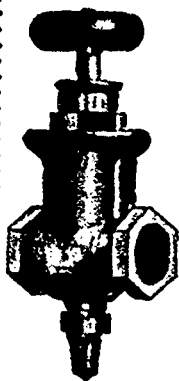
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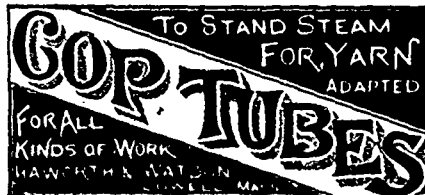
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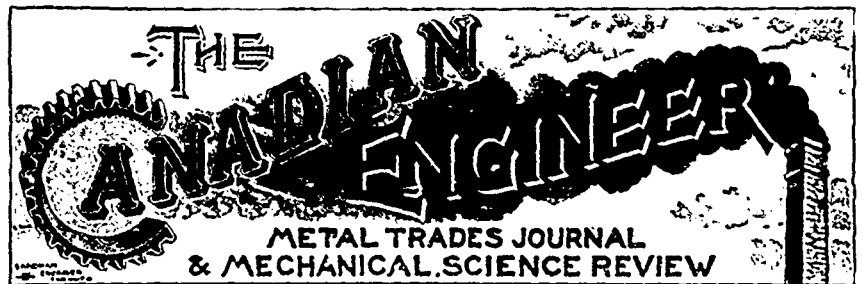
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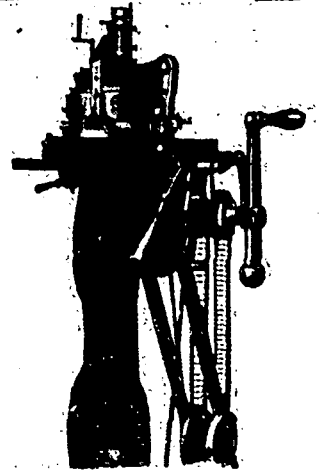
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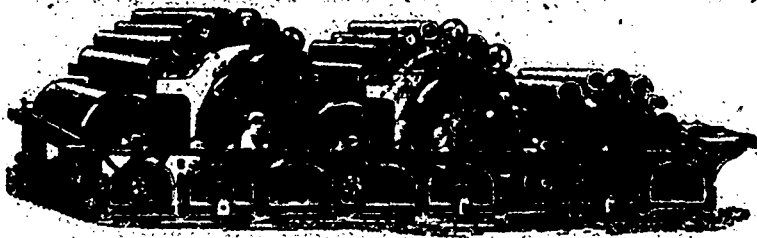
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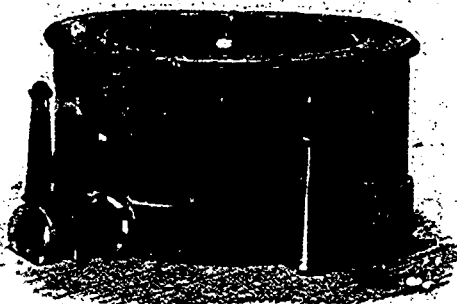
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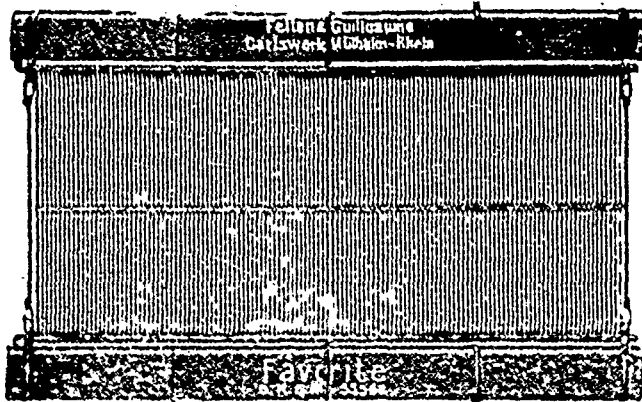
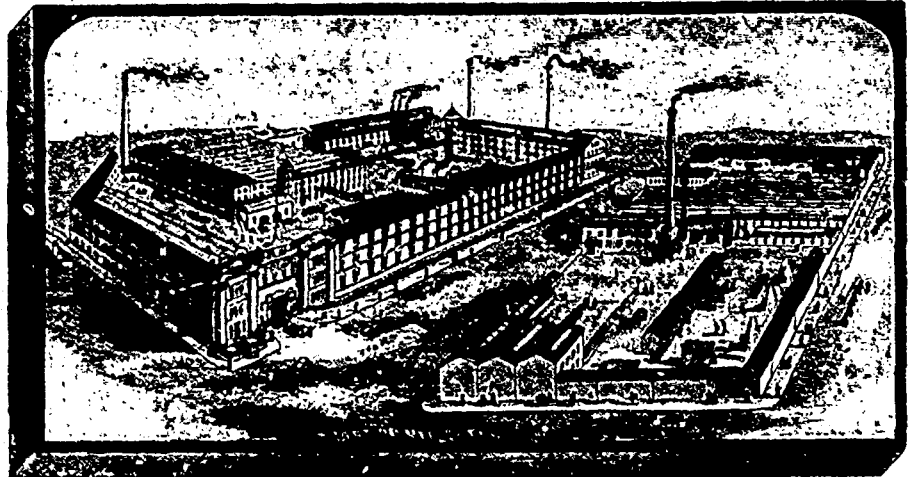
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