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CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XII.

TORONTO, NOVEMBER, 1895

No. 11

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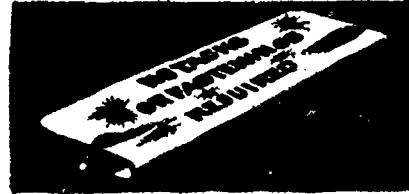
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Canadian Journal of Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XII.

TORONTO, NOVEMBER, 1895

No. 11.

Canadian Journal of Fabrics

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

Subscription: Canada and United States, \$1.00 per year; Great Britain, 5/- . Advertising rates on application.
Offices: 66 Church Street, Toronto, and the Fraser Building, St. Sacramento Street, Montreal.

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

Agency in Europe: Polson Bros., 3 Poppin's Court, Fleet St., London, Eng.
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Business correspondence should be addressed to Montreal; but cuts, news items and editorial correspondence to Toronto.

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CONTENTS OF THIS NUMBER:

	PAGE		PAGE
About Belfast	329	Indian Silk	321
American Strikes and Lockouts	326	Japanese Carpets	321
Among the Mills	320	" Cotton	323
Bleaching Wool	327	" Hats and Caps	326
Brussels and Tapestry Brussels	325	" Travelers	322
Cloaks and Clothing	328	Literary Notes	325
Combined Milling and Fulling	326	Muckle Cry, Sma' 'oo	325
Complicated Pattern in Hosiery	334	Neutralizing Calcareous Water	324
Chemicals and Dyestuffs	342	" Not Gully "	324
Cleaning Furniture	327	Personal	328
Cochineal Scarlet PS	328	Recipes for Dyers	323
Cotton vs. Linen	322	Recent Canadian Patents	322
Drapers' Homes	321	Silk Cotton Tree	324
Dye-Room Floors	326	Silk Finish on Woolen Yarn	327
Diamine Jet Black SS	329	Southern Cotton Manufacturing	326
Dyeing with Car. Acid Emulsion	342	Sweating	323
English Textile Schools	329	Tariff Changes	322
Fading of Logwood Black	325	Textile Design	324
Flannelette	321	" Tendencies	324
Foreign Textile Centres	321	Turkish Carpet Weaving	328
Flax Culture in Canada	325	Wood Matting	322
General Interest, of	341	Wool Market	326
German Wool Washing	326	" Sorting	324
In an Indian Mill	327		

Editorial.

Drapers' Home.

The Linen and Woolen Drapers' Institution of Great Britain is about to erect a number of cottages and a central administrative building, as homes for the aged and unfortunate members of the trade. The central building will be erected by the president of the institution, Jas. C. Marshall, who has already presented the site, a beautifully situated spot at Mill Hill, near Hendon. Every applicant must be—(a) A member of the Institution. (b) Females must be 55 years of age and over; males must be 60 years of age and over. (c) Able to furnish his or her own suite of rooms. (d) Nominated by a member of or subscriber to the Institution. (e) Passed by the board of directors.

Japanese Carpets.

Carpet manufacturers may look towards Japan for their next competitor. Since the close of the China-Japan war there has been a considerable importation of machinery into Japan, and the imports of coarse wool are steadily increasing. The class of wool brought in is suitable only for carpets. Now Japan has no domestic demand for woolen carpets, so it can be safely assumed that the inventive Jap will be heard from before long as a price cutter in the carpet trade.

Flannel

vs. Flannelette.

The popularity of flannelette, and the inroads it has made into the flannel manufacturer's profits, have attracted a great deal of attention in England lately. For a long time the cotton goods were sold upon the strength of their resemblance to the woolen goods; but the difference between the two fabrics was widely discussed at the time the Merchandise Marks Act was so amended as to place flannelette on a legal footing. The English flannel manufacturers can hardly claim that the rival goods are sold under false pretences, as they formerly did, but must now acknowledge that the cotton fabric has a distinct place of its own to fill. Whately, the famous London departmental store man, has recently advised the flannel men to give up the fight and weave cotton goods, but the manufacturers of Rochdale resent the advice very strongly.

Indian Silk.

All over India efforts are being made to improve the business of silk cultivation. In Madras, Cashmere, Assam and Bengal, the provincial governments are spending thousands of rupees in efforts to reduce disease among the silk worms, in improving the size and shape of cocoons, and in bettering the spinning, reeling and dyeing of the valuable fibre. A good deal of attention is being bestowed on the subject in the newly acquired Province of Burmah. The Burmese silk worm has been pronounced equal to the "chops" of Chinese silk, and all that is required to make it stand high with European manufacturers is that it should be better reeled, and done up in hanks to suit the European market. The Burmese silk worm thrives well on a plant known as the Ma-laing, out of which Burmese paper makers make the folding books peculiar to the country; and it is said that this worm also feeds ravenously on the leaves of the ramie fibre.

Cloaks and Clothes.

There seems to be promise of considerable development in the near future in an industry which is of great importance to textile manufacturers. We refer to the proposed establishment of a clothing, cloak, and mantle factory at St. John's, Que. Money is to be made in this line if our manufacturers can secure control of the trade already done by the German and British firms. There is an opening in somewhat the same field if some enterprising capitalist would follow the lead of a Chicago firm, and go into the manufacture of ordered clothing on a large scale. Local dealers, who act as agents for the manufacturer, take the measures and collect the bills; the factory does the rest. The result is ordered clothing at almost ready-made prices, and added profits for the general dealer. Of course this presupposes that the local agents qualify themselves to take measures.

Tariff Changes.

The memorandum which was prepared last June between J. G. Ward, Colonial Treasurer of New Zealand, and Sir Mackenzie Bowell and Mr. Foster, in regard to trade relations between the two countries, is now published. It provides that the following articles of interest to manufacturers of textiles, when the produce or manufacture of New Zealand, and imported direct therefrom into Canada, and when the produce and manufacture of Canada, and imported direct therefrom into New Zealand, are to be admitted in both cases free of custom duties: Wool and manufactures composed wholly or in part thereof, viz., blankets, flannels, tweeds and rugs; flax (phormitum). There are also a variety of articles, such as agricultural implements, twines of all kinds, leather, boots and shoes, furniture, etc., which will receive preferential tariff treatment. Binder twine is free.

Cotton vs. Linen.

Now that flax is becoming a more important crop in Canada, it is of interest to note the encroachment of cotton on linen which has been going on to a marked extent lately, and is being seriously considered in the linen districts of Great Britain and Ireland. There is a possibility that a number of leading manufacturers will take steps to bring into operation the Merchandise Marks Act in defence of the linen industry. All buyers are aware that the linen trade is suffering heavily on account of clever imitations. There are linenette and linena, fabrics well known by experts to be made principally of cotton, and it is said that few consumers understand the technical difference. It is chiefly in dress materials that the linen industry has suffered from cotton competition. Scarcely has an enterprising Belfast house brought out a genuine linen dress material when a cotton imitation is produced, with the result that linen is knocked on the head. It is not uncommon for cotton goods to be sent to Belfast, where the bleaching, dyeing, and finishing are done. The manipulation of the goods is so skillful that it takes the eye of an expert to distinguish the difference. After the first washing the wearer learns what is behind the finish.

Favorite terms are "Irish finished" and "pure linen finished," but the acme of dishonesty was reached in a case where it was discovered that the tab on a garment was stamped "pure linen"—not the garment.

Wood Matting.

Wood matting is a relatively recent art—for an art it certainly is; but although an infantile one it is destined to develop into quite an important industry. It is rapidly becoming a prominent export from Japan. It might not be unprofitable to experiment with a view of introducing its manufacture into Canada where the raw material is so abundant. The multiplicity of uses for which this ingeniously made material can be utilized, both technically and artistically, will commend it to favor. The simplicity of the process of making, as well as the clean and neat substance employed, is most interesting, nothing entering into this "product of the loom" except wood and coloring matter. The wood, a white fibrous variety, is planed into very thin and transparent shavings, varying in length from 2 to 10 feet and from half an inch to 3 inches wide, according to the requirements of the width of the material to be made; these again are cut into narrower strips and colored the shade desired, and while in a damp state are woven on crude looms into the most attractive material imaginable, of which wood forms both warp and woof. Much of this material is already used for floor covering, both by the yard and in large squares or rugs; also for chair cushions, and especially for wall decorations. Its softness and pliability, as well as the exquisite shades and tints in which it is produced, make it especially desirable for that purpose. The Japanese matting is all produced by manual labor. The processes are such that machinery could be used to great advantage.

Japanese Travelers.

Those who have not made a study of life in Japan will be surprised to hear that the average Japanese is a greater traveler than the average American or Canadian. His outfit for a 1,000-mile journey need only cost him 75 cts., and he can get ready in five minutes. Such is the assertion of F. Hearn in the *Atlantic Monthly*, and the writer adds: "On ten dollars he can travel for a year without work, or he can travel simply on his ability to work, or he can travel as a pilgrim. You may reply that any savage can do the same thing. Yes, but any civilized man cannot, and the Japanese has been a highly civilized man for at least a thousand years. Hence his present capacity to threaten Western manufacturers. This sort of traveling suggests tramp life to the western mind, but your Japanese tramp takes his hot bath daily, if he has the fraction of a cent to pay for it, or his cold bath if he has not. In his little bundle there are combs, toothpicks, razors, toothbrushes. He never allows himself to become unpleasant. Reaching his destination, he can transform himself into a visitor of very nice manners, and faultless though simple attire. "Ability to live without furniture, without impedimenta, with the least possible amount of neat clothing," says Mr. Hearn, "shows more than the advantage held

by this Japanese race in the struggle of life; it shows also the real character of some weaknesses in our own civilization. It forces reflection upon the useless multiplicity of our daily wants. We must have meat and bread and butter, glass windows and fire, hats, white shirts and woolen underwear, boots and shoes, trunks, bags and boxes, bedsteads, mattresses, sheets and blankets, all of which a Japanese can do without, and is really better off without. Think for a moment how important an article of Occidental attire is the single costly item of white shirts! Yet even the linen shirt, the so-called 'badge of a gentleman,' is in itself a useless garment. It gives neither warmth nor comfort. It represents in our fashions the survival of something once a luxurious class distinction, but to-day meaningless and useless as the buttons sewn on the outside of coat-sleeves."

Sweating. Interest in the recent appointment by the Dominion Government of a commissioner to inquire into the condition of labor in Canada is not confined to the clothing trades, but is felt by all friends of labor, because the betterment of the condition of one class of labor has an elevating influence on all. While we are spared in Canada much if not all of the misery which prevails among the workers in the textile and kindred trades in Europe, there are undoubtedly weak spots in our system, and the sweating which characterizes the clothing trades is one of them. The commissioner, A. W. Wright, is well qualified for his position, as he has made a study of the labor question and is a newspaper man of experience. He can be relied on to make a conscientious effort to master the problems brought before him and to state his conclusions clearly. We must not, however, let the idea run away with us that a commissioner and a report will solve the labor question. There have been both commissioners and reports before, and many of them have had no effect on labor beyond the slight stimulus to the printing trade which the publication of the report insured. There can be no doubt that sweating is carried on to some extent in Canada. At a recent meeting of the tailors' union in Ottawa it was stated that overcoats were made for one dollar each, and trousers for twenty cents a pair, by sweated labor. We are credibly informed that in Toronto boys' trousers are made for five cents a pair, and men's at two pairs for twenty-five cents. These are the rates paid in the sweat shops where the cut work is brought in in wagon loads, and where a large number of operatives are so divided into groups that each group turns out enough completed work to keep the operatives in the next group-going at their best speed to complete its portion of the process, the whole being as exactly balanced as are the different machines in a mill, and just as sharply watched by the overseer. The result is unremitting toil, beside which the ill-paid labor of the departmental stores is a summer holiday. Legislation would reach this difficulty, and rigid inspection would do much for the health and comfort of the operatives, but much more benefit is to be expected from an aroused

and healthy public opinion than from Government interference. The most serious abuse in the trade, however, and one which seems to be quite beyond the reach of legislation, is the hardships suffered by the women who do piecework in their homes, as they are unable to go to the shops, owing to family cares. They are paid at the same rate as the women who work in the shops, and as they are unable to accomplish anything like the same amount of work as their competitors, they are in a wretched position. It will be greatly to the advantage of labor if the present centralizing movement which is noticeable in the clothing trades continues, and the large clothing factories, with their numerous and ingenious machines, drive the sweat shops out of business. The operatives in the large establishments have easier work in running machines than have those who are themselves used as machines by an employer whose capital does not permit him to put in the plant necessary to his business, and so endeavors to meet machine competition by sweating his employes. Something might be said on the wisdom of the action of the Federal Government in moving in a matter which seems to be more properly within the jurisdiction of the provinces, but uniform legislation for the whole Dominion is by many deemed desirable on labor questions, and if any practicable scheme is brought forward as a result of the commissioner's labors, no complaint can be made.

Japanese Cottons.

We publish several items of news this month bearing upon the textile industries of Japan, but the interest felt in the subject throughout Europe and America sufficiently justifies the prominence which has been accorded to it lately in all textile journals. The first Japanese cotton mill was erected in 1863 with 5,456 spindles. In 1883 there were 16 mills, with 43,700 spindles; in 1894, 46 mills, with 505,419 spindles. There have been seven new mills, with 160,000 spindles already added this year, and several more are nearing completion, which will bring the number of spindles up to 711,000 before January 1st, 1896. The 40 mills in the city of Osaka in 1894 paid an average dividend of 16 per cent. The highest was 28 per cent., and the lowest was 8 per cent. The Japanese cotton mills pay 13 sen and 20 sen a day for male labor, and 8 to 10 sen for women. In the United States the same labor receives \$1.50 for men and 75 cents and \$1 for women. But one class is paid in silver; the other in gold. From a Japanese standpoint the Americans pay \$3 and \$4 for men and \$1.50 and \$2 for women. From the American standpoint the Japanese pay 9 and 10 cents for men and 4 and 5 cents for women. However one looks at it, the difference is very wide, but the fabrics they produce sell for the same price the world over. Therefore, while the outlay of one has doubled, that of the other has diminished one-half. That the cotton trade of this country and Europe will suffer serious injury from Japanese competition is certain; the question of the hour is how great the injury is going to be and what steps can be taken to

mitigate it? The foreign trade seems to be destined to pass into the hands of Japan. On this continent we can keep our home market to ourselves by means of our tariffs as long as we wish, but England is in a different position, and if English manufacturers cannot adapt themselves to changed conditions, which does not seem altogether impossible, their trade must disappear.

"Not Guilty," The present quiet condition of the rubber goods trade in Canada cannot be wholly attributed to the dry autumn, though that has, of course, something to do with the feeble demand for waterproof garments. When the manufacture of these goods was first undertaken in Canada there were very few competitors for the Canadian trade. A garment that cost from the factory, say, \$2.75, was sold at wholesale for \$3.50 and retailed from \$4 to \$5, thus affording a very fair profit to all concerned. The trade, however, was slow in taking up the home product, though it was quite equal to the imported goods. It was not till they were compelled to do so by a higher tariff (25 per cent. *ad valorem* and 10 cents a lb.) that the wholesale dealers supported the Canadian manufactures in anything like the way they should have done. One result of the increased duties was the entry of a new capital into the business and the establishment of two other factories. It was here that the stupidity of the wholesale traders came in, for they took advantage of the crowded condition of the trade (in proportion to the size of the market) and played one producer against another till anything like a fair price could no longer be obtained. So far it was all right, from the dealer's standpoint, but the reduction in price was not the only result of this unfair way of doing business. Such a reduction (from \$2.50 at the factory to \$1.50) could only be made by lowering the quality of the goods, because raw materials had not become cheaper, but had in some lines advanced. The reduction in quality cut down the demand, and helped to introduce a number of substitutes, so that now the dealers in their turn are suffering from the falling off in business, because the public refuse to take up the grade of goods now generally offered. The traders now complain of the quality of the goods for which they are themselves solely to blame, and roundly assert that first-class goods cannot be manufactured in Canada, while all the time the manufacturers are prepared to supply them with the best goods if they would pay a decent price for them. We wish by recital of these facts to emphasize the utter unfairness of the wholesale dealer's position towards the manufacturers. After doing his best to bring down prices until they are so low that there is no money in the trade either for the manufacturer himself or his customers, he turns round and makes use of the situation to decry Canadian goods and manufacturers, pretending that a really good article can only be had abroad. Could there be anything more unfortunate or more unfair? The history of the rubber goods trade is the same as that of the woolen trade. In both, the manufacturers have been driven into the production of inferior goods, by the trade insisting on cheap goods or nothing.

The truth of our frequent contention, that Canadian manufacturers can produce goods of the highest class, is clearly shown by the fact that Canadian-made rubber garments are being sent abroad and sold in competition with the world, at prices which exclude them altogether from the home market as it is constituted at present. The goods are all right, and the foreign dealer knows enough to buy a good article, even if he has to pay a good price for it, for in that way he renders his trade secure.

Textile Tendencies.

Cotton Markets.

The recent high prices of raw cotton have not been due to any of the many causes, shortage, etc., which have been so strongly brought forward for some months past in the bull interest. The facts of the crop did not warrant the heavy advances which were largely due to the efforts of certain New Orleans speculators to corner the market, and a reaction has taken place. A month ago middling cotton in New York was 9 $\frac{3}{4}$ c., as compared with 6c. at same date in '94, and 8 $\frac{1}{4}$ c. in '93. The price has now receded to 8 $\frac{1}{2}$. It may be expected that no further advance will take place. The English manufacturers are well stocked up, as they bought very heavily in the earlier stages of the game, taking up 8,000,000 bales. Prices in manufactured goods have been advanced in many lines during the month, but values now seem stationary, and the trade seems agreed that further rises are unlikely till the British manufacturers have worked up their present stock.

Woolen Market

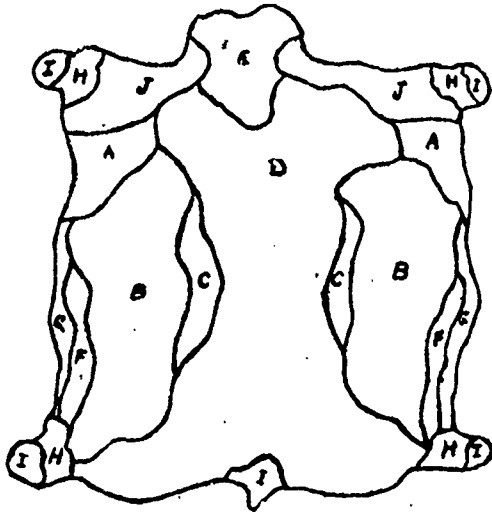
The woolen goods market is now beginning to feel the effect of the cooler weather which has been so long delayed this year, and whose absence has been so much deplored by the trade. There have been advances in a number of lines, and they have been accepted by the retailers, who have been prepared for some time for higher prices owing to the advances in raw materials. However, the manufacturers are not yet getting prices which correspond with these advances; nothing under 20 per cent. on old prices will be sufficient, and the trade must be prepared for further adjustment of values whenever the manufacturers come into the market to stock up.

WOOL SORTING.

Fourteen distinct grades of wool are produced in a single sheep's fleece, each of which must necessarily be separated from the other previous to its introduction into a textile fabric. The long and short locks are separated and the fine and coarse. This sorting is the primary department of the business, and skillful treatment and good judgment are essential, for mistakes made at this stage would result in uneven and varying threads, which, when made into cloth, would be unsatisfactory in many ways. A fine soft lustrous quality of wool produces a good lustrous and acceptable article,

and coarse, brittle, inferior staples produce directly opposite results.

Wool is taken into the sorting room, each fleece tied up by itself. They are opened out by the sorters and each lock assigned to its proper grade. The operation is a delicate one, requiring a high degree of skill and practice, as the sorter has to rely chiefly on his sense of touch in judging the grade of each lock.



The diagram is given to illustrate the localities of the various qualities of wool, which will be readily comprehended by the practised eye of the skillful wool sorter. The ten principal grades are specified in it, but the remaining two or three, being seldom recognized, it is not necessary to treat of them here. A. Picklock, is exceedingly fine, soft wool, procured from the shoulders of the fleece. It is noted for its evenness of quality and possesses all the necessary qualifications for a number one grade. B. Prime, resembles picklock in many respects, but lacks the soft, delicate feeling possessed by the former. It is, however, a choice and valuable portion of the fleece. C. Choice, is a good, strong, elastic stapled wool, lacking only in a small degree the excellent qualities of the two former grades. Its fibre, however, is slightly coarser. D. Super, is comparatively shorter in staple than either of the foregoing grades, and is inferior in strength and elasticity. E. Head, is the technical name of the wool taken from this portion of the fleece. It is generally considered an inferior staple, possessing only in a modified form the qualities of a good wool. F.G. Downrights, are short and tender, and contain portions of vegetable substance. J. Seconds, are obtained from the breast and neck. The staple is coarse, stiff and hairy, possesses an abundance of burrs, and particles of straw are usually intermingled with it. I. Breach. H. Shanks and Abb, are all coarse, short, dirty locks clipped from the vicinity of the legs, where the constant exposure to bushes and weeds, while on the sheep, renders them unfit for general use unless subjected to the patent "burr killing" process, which removes the usually large accumulation of burrs, pieces of straw and similar foreign substances.

When wool comes from the tan-yard, having been

removed from the sheep skins by the arsenication process, it appears at the factory in very different shape. This is pulled wool, having been pulled from the fleeces, and is delivered to the manufacturer in bales, and as it has been mixed at the tannery no attempt at sorting can be made. Consequently it is taken direct to the wool-scouring machine, where it is washed and introduced into cloth without any further preparation so far as sorting is concerned. Fabrics composed of this wool are frequently diminished in their market value by the strong odor which they sometimes emit, and which originates in the tan-yard chemicals. Numberless attempts have been made to obviate this difficulty, both by mechanical and chemical means, but the taint stubbornly resists every effort to remove it, and thus pulled, or tan-yard wool, is disqualified as a good, first-class clothing wool.

MUCKLE CRY, SMA' 'OO.

It is a recognized principle in the patent medicine trade that an article should be sold for some thousands per cent. advance on the cost of manufacture in order to allow for a comfortable profit, and afford the necessary margin for advertising. As some one has said—"There's nothing in the bottle, it's all in the label and the directions." We have recently had a fine example of this system operating in an entirely new sphere, viz., the dry goods trade. An interlining material was brought out by a gifted American advertising firm with all the pomp and circumstance of display type and full-page testimonials that usually usher in a universal cure of the patent medicine class. Its arrival was opportune. Ladies' garments in both skirts and sleeves were being enlarged and given a flaring cut which only a stiff interlining could satisfactorily sustain. Hair-cloth and kindred fabrics of linen and other fibres advanced rapidly in price, and the law of substitution demanded that other and cheaper materials be brought forward. Among others "Fibre Chamois" appeared and was immediately followed by a host of other claimants for popular favor, which were imitations in name but almost identical in substance (sulphide pulp, as it comes from the paper mill), whose proprietors were eager to share in the enormous profits of the new lining. Prosecutions for infringement of patent right in the name of the goods were only so much more advertising, especially when *fac-similes* of writs and processes occupied whole pages in leading journals at enormous expense. The boom went on.

At present the claim is being put forward that Fibre Chamois is the ideal interlining for everything. It formerly lent stiffness and style to a cast-iron cut of garment; it now gives grace and pliability to less rigid outlines. Bicycle riders should line their coats with it because it is light, cool, and waterproof; and ladies their cloaks, because it is warm and comfortable. If the truth must be told, it is best adapted for one purpose, viz., to line the purses of its proprietors. In reality the boom is almost over, and as the material is be-

ing driven from the dressmakers' shelves it is trying to find a place for itself on the tailors' cutting-board. It may be taken for granted, however, that the resting place it will really find is a dusty corner in a patent office drawer, along with many another forgotten fad.

This rush of vegetable fibres and pulp to the front as a substitute for the recognized textiles is not a new thing. The history of the trade is marked by many fabric failures, and in pointing out the fact that a number of widely-advertised materials are likely to add another chapter to the tale, we wish only to show the advantages of a staid and sober statement of business matters, and the desirability of being to a certain extent conservative in the reception of novelties.

GERMAN WOOL WASHING.

In Germany a great deal of the wool is washed on the sheep's backs before shearing. When this is done, the wool loses from 20 to 70 per cent. of its weight. When the shearing is done in the dirty condition, the wool grower is independent of the conditions of temperature and weather, which often produce serious consequences when the sheep are washed. A method of wool washing which is coming largely into use in Germany, is that by means of water glass (silicate of soda). It is rapidly taking the place of the old method by entering the dirty wool in a large receptacle containing water rendered slightly alkaline. This fluid is either a mixture of soft water and urine, or a solution of white curd soap in soft water, or a diluted solution of soda ash. The scoured wool is withdrawn, and entered in a second receptacle with clear water, in which it is rinsed until the wash water escapes clear. After the wool has been washed, it must be whizzed and then dried in a place shaded from the sunlight, which has a tendency to turn the material yellow.

In the water-glass process care must be taken not to have the temperature either of the water or of the water-glass higher than that of the soap and soda bath. When washing in the "Leviathan," add water-glass only, but no soda or soap to the first bath in which the wool is steeped. Into the second bath put one-half soda and one-half water-glass. It is advisable to previously squeeze out the liquor before the wool is treated cold in the washing machine, because by keeping this wash-liquid warm it can be used twice as long as soda or soap liquor. Wool washed with water-glass always appears whiter and more open than with the ordinary process. It is also softer to feel when it is squeezed out well before being washed cold. In this condition it is much cleaner, can be more quickly and better dyed, and becomes much whiter when sulphured. The same is also true for woollen yarn that is to be scoured. It is simply necessary to move the hank to and fro in the hot water-glass solution—if the wool was treated with a mixture of Caragheen moss solution, some soda must be added to the water-glass—and to turn the hank on the stick. Then move it on the stick up and down in the hot solution; squeeze or wring it out, and after-

wards rinse in cold water. The operator will not only obtain a yarn of a remarkably handsome appearance, but he will also have it washed much cleaner than by using soda, soap, ammonia, etc.

This is another method popular among the Germans. The assorted wool is steeped in a receptacle provided with two compartments. When one portion of the wool has been steeped sufficiently, three hours being ordinarily required, it is placed in the washing machine and passed through two compartments filled with water of a successively higher temperature, until the cleansed and scoured wool reaches another receptacle filled with cold water, in which it is rinsed. When rinsed clean, the wool is caught up by an apparatus raising it from the water, and it is passed between two rollers, which squeeze out the water. It is then caught in a tender, whizzed in a hydro-extractor, and finally dried in a strongly-heated and well-ventilated chamber. The dirty, heavy raw wool is by this operation transformed in a comparatively short time into a white, well-dried staple, and perfectly clean. The water is collected in large reservoirs for recovering the yolk and fatty matter, in the same manner as that from the fulling mill. Besides the above-described methods, wool is sometimes scoured in two other ways, namely: 1. By extraction with some solvent, such as sulphuretted hydrogen, benzine, ether, etc., by which the wool yolk is obtained direct from the wool, and (2) by lixiviation, in order to convert the recovered material into potash.

SOUTHERN COTTON MANUFACTURING.

Some little time ago, whenever Southern cotton manufacturing was mentioned as a possible rival to the Eastern States, much was said of the established position of the industry, amounting almost to monopoly. Now, however, the subject must be approached from another side, and admitting the enormous development of the industry in the South, and the certainty of that development continuing, the question for discussion becomes one of ways and means for the maintenance of Northern manufactures in anything like their present position as producers of the larger share of the cotton manufactures in America. Much is expected from established trade tendencies, and very much more from improved machinery and processes, together with cheapened transportation.

The increase in production is not all south of Mason and Dixon's line, however, for new mills are being erected and old ones re-opened all over the north. The progress of the south is matched by the progress of the north, and it is evident the northern mills are going to make up for the loss of a certain portion of the coarse goods market by going extensively into the production of fine goods and of wares not formerly manufactured in America at all. Where a new mill has been organized it is for fine work, and where an old mill is being reorganized it is with the intention of making finer cotton goods. The south is also making an advance in making finer grades

of goods, and will soon have many cotton mills spinning fairly fine counts. Yet they will not compete with the north to any great extent, for while the southern mills have been making an advance in manufacturing fine goods, the north has been making still greater advances in the same line. Some have predicted that the southern mills, as they commence to spin fine yarns, will be sharp competitors with the north, but the fact is lost sight of that while they are progressing rapidly in that line, the north has been more than keeping pace in the same direction.

If, however, both classes of mills were running on the same lines of goods, or nearly so, as may be the case if many more northern manufacturers move south, taking with them the experience necessary to place their new mills on the same footing as the northern ones, there are some features of the trade which favor the southern manufacturer. This is apparent if the positions of the two classes of mills are compared with respect to (1) Cost of raw material; (2) Cost of mills and machinery; (3) Cost of power; (4) Cost of labor; (5) Cost of reaching the consumer. In the first-named element, cost of raw material, the south has a distinct advantage over the north competing for the same trade; the cotton is at the mill doors. In the second element, "cost of mills and machinery," the southern mill should be built and equipped at about the same cost as the northern mill, for while the transportation of the machinery would be more, the mill itself, through cheaper labor, would cost less to build. The price of land is also in favor of the southern mill. In this connection may also be mentioned the lighter taxes, in many instances the mills in the south being entirely exempt from taxes for several years, many of them being built away from any town or village for this purpose. Coming to "cost of power," we find some advantage on the side of the southern producer. Water power is chiefly employed, coal is cheaper, and in addition to this very little is required for heating purposes, which is a heavy item in a New England mill. The most serious element is "cost of labor," and here there is an undoubted advantage in favor of the southern competitor. Wages are materially lower in the south than in the north, and the hours worked are longer. This is a double advantage. In the cost of reaching the consumer the conditions are somewhat more in favor of the northern producer at present. The greatest market lies not in the south, but in the north, where population is denser. Facilities for transport are greater and freight rates not so exorbitant. This superiority will disappear before long, as it is caused by conditions which will cure themselves, because increased business means lower freights and increased population.

The whole question must be approached, however, in a cautious mood. Some of the new undertakings which we see announced never get further than the announcement, some are abandoned after running only a short time; and as in everything else only the best survive. There is always a place for the best, and whether north or south anything else cannot succeed.

BLEACHING WOOL.

M. Hofmann, of Dresden, gives an interesting article on the process he employs for producing a pure white on wool. It is well known that it is impossible, even by the aid of the most active bleaching agents, to remove from the wool a faint shade of yellow, which becomes specially noticeable when the material is contrasted with silk or cotton.

The neutralization of this yellow by a complementary blue, such as is used for cotton, linen, paper, etc., only gives poor and unsatisfactory results. Attempts have long been made to give wool a better white by means of white topping substances, such as magnesium carbonate. This method has had, however, to be given up on account of the dust formed after a short period of storage.

The author proposes to obtain a better result by vegetalizing the wool—that is to say, by impregnating it with a solution of cuprous oxide in ammonia, and then passing the fibre into a solution of sugar or dilute acid, which precipitates the cellulose in an insoluble form, and thus fixes it. To render the gelatinous cellulose thus deposited opaque and white, the material is dipped into ether.

The same result is obtained by F. V. Hallah, by the use of hyposulphite (the old hydrosulphite) of soda and indigo. The effect produced is of two kinds: the hyposulphite produces decolorization by its energetic reducing action, and by dissolving the indigo mechanically deposited on the surface of the tissue, causes the coloring matter to penetrate uniformly into the fibre. The blue color is restored to the indigo by a subsequent exposure to the air, and being complementary to the yellow of the wool, completely destroys it. It is very doubtful whether, even under these conditions, a perfect equilibrium is attained between the yellow shade which is to be removed and the blue of the indigo. We have already observed that the numerous attempts previously made in this direction with various coloring matters have resulted in failure. However this may be, the method, as given by the *Deutsche Farb. Zeit.*, is as follows:—

The hyposulphite solution should be prepared immediately before use. For this purpose, seven parts of zinc dust, or 20 to 30 parts of granulated or sheet zinc, are digested with a concentrated solution of bisulphite of sodium, representing about 100 parts of the dry salt. The operation is carried on in a well-closed vessel, which must be shaken up at intervals during an hour. The clear liquid is decanted, and contains hyposulphite of sodium, together with some of the zinc salt.

The woollen material, carefully purified, washed, and freed from fat, etc., is thoroughly moistened in a bath of cold water, in which indigo is suspended in a very fine state of division. The best quality for the purpose is that which gives bright blues of a reddish shade in the vat process. The material emerges from the bath covered over with particles of indigo deposited on the surface.

It is then passed into the bleaching solution, which is composed of water and hyposulphite solution at 1°—4° Baume. Just before passing in the material a quantity of acetic acid equivalent to the hyposulphite present is added. It is essential that the stuff be properly manipulated, so that the reduction of the indigo proceeds with perfect regularity.

DYE-ROOM FLOORS.

The construction of the dye-room in most mills seems to have been an afterthought—it is stuck on or in anywhere so long as there is a chance to drain the kettles. The matter is one that requires much more careful study than is generally given it. It is not only the comfort of the dye-house operatives that is to be considered, but the fact that much time is lost in a faultily constructed dye house which might be saved to the profit of the owners. Conditions which are bad enough in a more southern climate are almost unendurable in Canada. For half the day at least in winter the floor is frozen up, and all day the steam makes everything invisible; all this can be remedied, and one of the easiest places to begin is at the floor. The different flooring materials in use are planks, wooden blocks, bricks, stone slabs and the different preparations used in street and foot-walk paving, as asphaltum, etc.—the latter being so rarely employed as to be almost out of the discussion.

In some mills there may be seen such a foolish thing as a floor made of a single thickness of board; but the dyeing-floor found all over the country, with few exceptions, is one of unplanned planks of pine, spruce, hemlock, etc., 1½ in. to 3 in. in thickness, and of varying widths. This is commonly flat, without the least slope to carry away the moisture. Very often the tail race runs under the dyer's quarters, or his room is built over the river with loose-fitting planks to let the water pass through. There is drainage enough there, of course, and if this class of dye-houses were confined to the Southern States, it would not be so bad. In other cases there is no basement or drain to speak of. The baths run off across the floor, through a plug hole in the kettles; so do the soap suds and all the rubbish of the room; and a man has to wear rubbers and risk a fall all the year round. If all this were amended by providing a suitable drain in a convenient position, and giving the floor a gentle inclination towards it, the planks might be kept dry in some degree, and would last a great deal longer. Wooden floors are probably chosen on account of their being cheap and readily obtainable, but they have corresponding disadvantages. The continual passage of shoes and dye-room wagons wears down and crunches off the woody fibre, which mixes with the stock, and is responsible for a considerable proportion of specks in the finished output of woolen manufactories. The planks also get warped by alternations of heat and cold, of dryness and moisture. Again, every now and then some heavily-loaded cart, say of wet cotton, rolling across a weak plank in a wooden

floor, goes through and occasions unnecessary delay. Before shaking down raw stock upon a plank floor, wash it with a few pails of warm water, which should be either cleared off with rubber, or dried lightly with a good broom. This will remove the slivers and prevent specks. When sweeping up after the wool is again removed, use the broom lightly once more, and not more than is necessary. If there be unwillingness to take such pains, then the sweepings had better be taken by themselves and carbonized before they are used with the regular stock in the goods.

Some have tried a floor of wooden blocks, in favor of which much may be said. It is nearly noiseless, easy to wheel carts upon and to walk on. It is hard, strong, very durable, and cleanly. Given a good bottom, blocks of Georgia pine or other suitable wood, set on end upon cement and laid tightly together, make a good floor, easy to keep clean, and easy to repair. Where bricks have been tried for flooring and found defective, it has usually been due to the fact that they were improperly laid. Where bricks are laid in sand upon a shovelled earth bottom, as has been done often, there can be very little hope that the result will be anything but a failure. If brick floors possess sufficient advantages to admit of their use at all, surely they ought to be put together more rationally. Those bricks which are finest and hardest and roughest in texture should be used. A solid, graded bottom should be secured, and the bricks bedded in cement, filling up every seam and chink with cement, and levelling them as the work goes on. The same defects in construction have marked the use of stone slabs. If they are well set on good foundation, with sufficient slope, they give an excellent floor. The whole question, however, revolves round the central point of drainage. It should be considered very carefully in all cases. No matter what kind the floor, if it is well drained, the other evils will take care of themselves to a greater or lesser extent, but the idea must be avoided that a hole in the floor is all that is necessary; there must be sufficient slope, and in the Canadian climate it is also necessary that no cold, outside air be introduced by means of the openings.

WHAT Japan may be expected to do when she undertakes to supply her local demand for any article, may be seen from the decrease in the import of hats and caps in the past five years. In 1890 the value was £54,000; in 1891, £66,000; in 1892, £46,000; and in 1893, £45,678, and from these values it has fallen to £7,039 in 1894. The making of these articles is steadily progressing in Japan, and as considerable skill has already been acquired in it, it may be expected that they will soon disappear altogether from the list of imports, although their use is at the same time even more steadily increasing.

EVERY new machine that comes out is not all that is claimed for it by enthusiastic friends, nor are the long-felt wants which the new comers are alleged to fill always of the most pressing description. But the operations of milling and pulling as they are now carried out necessitate separate handling and treatment. A new machine is being brought out by a Huddersfield firm (Messrs. Sykes & Sons) that promises to combine both operations and at the same time improve the process. The saving in labor is, of course, to be considered.

ENGLISH TEXTILE SCHOOLS.

HISTORY OF THE MOVEMENTS IN THEIR BEHALF DURING RECENT YEARS.

As against our national indifference respecting textile schools, there is to be contrasted the wise and vigorous policy of England, that has its rise and seat in the national administration, and permeates the school governing boards of all the towns and cities located in manufacturing districts. But it is not the Government alone that has taken up the matter of technical education, but the local authorities, the great trades unions and guilds, and the manufacturers are actively interested, and do not hesitate to expend very large sums of money to secure school buildings and endowments, and to defray current expenses.

While technical schools, established and conducted for the simple purpose of teaching the young some mechanical trade by which they can gain livelihoods, have been in operation in England for many years, the present elaborate system of subsidized schools was not begun until about 1890. Parliament passed what is known as the Technical Institution Act in 1889, and passed a supplementary Act in 1890, creating the Exchequer Contribution Fund by setting apart a large share of the Government income from the excise tax, and authorizing town, county and city councils to impose a small tax, or appropriate revenues already provided for the institution and support of technical schools.

ACTION OF THE LONDON GUILDS

This action by Government was at once seconded by some of the great guilds, particularly the London companies, which recognized the validity of the demand for technical schools even before the Government moved in the matter, and induced the city corporation to co-operate in founding the city and guilds of London Institute. This great school may, indeed, almost be said to be the central power in Great Britain in technical education. It has a central school of technology in London, a practical technical college in a separate building and different part of the city, a school of applied art in yet another location, and it subsidizes classes in technical and other schools in all parts of the country. The Government has established, in connection with the great South Kensington museums, schools of science and art, and gives aid to schools and departments of schools that teach the industrial application of principles of science and art.

Most of the great manufacturing towns in England have taken quick advantage of the Government aid, and have established great technical schools. Birmingham is building a central building that will be open this year, and is in the meantime actively engaged in perfecting a system in temporary quarters. In Glasgow the town council, the university, the engineers and ship builders, the Trades' House, the Merchants' House, and other representative bodies, have all joined with the Government to establish "The Glasgow and West of Scotland Technical College," and the evening classes alone have an attendance of 3,000 young men, mostly working mechanics or apprentices. Manchester expends \$100,000 a year in the conduct of its municipal technical schools. It has a great spinning and weaving school, a school of art and design, and schools for mechanical arts, engineering, and other practical trades. The instruction is all intended to abet in every possible manner the maintenance of Manchester's supremacy in textile industries. Nottingham took a lesson from Chemnitz, which was stealing its particular textile trade away, and getting it because its municipal textile schools were providing more expert workmen.

England is to-day reeking, so to speak, with these technical schools—not an important manufacturing centre, but has them now, or is getting them as fast as possible. Their rapid growth is remarkable, and the unstinting liberality with which they are established and supported is a wonderful illustration of the Englishman's readiness to spend his money to protect his interests.

These technical schools in England are not exactly what we, in America, understand by technical schools. They are maintained, especially to train workers in the great English industries, and not to educate professional scientific men. In Manchester the schools have attained their greatest perfection, perhaps, excepting only

London, and the Manchester system is modelled upon a report made by a committee that visited Germany and Switzerland in 1890. This report declares that:

"The principal object of the municipal technical school is to provide instruction in the principles of those sciences which bear directly or indirectly upon our trades and industries, and to show, by experimental work, how these principles may be applied to their advancement.

"The aim of the school is distinct from that of the university colleges, inasmuch as it is designed to teach science solely with a view to its industrial and commercial applications, and not for the purpose of educating professional scientific men. It, however, offers to students of the university colleges the opportunity of technical instruction in the industrial application of certain branches of science."

Thus it will be seen that the object of technical schools in England is exceedingly simple—to promote the trade supremacy of England. We in America—or who are not intimately acquainted with the crying need of just such a policy in America—look askance at a proposition that involves expense. Not only would such a governmental policy as England has adopted be impossible, but there is not in this country such a united support of the common cause by the manufacturers as could be relied upon to provide the moral and financial support so lavishly given in England.

England went to Germany to learn the value of trade schools, we must go to England for the same purpose.—*American Wool Reporter.*

DIAMINE JET BLACK SS.

W. J. Matheson & Co., Ltd., Montreal and New York, have sent out some very fine samples of the above dye Diamine Jet Black SS is a new mark of Diamine Jet Black which in light shades is of greener appearance and in deep ones of a more intense black than their Diamine Jet Black OO.

A method of dyeing cotton a beautiful deep black of good fastness to washing and acids and of a remarkable fastness to light, is obtained with 5 per cent. Diamine Jet Black SS dyed boiling, with the addition of 15 per cent. Glaubers salt and 5 per cent. soda. They further say of this: "By treating dyeings thus produced for 15 minutes in a fresh bath containing 4 per cent. bichromate of potassium, a very good fastness to milling is obtained. By this method of fixing the shade of Diamine Jet Black SS is only very slightly altered, while it reddens the shade of Diamine Jet Black OO, for which mark we first recommended this method. The shade can be easily corrected by the addition of a small quantity of Diamine Fast Yellow B. This method of chroming will be found especially valuable in cases where fastness to milling, light and acids is required, principally for loose cotton and for yarns which are to be milled.

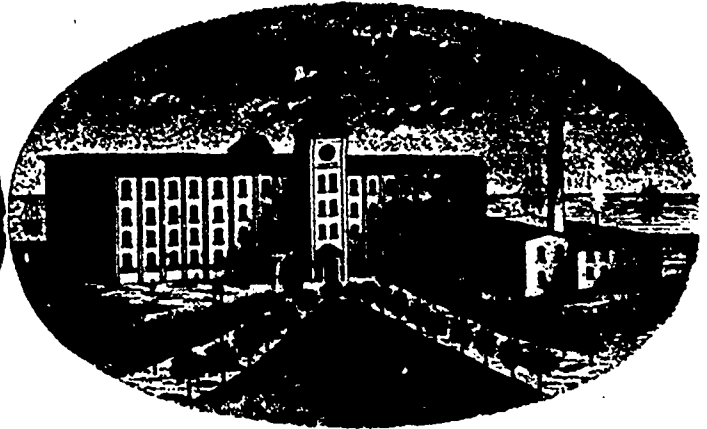
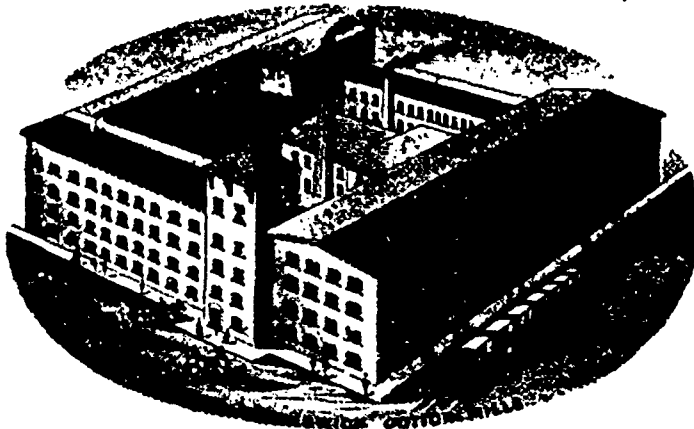
"Diamine Jet Black SS shows on linen and jute the same good properties as on cotton.

"Diamine Jet Black SS is of much importance for Unions, owing to its beautiful shade and excellent fastness to light. For this material we recommend to dye with the addition of 3¼ ozs Glaubers salt and ¼ oz. borax, per gallon of water, at the 1-oil for half hour, and to let cool off in the same bath for another half hour. For Italian cloth and in general for all goods where the cotton is to have a very deep shade, it is better to use our Union Black S, a new product, which is closely related chemically to Diamine Jet Black SS.

"For cotton and silk mixed goods, the Diamine Jet Black SS dyes the cotton in a single bath with 5 per cent soap and 10 to 15 per cent. Glaubers salt, a jet black, while the silk remains lighter and can be shaded at will in a subsequent acid bath. The great importance of Diamine Jet Black SS for this industry rests in the fact that in this simple way jet black dyeings can be obtained equal in shade to Aniline Black and without impairing the strength or the brilliancy of the material. Besides its other good properties, Diamine Jet Black SS, which in fastness to light is superior to all similar dyestuffs, is also remarkably cheap, which advantage will facilitate its use in all those industries for which it is especially well adapted, such as linings, sewing and knitting yarns, etc."

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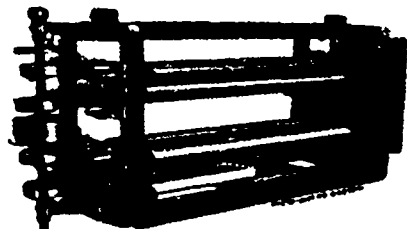
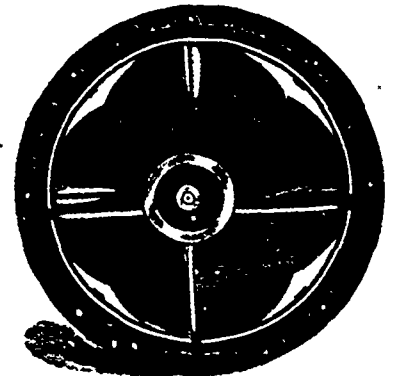
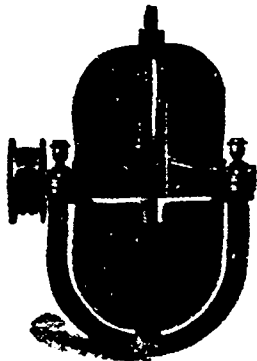
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Barker's Patent Double Apron Rubbing Motions for Condenser Cards

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

James Barker, Cotton and Woolen Machinery
Second and Somerset Streets, PHILADELPHIA, Pa.

Foreign Textile Centres

MANCHESTER.—The "slump" in the cotton market is the talk of the time on 'Change, and also in some departments of the home-trade houses. The reason of the sudden change in the position of cotton is the collapse of the October corner. There has been plenty of cotton all the time, and the talk about bad, poor crops, and the like, emanating from Liverpool and New York for several weeks past, has been so much lying, to put it plainly. Business in cloth has, of course, been seriously affected by the drop in cotton, and the feeling at the time of writing is one of great anxiety. In the home trade it may be remembered leading makers, such as Horrocks's, only recently advanced their lists. The effect of this decline will be very great upon various branches of the union trade. Dear cotton yarn is, of course, a drawback in the union trade, which came into existence largely because of the cheaper rates at which flaxen and woolen goods with cotton warps can be offered in comparison with all flax or all wool fabrics. In other respects the fall in cotton will be a source of inconvenience.

HALIFAX.—The demand for wool is only moderate, but the market is steadier as regards price. English wools are quiet and unchanged. Fine cross-breds and merinos have both given way a little, but are steady again. Spinners are well engaged, but worsted coating yarns are in less request. Prices are exceedingly firm. Manufacturers are as a rule well engaged, and there is a brisk demand for serge and fancy coatings.

LEICESTER.—The operations in the wool market are on a smaller scale, and for the moment the excitement and the heavy buyings have spent themselves, but quotations are still well supported. Manufacturers of yarns who found themselves with small supplies of the raw material, when the upward movement manifested itself kept operating freely as a means of protection and precaution, and this has gone on until now that all immediate requirements are more than met, with a fair margin for future engagements; spinners are now content to wait the reduction of their stocks and the development of events. Long lustre wools of strong texture are still inquired after very freely, but the business actually done is small by reason of the scarcity of supplies. Good demi-lustre fleeces and short wools command a steady sale at full prices, while skin wools are cleared off as they come to hand. In colonial wools there is a full average and very healthy turnover at firm rates. There is continued activity and strength in the yarn market, with large contracts on hand, and the demand for immediate delivery is more than the production. Lambs' wool, fancy, and cashmere yarns are in very good demand at very firm prices. The hosiery industry is still very active in all its branches, and the repeat orders coming to hand are of sufficient extent to keep machinery fully engaged for a considerable period. Lambs' wool underclothing, natural and fancy underwear, Cardigan jackets, football jerseys, and similar goods are in very strong demand, and prices have a very decided upward tendency. The boot and shoe industry shows a slight improvement, and the orders are more numerous. Leather sells slowly; raw hides are very dear; elastic web specialties are in fair demand for home, continental, and American markets.

BRADFORD.—The tone of the wool market seems somewhat brighter than it has been for a week or more. The business passing is still very small, and neither sellers nor buyers display any readiness to increase it, but whilst the majority of sellers hold out for top prices, there are some weak holders to be found who will accept a trifle less than the market quotations for merinos, and to a smaller extent for cross-breds. Whilst this circumstance tends to make prices somewhat unsteady, there is a strong undercurrent of confidence in values. English wools with any lustre about them are very firmly held, and their prospects are by no means discouraging. Mohair has not been affected by the slightly lower basis of business at Constantinople, which is attributed solely to the riots there. In the yarn trade there are hardly any orders which are not of the most retail description. Prices are, on the whole, very firm, and no spinner will take an order for any heavy

weights at less than full rates. Here and there, however, the merchant can get slightly better terms for a small lot from a spinner who is not so deeply engaged. The main difficulty is about deliveries, and spinners for the most part are not anxious about new business. The check in the rise of the raw material has had very little influence upon the piece trade. Manufacturers are keeping very busy, and there is still a scarcity of weavers rather than of work.

KIDDERMINSTER.—The market for wool maintains the healthy tone of the past few weeks. Prices are distinctly firm, and a large business still is passing. All classes of wool have shared in the advance established since clip day, but it is much more pronounced in bright and deep stapled wools than in wools of a demi-character. Spinners are all busy, and the certainty of full employment is assured. The prices of yarn have hardly advanced in proportion to those established in the raw material. Carpet manufacturers are getting their looms better employed, and in some cases they are busier than they have been for months past, though there is yet room for improvement in this branch. No doubt as the season advances they will to some extent share in the general improvement in the textile trade of the country.

NOTTINGHAM.—Trade is a trifle better, some fair shipping orders for the United States and South America having been placed. Valenciennes, Oriental laces, and combinations of various kinds with guipures and embroideries are the bulk of the lines. Insertions from two to ten inches are now selling. Tinted, cream, and ivory goods continue in favor. Torchons, Brabants, Maltese and common heavy guipures are also selling. In silk laces little is doing, but there is a full call for veilings; tulles are rather dull. The plain department does not show much change. Bobbin nets are called for, and prices are firm; other nets are, however, in only slow demand. A slight improvement is to be noted in the curtain branch, though there is no new feature. Makers of fancy goods are rather busy. The hosiery and underwear houses are pretty well off for orders, merino and natural wool goods being in favor. Yarns are in slow call, but prices are steady. Brown nets firm.

SOUTH OF SCOTLAND.—The manufacturers report that trade still continues fairly good. The intimation of an advance in prices is having the effect of bringing in a number of orders that might have been delayed. The advance asked is not at all equal to the advance in the raw material, so that if wool makes a further advance makers will be forced to put prices up further. Spinners are fairly well employed. There is not much wool selling in the district.

DUNDEE.—The market continues very firm, but the higher prices check business, and orders have to be sent back for advanced limits. Flax and tow are unchanged. Jute is quieter, but late arrivals of new crop have all been at full rates. Flax and tow yarns continue in good demand, and bleachers are busy. Jute yarns have been quoted at full prices, and delivery difficult to obtain forward. Selling, however, is meantime stopped by the extreme prices asked. There is nothing new in the linen department. Growing briskness noticed in the Fifeshire linen trade for some time past goes on steadily improving, and this was particularly felt last week, says a correspondent. Much more business has been done, and both sellers and buyers have shown a disposition to operate. With no prospect of prices being lower for some time, buyers have been taking off larger parcels than usual, and sellers have been parting with stocks freely at current rates. Supplies in the foreign markets are held in considerable quantities, and buyers on this side having tested qualities, have been purchasing with a degree of confidence on that score. While flax yarns have been moving off freely, tow sorts have been perceptibly in better request, and spinners' stocks of these being low, with orders booked for parcels to spin, prices are tending slightly upwards. Manufacturers and bleachers noticing this have been ordering more freely. Bleached yarns, cream and full white colors, have advanced a shade, partaking of the stiffening tendency all round. The manufacturing department is highly satisfactory. Stocks in warehouses are light, and orders both for the home and foreign markets drop

in regularly and for mixed lots. For some descriptions of goods a slight advance in prices has taken place, and generally revised price lists are expected soon to be issued. Damask and other fancy fabrics have been selling readily, while crases and glass cloths have been more inquired after. Unions—linen and cotton—are a specialty at some factories. The prospect of trade remaining healthy during the winter is creative of feelings the most desirable.

BELFAST.—The improving tendency of the staple industry noted some time ago still continues, and though the recovery week to week is not very important, it is of a steady character, and gives every indication of permanence. The weakening in the cotton market may have a quieting effect in some quarters, but nothing to speak of. Supplies of flax are scarcely so large as at times at the country centres, and quality much the same as of late, though here and there slightly better lots have been shown. There was a good demand. There has been a steady consumptive demand for yarns and the turnover would amount to respectable proportions. Prices keep very firm, west tows in particular showing a strong tendency upwards. The manufacturing end of the linen market is making headway quietly, and is gradually strengthening all over, whilst the general demand is of fair extent. Tow goods are meeting with a fair share of attention, and the recent advance is being paid. County Downs are selling fairly well, the medium setts being perhaps most in favor. Manufactures of these goods as well as Ballymenas are foresold for some time ahead. Thirty-eight-inch power-looms are beginning to receive more attention, and though business is very quiet as a whole, here and there orders have been placed to a moderate extent. Bleaching Unions continue brisk, and manufacturers have a large amount of business on hand. Sheer lawns are also in strong request, and handkerchiefs are having somewhat more attention. Finished goods for home account are not nearly so brisk in proportion to brown cloth, though there is evidently more disposition shown by buyers to operate more liberally, and the aggregate of sales shows a slight increase week by week. With the States business is quietly but steadily increasing, and the finer setts of goods are showing a trifle more vitality. Coarse goods still continue, however, to form far and away the larger proportion of the shipments. With other markets business is assuming more briskness, the continent buying with a tolerable amount of freedom, and altogether the general outlook is cheerful.

LYONS.—The silk goods market is unchanged and fairly active. The demand for ready consumption and the placing of orders for next season combine to keep up the activity which has been the distinguishing feature of the situation for some time past. Plain, striped and checked taffetas find buyers. Printed-warp effects on taffetas have been gradually gaining ground, and are now considered to be general favorites for next spring. The changeable effect in taffetas for lining purposes finds favor, and a good business is being done. Lining silks sell well. Cotton-back satins in black are good sellers, while colored satins also find buyers. All silk satins are also receiving attention. Fancy satins and shot effect on satin grounds are in demand for tie purposes. Damasks have been gaining ground, and are among the leading sellers. Cheap, medium and better grades of black and colored damasks find buyers in good lots. For the cheaper grades a good demand is reported for export. The manufacturing situation continues good. The looms have work ahead, and the only complaint made by commission weavers is that weaving rates are not as remunerative as they ought to be. Dyers are busy on blacks as well as on colors. Ribbons sell well, and manufacturers are doing a good business for present as well as for future delivery. Prices are firm. Changeable ribbons sell. Stripes, checks and plaid effects on ribbons find a market. Sales of velvet from stock are satisfactory. Blue is a favorite shade on velvet, in dark and medium tones. Black velvets are in demand.

CREVELD.—The fall business in silk piece goods has developed satisfactorily and retailers have been re-assorting. Travellers on the road report good results, while mail orders are also coming in regularly. Wholesale houses are feeling more confident and are placing orders for early delivery as well. The market not having been ready to meet the great favor shown to plaid taffetas, hurried orders of some importance have had to be placed for delivery as

early as is practicable. Although activity prevails, the question of prices is still a disputed one, and sellers are not always successful in obtaining the advance they demand, and which is warranted by the higher price of the raw material. This is especially the case with staple goods, while on the other hand buyers are willing to pay full prices for good seasonable novelties, such as plaids, changeables and other taffetas. Manufacturers are also doing a satisfactory business, and in addition to the business doing for ready delivery, they are also booking good orders for spring. These orders, which had been somewhat delayed, are now coming in more freely, and buyers are making up for lost time. In these orders changeable effects take an important place and are ordered in taffetas, failles, duchesses and damassés. Cashmere effects are also represented by damasks and warp-printed effects. Velvets find buyers in plain goods as well as in fancies. Mantle plushes are quiet. Velvet ribbons sell well.

ZURICH.—A number of buyers are in the market, but their operations have not been large enough to make things active. Advances from consuming centres are satisfactory with the exception of New York. The collections of novelties that had been sent to America have not given the promising results looked for, although fancy and figured taffetas have received the attention they deserved. Plaids are now leading, and as they are scarce on taffeta, the deficiency is made up by a fair business in surah plaids. The opinion prevails here that plaids will be favored for spring. Warp-printed effects are decided favorites, and everybody seems to have confidence in them, and to believe in their success for spring.

ABOUT BELFAST.

THE GREATEST LINEN CENTRE OF THE WORLD.

The old Linen Hall at Belfast, Ireland, for more than a century past, has been closely identified with the linen trade of that town. Everybody interested in Irish linen knows this old landmark of the trade.

Up to about 1778 the linen industry of Belfast did not amount to a great deal. About this time, however, the Earl of Donegal gave a site for a building to serve for the sale of white linen goods. In 1782 the manufacturers, spinners and linen merchants of Ulster county, recognizing the advantages likely to be derived from such a building, began the erection of the famous old Linen Hall. From the time Linen Hall was erected, and up till about 25 years ago, nearly all the leading Irish linen houses and factories were represented in this building. The linen trade during this period had grown immensely.

Everything had been done to stimulate trade. In the early part of this century a Government grant of \$100,000 per annum had been made to encourage the development of the linen trade throughout Ireland, which grant was continued until the trade was strong enough to continue without such aid.

When the trade had grown to such proportions that many linen concerns found it more convenient to build their own business houses in the vicinity of the old Linen Hall, the importance of this building gradually waned, and now nearly all the linen manufacturers have located on Donegal square or adjacent thereto. The Linen Hall is in the hands of the city, and fairs and festivals are frequently held in it.

Among the industries requiring the consolidation of capital and labor, that of the linen trade is the most important. In Ireland the trade has reached colossal dimensions, having its chief seat in Belfast.

The capital invested through the whole linen province in flax spinning and weaving, reaches over \$300,000,000, the bulk of which may be credited to Belfast. Over 25,000 looms and 1,000,000 spindles are at work, giving employment to more than 125,000 persons. The united industries of bleaching, dyeing, printing, lapping, packing, etc., employ about 75,000 persons.

To show the immense increase in the number of spindles and looms it is only necessary to state that while in 1850, 396,338 spindles were at work, 30 years later, viz., 1880, they had increased to 911,111, and while in 1859, 3,633 power looms were employed, they had also increased in 30 years to 21,177.

As the number of hand looms still employed is very large, and are preferable for the finer kinds of damask, the hand-loom weaving must still be regarded as an important industry, and as worthy of more than passing notice. The mills of Belfast and all machinery, engines, etc., used are of the most modern and improved style.

It is an interesting fact that notwithstanding all the inventions and improvements in linen manufacturing machinery, a considerable quantity of the choicest linens produced in Ireland are made in the homes of the operatives entirely by hand.

Belfast is the linen centre, and there is no other city in the world to-day which can be compared with it. The methods employed are thoroughly up to date, and quite American. Retail houses especially are conducted very much as are our American establishments. These conditions are, of course, due to frequent intercourse with American buyers and the numerous visits Belfast linen men pay to the United States.—*Dry Goods Economist.*

Textile Design

TWEEDS.

No. 1.



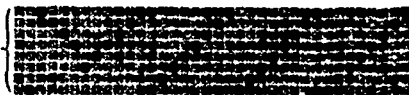
Plan. Draft.

2,300 ends.
33 picks per inch.
4 ends in a reed.
72 inches wide in the loom.
56 " when finished.
Natural finish.

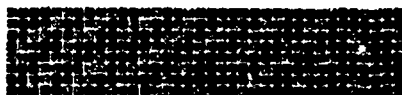
Warp:—
13 Black.
2 Ruby.
1 Crimson and Green.
19 skeins woolen.
40 skeins woolen twisted.

Weft:—
13 Dark Bottle Green.
2 Rich Bronze
1 Black and Blue.

No. 2.



Draft.



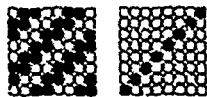
Pegging Plan.

Warp: 6 Black.
1 Scarlet.
4 Cream.
1 Scarlet.
6 Black.
1 Blue.
4 Cream.
1 Blue.

Weft: 28 skeins woolen twisted.
Brown.
Scarlet.
Red Fawn.
Blue Green.

2,160 ends.
32 picks per inch
4 ends in a reed.
70 inches wide in the loom.
56 " when finished.
Nice soft finish, short pile.

CHEVIOTS.



Plan. Draft

Warp.—
13 Lt. Steel Mixture, 3 red Fawn, rich color.

Weft —
13 Brown and White Mixture, 3 Red Olive Brown.

1,100 ends.
33 picks per inch.
4 ends in reed.
66 inches wide in the loom.
56 inches wide when finished.
17 skeins cheviot.

No. 63. Same Plan and Draft as No. 360.

Weft —
1 Black and Scarlet.
6 Black.
1 Black and Scarlet.
4 Old Gold

Warp:—
1 Black and Orange.
6 Mulberry.
1 Black and Orange.
4 Old Gold

Introduce Bright Mohair loop into every third check, two ends.
1,020 ends.
30 picks per inch.
4 ends in a reed.
34 inches wide in the loom.
11 skeins cheviot.
Fancies, 22 skeins twisted,

RECIPES FOR DYERS.

(FROM FOREIGN SOURCES.)

Black on Wool.—For 100 lbs. wool—Prepare the dye-bath with 3 lbs. Fast Violet-Blue Shade, 3½ lbs. Fast Green, 2 lbs. sulphuric acid and 10 lbs. Glauber's salt. Work at the boil until the color is fully developed. The black so obtained is a good solid shade and pretty fast.

Grass Green on Cotton.—For 100 lbs. unmordanted cotton—The dye-bath is made with 2½ lbs. soap, 10 lbs. borax, 31 ozs. Chrysamine G, and 1½ oz. Benzoazurine G. The goods are entered into the bath at a temperature of 150 deg. F., then the heat is raised to the boil and the dyeing continued for an hour; lift, wash and dry.

Rose Pink on Flannel.—For 100 lbs. flannel—Prepare a dye-bath with 10 lbs. Glauber's salt, 3 lbs. sulphuric acid, 1½ ozs. Fast Red and 3 ozs. Croceine Orange. Work in the usual manner.

Cinnamon Brown on Cotton.—For 100 lbs. cotton—Prepare a bath with 5 lbs. catechu and 5 lbs. alum, enter the goods at about 170 deg. F., then slowly raise to the boil and work for 2 hours, then enter in a fresh boiling bath of 3 lbs. bichromate of potash and ½ lb. iron liquor; work for an hour, then wash and dry.

Cream on Linen.—For 100 lbs. linen goods—Bleach the linen, then dye at 150 deg. F. with 4½ ozs. alum, a little phosphine and a small quantity of bark paste.

Brown on Wool.—For 100 lbs. of woolen goods—Mordant the goods by boiling for 1½ hours in a bath made from 3 lbs. bichromate of potash and 2 lbs. tartar, then rinse and enter into a dye-bath made from 5 lbs. Anthracene Brown, 1 lb. Alizarine Black and 1 lb. acetic acid. Enter cold, heat slowly to the boil, then work 2 hours longer, lift, wash and dry.

Green on Cashmere.—For 100 lbs. of cashmere—A dye-bath is made from 1 lb. of Yellow N, 2 lbs. indigo extract powder, 3 lbs. sulphuric acid and 10 lbs. Glauber's salt. Work at the boil to shade, lift, wash and dry.

Brown on Wool.—For 100 lbs. wool—Mordant with 3 lbs. bichromate of potash and 1 lb. sulphuric acid at the boil for 1½ hours, then rinse and enter into a new dye bath containing 10 lbs. Gambine R and 8 lbs. Gambine B. Enter the goods at 150 deg. F., raise to the boil and work for an hour, lift, wash and dry.

Terra-Cotta Red on Flannel.—For 100 lbs. flannel—Mordant by boiling for 1½ hours in a bath made with 3 lbs bichromate of potash and 2 lbs. tartar. Then dye in a fresh bath 5 lbs. Anthracene Brown, 5 lbs. Alizarine Orange and 1 lb. Coerulean. Enter the goods into the bath when cold, heat slowly up to the boil and work for 2 hours, then rinse and dry.

Dark Drab on Cotton.—For 100 lbs. cotton—Mordant the cotton in a bath of 15 lbs. catechu, fix with 3 lbs bichromate of potash, wash and dye in a fresh bath with 4 ozs. Indoin Blue BH and 2 lbs. alum, enter the cotton into a cold bath, heat to boil and work for 30 minutes at the boil, lift, wash and dry.

Bright Crimson on Wool.—For 100 lbs. wool—Prepare a dye-bath with 3 lbs. Emin Red and 10 lbs. bisulphate of soda, enter at about 160 deg. F., raise to the boil, lift, add 3 lbs. fluoride of chrome, re-enter into the dye-bath and work for 30 minutes longer, lift, wash and dry.

Pale Rose on Wool.—For 100 lbs. wool—Prepare the dye-bath with 1 lb. Acid Rosamine A and 10 lbs phosphate of soda; enter the goods into the bath when hot, raise to boil, lift and pass into a weak bath of 4 lbs. sulphuric acid for 20 minutes, lift, wash and dry.

Deep Blue on Wool.—For 100 lbs. wool—Mordant the wool by boiling for 1½ hours in bath made from 3 lbs bichromate of potash and 2 lbs. cream of tartar, rinse and dye in a new bath containing 6 lbs. Delphine Blue and 2 lbs. acetic acid, working in the manner usual with alizarine colors

Walnut Black on Wool.—For 100 lbs. goods—Mordant by boiling for an hour in a bath of 3 lbs. bichromate of potash and 2 lbs. oxalic acid. Dye in a fresh bath containing 15 lbs. Chrome Brown R, 2½ lbs. Alizarine Cyanine 3R, and 2 lbs. acetic acid

Terra-Cotta Red on Wool.—For 100 lbs. goods—Mordant by

boiling for an hour in a bath containing 3 lbs. bichromate of potash and 2 lbs. oxalic acid. Dye in a fresh bath containing 5 lbs. Chrome Brown R, 2 lbs. Cloth Red, 3G extra, and 2 lbs. acetic acid.

Olive on Wool.—For 100 lbs. wool—Mordant in a bath containing 2½ lbs. bichromate of potash and 2 lbs. tartar, by working at the boil for 1½ hours, then lift, rinse and dye in a bath containing ¼ lb. Mordant Yellow, 1 lb. Anthracene Brown W, 1½ lbs. Coerulean SW, and 2 lbs. acetic acid, working at the boil for 1½ hours.

Maise Yellow on Wool.—For 100 lbs. wool—Mordant by boiling for 1½ hours in a bath containing 2½ lbs. bichromate of potash and 2 lbs. tartar, rinse and dye in a fresh bath with 9 ozs. Mordant Yellow, 6 ozs. Anthracene Brown W, 3 ozs. Coerulean SW and 2 lbs. acetic acid.

Deep Walnut-Brown on Cotton.—For 100 lbs. cotton—Dye in a bath containing 3½ lbs. Diamine Cutch, 5 lbs. soda crystals, and 25 lbs. Glauber's salt, working at the boil for 1 hour; then rinse and pass into a cold bath containing 3 lbs. nitrite of soda and 10 lbs. hydrochloric acid; work for 20 minutes; then rinse and pass into a cold bath of 2 lbs. fast blue developer D, and ¼ lb. hydrochloric acid, work for 15 minutes, then lift, wash and dry.

Silver Grey on Wool.—For 100 lbs. wool—Prepare a bath with 10 lbs. bisulphate of soda, 3 ozs. Cyanol extra, 3 ozs. Rosinduline B, and ¼ oz. Fast Yellow G, working at the boil for one hour, then lift, wash and dry.

Dark Grey on Wool.—For 100 lbs. wool—Prepare a dye-bath with 5 lbs. acetate of ammonia, ¼ lb. sulphon dark brown, 1 lb. Sulphon Cyanine G, and ½ lb. Titan Yellow, work at a boil for one hour, then wash and dry.

Black on Tussock Silk.—Treat for several hours in nitrate of iron at 53 deg. Tw.; wash well in two waters and steep in a bath of 20 to 25 per cent. catechu at 150 deg. F. Then wash and dye in a bath of logwood and fustic extracts and soap at 170 deg. F., working from two to three hours; brighten with glue and acetic acid.

Aniline Black.—A new French process for producing a black that will not tender the fibre or become green, is worked in the following manner: Make a bath from 3 lbs. to 3½ lbs. chlorate of soda, 4 ozs. to 6 ozs. sulphate of copper, in ¼ gal. to 1 gal. water. When dissolved, add 6 gals. to 7½ gals. water, and 20 lbs. to 20 lbs. of a product which is made thus: 40 lbs. to 50 lbs. aniline salt, 30 lbs. acetate of alumina, 15 lbs. to 16 lbs. acetic acid, and 15 gals. to 20 gals. water. The cotton fibre is steeped in this bath for four to five minutes, then taken out and hydro-extracted. Next it is placed in a warm chamber at about 100 deg. F., for four to five hours, next into a weak, warm bath of bichromate of potash for four to five minutes, then it is allowed to lie on a stillage for one to two hours, after which it is well washed and dried.

NEUTRALIZING CALCAREOUS WATER.

The following interesting reply to an inquiry as to the best means of neutralizing calcareous water is given in a German contemporary. According to the analysis, the water contains sulphate of lime (gypsum) and sulphate of magnesia, and is very hard. The agents added for correcting it—soda and slaked lime—are evidently intended to be converted into caustic soda and carbonate of lime. The former remains in solution, while the latter precipitates. This caustic soda, next, is to precipitate the sulphates of lime and magnesia. As is shown by the analysis, the gypsum requires the principal attention. This, it is true, is decomposed by the caustic soda, whereby sulphate of soda and caustic lime are formed. The former remains in solution, the latter passing out of consideration. The evil complained of is caused by the fact that the caustic lime partly dissolves in water, and upon the admission of air forms carbonate of lime (chalk), as the carbonic acid of the air combines with the lime. If the separating carbonate of lime floats upon the water, it is a sign that its formation can take place only where the calcareous water comes into contact with the air. Therefore it is on the surface, but as soon as the floating layer has become sufficiently thick it falls to the bottom. The subsequent filtering of the water through shavings is for the apparent purpose of bringing the water as much as possible into contact with air, to precipitate the

lime by a plentiful supply of carbonic acid. From the statement of the correspondent we learn that the filter is cleaned once every week, from which it may be concluded that precipitation takes place rapidly. The cause for complaint is undoubtedly the fact that all the lime is not precipitated during the filtering of the water through the shavings, because an insufficient quantity of air, or carbonic acid gas, comes in contact with it. It is better to accomplish this by either passing the water more slowly through the filter, or using a second filter. But it must always be remembered that the shavings do not really filter water, but only bring the water more readily in contact with the air. The looser they are put in, the better they will fulfil this purpose. The formation of the film floating upon the water complained of, is not at all an evil; on the contrary, it is desirable. The lime separating in this manner is innocuous, because it is insoluble. It neither forms scale in the boiler, nor does it waste the soap in washing and milling.

A MACHINE FOR KNITTING COMPLICATED PATTERNS IN HOSIERY.

One invention follows in the wake of another with amazing rapidity. With the advent of cycling and the revival of other national sports and pastimes, comes the need of patterned sporting hosiery at popular prices. Among the many valuable patents held by George F. Sturgess, of Overdale, Leicester, England, is the patent Automatic Designer for making patterned hosiery and fabrics in two or more colors, and for all purposes. This machine is universal in its adaptability and amply provides for the demands of the market for ornamental wear. The machine as shown in the figure, is a simple knitter (hand or power) of the circular or seam-



less type, fitted with the change wheel. This change wheel is provided with a number of pegs or pickers on its periphery, all so compact and simple as to leave nothing to get out of order. The pattern can be changed from one type or style to another instantly. Patterns are first dotted on to square ruled paper and then read off on to the wheel, each dot representing a picker, and by arranging these pickers accordingly, the design resolves itself into any of the elegant designs that ornament our gloves and stockings, the most remarkable of which (owing to the vast amount of labor saved) is a variety used in making Scotch plaid, knicker hose and half hose.

Taking a mechanical view of this ingenious instrument, we may safely call the designer a revolving Jacquard, considering its insignificant size, it is simply astonishing what it will do. There seems no limit to its capabilities and a comparison with the "old time" rectangular Jacquard, discloses the fact that it is unnecessary to purchase new and costly pattern cards in order to make a new design. Paradoxical as it may seem, we are told that absolutely new and original designs have been secured, by haphazard arrangements of the pickers, designs which were deemed to be beyond the range of possibility. Before the introduction of this interesting machine, the slow and costly method of knitting plaid stockings on knitting pins considerably curtailed the sale and adoption of ornamental hosiery. On a Sturgess Designer, however, a girl can make several dozens of hose with a superior make, finish and regularity of pattern, whilst an experienced hand knitter would be laboring over one pair. It seems incredible that a dozen of high class sporting hose can be made and finished, at what was once the retail price of one pair, and even then in style and design the hand knitter is handicapped. The delicate and complex patterns and fine gauges that can be made would puzzle the most skillful of hand knitters to reproduce. Among other advantages offered in the articles

thus knitted are; elasticity, the absence of loose threads, a bold calf, a slender ankle, fine foot, unbroken pattern, a uniform stitch, and patterns in rib fabric, all of which may be embodied in the stocking. These improved goods would be taken as made on knitting pins, but for one noticeable feature, that is, the absence of any distortion of pattern in the ankle. This distortion of pattern is a defect which hand knitters of every age have tried in vain to overcome. When the distortion comes down the back of the ankle, this defect may pass muster, but when, by an unlucky twist, the distorting gets down the side of the leg, the defect is flagrant. No amount of twisting, however, will make the new and improved stockings look like odd ones, as the pattern is exact throughout.

FLAX CULTURE IN CANADA.

J. A. Donaldson writes in the *Toronto Mail and Empire* on flax culture. He says that while the farmers are putting in their fall wheat they should not forget that flax seed in Ontario is worth a dollar a bushel. It weighs four pounds less to the bushel than wheat; being a spring crop, it costs much less for cultivation, and can be harvested with the mowing machine the same as oats or barley. The objection is often raised that it exhausts the land. Undoubtedly there is no fodder from it, but does a farmer ever think of putting in his fall wheat without putting on a fair share of manure? Flax leaves the land perfectly clean, and with a coat of manure the following season the heaviest crop of roots may be obtained. In Manitoba a million and a quarter bushels of seed has been produced this season, and the price per bushel for the seed is double that of wheat. From the sowing of half a bushel of seed, say 28 pounds, the average yield is from twenty to twenty-five bushels to the acre. Unlike Ontario, in the North-West no use is made of the fibre, while in the counties of Wellington, Waterloo, Perth, and part of Huron, the fibre is worth quite as much as the seed, if not more.

LITERARY NOTES.

The Century Magazine celebrates its quarter-centennial in its November issue with an "Anniversary Number." In honor of the occasion it dons a new dress of type, with new headings, etc., and it appears in a new and artistic cover. Although *The Century* has reached an age that is unusual among American magazines, it continues to show the youthful vigor and enterprise that have always characterized it. The programme that has been arranged for the coming year contains a number of interesting features. Much has already been written concerning Mrs. Humphry Ward's new novel, "Sir George Tressady," which has been secured for its pages. There was a very spirited bidding for this novel on the part of several prominent publishers, with the result that the author will probably realize from the serial and book rights of it one of the largest sums that have yet been given for a work of fiction in the English language. The story describes life in an English country-house, and also touches somewhat upon industrial questions. It begins in the November number with an account of an English parliamentary election. It will be the leading feature in fiction for the coming twelve months, other and shorter novels being contributed by W. D. Howells, F. Hopkinson Smith, Mary Hallock Foote, and Amelia E. Barr. There will also be contributions from Mark Twain and Rudyard Kipling (the latter furnishing to the *Christmas Century* one of the most powerful stories he has ever written); a series of articles on the great naval engagements of Nelson, by Captain Alfred T. Mahan, author of "Influence of Sea Power upon History"; three brilliant articles on Rome, contributed by Marion Crawford, and superbly illustrated by Castaigne, who made the famous World's Fair pictures in *The Century*; a series of articles by George Kennan, author of "Siberia and the Exile System," on the Mountains and the Mountaineers of the Eastern Caucasus, describing a little-known people; articles by Henry M. Stanley and the late E. J. Glave on Africa; a series of papers on "The Administration of the Cities of the United States," by Dr. Albert Shaw. *The Century* will also contain during the year a great number of papers on art subjects, richly illustrated. Prof.

Sloane's "Life of Napoleon," with its wealth of illustration, will reach its most interesting part,—the rise of the conqueror to the height of his power, and his final overthrow and exile. In order that new subscribers may obtain the whole of this monumental work, the publishers have made a rate of \$5, for which one can have a year's subscription from November, '95, and all of the numbers for the past twelve months, from the beginning of Prof. Sloane's history.

The Monetary Times of Nov. 1st has a charming little sketch entitled "A Village Store," which is quite out of the usual run of staid commercial and financial articles which characterize that able journal. The story is a very simple one, merely a pen-picture of the every-day country store, but the details are so well worked up, and the local color so deftly introduced, that the result is unusually pleasing. If realism were always as well done, it would have many more admirers.

FADING OF LOGWOOD BLACK.

It is a well-known fact that logwood blacks on wool, produced by different methods, vary greatly amongst one another in fastness to light. Iron black is generally accepted as the most permanent color, and as it is incidentally, and, as a rule, produced with the assistance of tartar, much credit is given to the latter substance. Equally good results, however, may be got with oxalic acid, bisulphate of soda, or even sulphuric acid. Hence tartar cannot have much to do with the result. Far more significant is the presence of sulphate of copper, which is most generally employed with coppers, nor could it be omitted without lessening the fastness to light of the black in a most striking manner.

In comparing the relative fastness to light of iron and chromium black, it must be borne in mind that iron yields a greyish black, and is, therefore, to begin with, never employed but for very deep shades, whilst, on the contrary, blue chromium blacks of less depth are in frequent demand. Hence exposure must apparently often point in favor of iron black, which, with its heavy deposit of lake, will offer a more prolonged resistance to light. Chrome black may be modified to a jet black by fustic, but the presence of the latter, as it does not in any way add to the weight of the chrome-logwood-lake, cannot, except unfavorably, influence the test of exposure. Moreover, chromium is frequently used without the aid of copper. A pure chromium-black cannot bear comparison with either iron-copper or chromium-copper-black. But if we dye equal quantities of logwood upon chromium bottom and iron bottom, both containing the same amount of copper, no difference in the ratio of fading is perceptible.

BRUSSELS AND TAPESTRY BRUSSELS.

RECENT AND INTERESTING DESCRIPTION OF BODY BRUSSELS CONSTRUCTION.

Brussels and tapestry carpets are so similar in appearance that they might readily be regarded, on a casual consideration, as fabrics of the same structure. But when the principles on which the pattern is obtained in the respective articles are examined, it is at once evident that there is practically no actual resemblance, for while in the brussels the design is pure, a woven effect, in the tapestry it is merely a print.

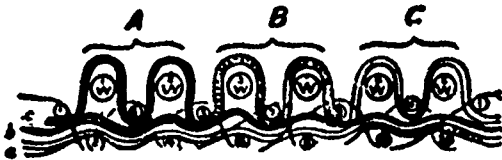
The weaving of this article affords some characteristic features for investigation. The pile warp, for instance, instead of running off ordinary yarn beams, is wound on bobbins or miniature beams, fixed in frames or a huge creed stationed behind the loom. Each color requires what is technically called a separate frame.

A five-frame brussels is a carpet with this number of colors succeeding each other in the same line of fabric. The manner in which the various colors are controlled—in other words, in which they are concealed from, or brought into view—is an important factor in the manufacture of this article. On examining a brussels carpet, it will be observed that the individual threads forming the pile seem either to be composed of several colors, or to be substituted by yarns of other shades, according to the section of the pattern being

formed. For instance, in the same line of the design, looking at the fabric lengthways, apparently in the same thread, as many as from three to five colors, such as black, green, drab, scarlet and blue, form the pile in succession. If these effects are not due to a variegated yarn, they result from the employment of five distinct threads, each of which is so controlled that it only appears in the pile when assisting to develop the design. The question occurs: How are the threads concealed when not appearing on the face of the fabric?

An important principle of weaving is implied in the production of results of this character. Whatever the color of the warp in a single cloth, the pattern is, throughout the piece, continuously tinged with that shade, excepting in such positions as it is crossed with the weft thread. In a double cloth two colors of warp yarns may be applied to one line of the fabric, that is to say, supposing the shades selected were black and white, the pattern produced might be composed of these colors alternately, while in a triple-make fabric three shades could be brought on to the surface of the texture in succession. Effects of this order are due to changing the positions of the threads of the respective warps by reversing the weaves. The several shades of a brussels carpet are manipulated on this double weave principle of intertexture. To obtain a three-frame pattern composed, say, of black, scarlet and olive, at least three separate weaves are necessary—one for each shade. Thus the weave used in forming the shed in the warp for the black pile is so arranged as to depress the scarlet and olive, while that for giving the scarlet pile conceals the black and olive threads, and lastly, that for producing the olive pile hides the black and scarlet ends; so that, by an appropriate application of these respective weaves to the design, the colors are brought up in the figure where required.

The structure of brussels carpet may next be briefly examined.



In the above figure a sketch is furnished of the interlacing of the threads in a section of this fabric. The intertexture represented is that of a three-frame carpet. Section A may be supposed to correspond to the black, B to the scarlet, and C to the olive pile in a carpet of this description. The positions the threads occupy when not covering the wires will be evident on examining this illustration. Thus it is now clear that when a thread of pile yarn is not active in the formation of the figure, it is covered or concealed by the wire and ground shoots of weft. Take thread b, for instance, which, having covered the first two wires shown, floats underneath the succeeding wires; a similar arrangement obtains in the interlacings of thread c, which floats under wires 1 and 2, and over wires 2 and 3, while thread a is covered by the first four, but flushes over the last two wires; hence each class of pile threads interweaves with the ground weft on the same system, producing a carpet of uniform strength, and one in which every species of pile is equally permanent.—From "Color in Woven Design."

THE WOOL MARKET.

The Toronto wool market is without features of special interest. Indeed, the local market presents a very bare appearance, most of the fleece being sold out and only small lots offering. Prices are somewhat easier, and lots that would have gone for 25c. a short time ago now fetch 24c. Pulled wools are in fair demand from the factories, prices are steadier and supers are quoted at 21 to 22c.; extras, 22 to 23c.

Business in the Montreal wool market is at present dull. Lack of briskness, however, has not affected the prices, which are well up, and show no indications of an early drop.

Stock in Montreal is low, but it is expected that the demands of the next two months will not exceed the supply.

A lot of damaged wools, amounting to 170 bales, was disposed of at auction last week; the prices were from 10½ to 11c. The next cargo of wool will reach Montreal in January. London sales, which open on the 26th November, will probably present a drop in low grade wools. This will affect the prices in Canada, but it is expected that fine wools will still keep up their prices.

The history of the trade might be searched in vain to find a counterpart for the past four years, each of which has witnessed an aggravation of receding values to which we have become accustomed, says an English authority on wool values. To such an extent has this been so that the permanence of the rise which has recently taken place in the Australian and London markets is, if not doubted, thought in some quarters almost too good to be true. Still, the most pessimistic must admit that there is now more ground for hope of higher values than there was twelve months ago. The world's supplies of wool have been practically stationary for the last two years, whilst the wool-consuming population of Europe and North America is increasing at the rate of from 4,000,000 to 5,000,000 a year, so that the theory of over-production would seem to have no foundation in fact. Nearly akin, however, to over-production of the raw material is the perverted ingenuity by which cotton is worked up into fabrics to imitate wool, mungo, shoddy and all sorts of rubbish, mixed with as little wool as will make them hold together and counterfeit woollen cloth. There must, of course, be a demand and sale for such articles, or they would not be made, and the cause of this demand and sale is to be found in the decreased purchasing power of the masses.

AMERICAN STRIKES AND LOCKOUTS.

The annual report of the Commissioner of Labor shows that during the past seven and one-half years strikes and lockouts were more numerous in Illinois than in any other State, there having been in that State 10,060 strikes and 1,193 lockouts. New York came second on the list with 9,540 establishments involved in strikes and 723 in lockouts, and Pennsylvania third, with 8,219 strikes and 490 lockouts.

The industries most affected by strikes during the seven and one-half years included in the report were: The building trades, with 20,785 establishments involved; coal and coke, 5,958; clothing, 3,041; tobacco, 2,506; food preparations, 2,398; stone quarries and cutting, 1,993; metals and metallic goods, 1,834; transportation, 1,327; printing and publishing, 608; boots and shoes, 607; furniture, 459; wooden goods, 409, and brick, 406. Those most affected by lockouts were the building trades, with 1,900; stone quarrying and cutting, 489; clothing, 431; brewing, 150; boots and shoes, 130; metals and metallic goods, 128, and transportation, 117 establishments involved.

The total number of employees involved or thrown out of employment during the period covered by the report was 2,391,203. The total number of strikers or persons originating the strikes was 1,834,212. There were 239,431 new employees after the strikes, of whom 115,377 were brought from other places. Lockouts were ordered in 3,853 establishments, having 274,657 employees before the lockouts, of whom 205,867 were thrown out of employment in consequence thereof. These establishments secured 27,465 new employees after the lockouts, 16,300 of whom were brought from other places.

For the period covered by the report, out of the 46,863 establishments affected by strikes, success in their demands was gained by the employees in 20,397, partial success in 4,775 establishments, and failure followed in 21,687 establishments.

Out of the 3,853 establishments having lockouts, 1,883 succeeded in gaining their demands, 391 partially succeeded and 1,558 failed. The leading cause of strikes was for an increase of wages, and these represent 25 per cent. of the whole number; 13 per cent. were for reduction of hours, 8 per cent. were against reduction of wages, 7 per cent. were sympathetic, 6 per cent. were for increase of wages and reduction of hours, 4 per cent. were against employment of non-union men, and 3 per cent. for a recognition of the union. The remainder of the strikes are attributed to a number of other causes of no especial general interest.

Out of a total of 10,488 strikes for the entire country, more than 56 per cent. occurred in twenty six cities. The total wage loss to the employes in these twenty-six cities was in round numbers \$35,000,000, and the loss to employers was something less than \$29,000,000.

IN AN INDIAN MILL.

Now that manufacturing is becoming world wide, and the products of what we considered semi-barbarous countries a short time ago are coming into competition with the products of our own looms, we feel more interest in all that concerns production in foreign lands. As cotton manufacturing is carried on in India to quite a large extent, some features of the labor question as it presents itself in India may be of interest. At Bombay the mills are supplied with labor by coolies who belong to the agricultural class, and are drawn to the towns by the attraction of better pay, and an easier life than that in the fields under a tropical sun or rains. These people have all an interest more or less in the property cultivated by their families and relatives, and they send money regularly from their earnings to maintain this interest. Their earnings in the field may amount to two annas (or four cents roughly) per day, while in the mill a man is worth from 6 to 8 annas. The bond to the land is now becoming weaker. A new generation is growing up, born of mill workers and gaining at the age of 14 years Rs. 7 per month in the mill. This generation knows nothing of field work, and is physically less fit for it than its parents; so the children will grow up as mill-hands without, however, being bound to the work, like European operatives, for life. In Amedabad and Surat the collector reports that similar conditions now exist, and that there is already a permanent class of factory workers who do not look forward to returning to agriculture. The average white mill-hand, in spite of his best efforts at saving, frequently lives practically in face of the alternative of "work or starve," while the Indian mill-hand frequently, and for long periods, does neither, and seems little the worse for it. Charity is so universal, and food so cheap in India, that death from starvation is one of the rarest things—much rarer than in London. A Bombay coolie with bare head and a simple waistcloth is fully dressed for work in or out of doors; he never needs fire for warmth, nor shelter, except from the rain.

Whatever class of work a man gets used to in a mill he keeps to for the rest of his mill life. If it is blow-room work, neither ambition nor curiosity would ever attract him to the card-room, or the subsequent processes. He learns just as little as will ensure his pay, and there improvement ends. He is, of course, illiterate, and all machinery deteriorates more rapidly in his hands than in those of the Lancashire operatives. In Bombay, mill hands are seldom over 40 years of age, and are never seen over 50 years. Custom and social habit have separated male and female labor in Indian mills, and women only work at reeling and winding in a separate department with a forewoman in charge. They are very independent, and prompt to take offence, and if their physical appearance and dress on a holiday may be taken as an index of their condition, they cannot be said to suffer from the effects of poverty or over-work. The domestic life of these women is simplicity itself. A short-sleeved jacket is their only garment, which requires very little sewing, and they may be completely clothed in a *sari*, which is a piece of cotton cloth, plain or decorated, according to the means and taste of the owner, and which they wind about them with great skill, and wear with a grace that is natural to them. Their children up to the age of 5 or 6 go stark naked, and the furniture in their houses consists of a box or two to hold spare clothes and valuables, a *charpoy* or rough bed-frame covered with coir yarn netting, and a few cooking utensils of metal or earthenware. They eat very little meat, and feed with their fingers, sitting on the ground.

CLOTH and paper can be made impermeable, according to a patent taken out by August Hansel, Germany, by coating the tissue with the precipitate obtained by the treatment of a solution of tungstate of soda with muriatic acid and the subsequent band of varnish or lacquer.

CLEANING FURNITURE

One reason why people fail in cleaning furniture coverings is that they are too economical in the use of naphtha. It must be literally poured on to be effective. Standing in the breeze it will evaporate very quickly, and will destroy every vestige of moths. If the articles are to be left in the house they may be wrapped in sheets, tightly pinned around them. This keeps a certain amount of the odor in the furniture for a long time and renders it doubly safe.

It cannot be too strongly emphasized that no light of any kind must be taken into the rooms while the naphtha cleaned articles, recently finished, are there. The inflammable nature of naphtha vapor makes it exceedingly dangerous when brought near a flame.

Cushions, carpets and wool draperies may safely be cleaned in this way, and all that is necessary is to throw all draperies over a line in the yard, open the windows, remove the wrappings from the furniture, and let the breeze have a full sweep through the rooms for a day or two. Then there will be no offensive smell, and the furniture may be used with perfect safety so far as danger from fire is concerned.—*Carpet and Upholstery Trade Review.*

SILK FINISH ON WOOLEN YARNS.

Various revelations have found their way into the textile press as to processes of imparting a silky gloss and feel to woolen yarn, which up to recently have been kept secret. That a similar appearance and handle are characteristic for woolen prints was well known, and it might accordingly have been surmised that in either case the effect was due to the one peculiar and essential manipulation practised by woolen printers, *viz.*, to "chloring." With a reaction, not yet scientifically defined, it is not to be wondered at that, as regards proportions, time and temperature, and the entire manipulation, the reports from different sources are somewhat at variance; the quality of the fibre dealt with alone may be the cause of much uncertainty. A lengthy process, calculated to impart the maximum of silky feel and gloss, is thus described by the *Woolengewerbe*: Loose wool, yarn, or piece goods, are first worked for half an hour in cold 1 per cent. hydrochloric acid, then squeezed, or centrifuged, without rinsing. The next bath, which must be most carefully prepared, contains per 150 litres (20 gallons) the clearly soluble portion of 2 kilos (4½ pounds) of chloride of lime. Manipulate in this bath for three-quarters of an hour, drain well, and again work for the same length of time in cold 1½ per cent. hydrochloric acid. Finally, rinse well in cold water. Now follows a bath of 500 grams (1 pound) of Marseille soap, per 100 litres (12½ gallons), temperature 75° C. Centrifuge, again work for half hour in dilute hydrochloric acid, and rinse well. Wool thus prepared (no doubt owing to the presence of free, fatty acid, which may also in other respects play an important part), unless the water be very calcareous, absorbs acid dyestuffs without any addition of free acid. The usual saving of dyestuff, well known to printers, is also noticeable, and may amount to as much as 20 per cent.

The process just described may, according to the same author, be modified and curtailed variously, but not without lessening its efficiency. Thus, 100 kilos (220 pounds) of woolen yarn may first be worked for some 20 minutes in a 4-5 per cent sulphuric acid 75° Celsius; then drain well, work in cold, clear chloride of lime solution and dye; or enter the chloride of lime bath at 20-25° C., gradually raise to the boil, and after a while add the dyestuff. With low class goods the whole process may even be carried out in a single bath. First work in the acid, then add the chloride of lime gradually, raise to the boil, and add the dyestuff.

As far as white yarns or light colors are concerned, the process has the great drawback that, unless it is pushed far enough to turn the wool yellow, the result aimed at is but partially attained. Moreover, it is stated that goods finished in this manner have again on storing gradually lost the crisp, silky feel so laboriously attained. Finally, the treatment deprives the fibre of felting properties, and can therefore be applied in certain cases only—*Textile Recorder.*

RECENT CANADIAN PATENTS.

OF INTEREST TO TEXTILE TRADES.

Matthias Varner, Milltown, N.B., has patented a yarn protecting attachment for spinning machines.

Chas. F. Pym, Windsor, Ont., assigns one-half patent right in his lasting jack to J. P. Sedgewick, Cottam, Ont.

J. G. Haslem, Philadelphia, Penn., has patented a dyeing apparatus. The invention comprises a machine to which is attached a dye vat, and a steam pipe regulating the supply of the same.

J. Mallett, Oakland, Cal., has patented an elastic skirt elevator. The device consists of a flexible elastic pad fastened to a cord which will extend, elevate, or lower the skirt.

H. Astrich, Harrisburg, Penn., has patented a hat securer, consisting of a U-shaped pin, adapted to be inserted in the wearer's hat. The pin has a slot in one leg through which is slipped an elastic band which securely fastens the pin when attached to the hat.

H. Lucy, Brooklyn, N.Y., has patented a bicycle habit for ladies. The habit consists of a skirt divided at the back, but presenting the appearance of an ordinary skirt in front.

T. S. White, T. Triant, G. W. Perkins, and C. J. Reed, all of Grand Rapids, Mich., have patented a carpet sweeper having vertical flexible guard bars, supporting a bale and brush shaft.

The Gripsack Umbrella Company, of Glen's Falls, N.Y., has patented an umbrella having a device for lengthening or shortening the handle at will.

J. Bradley, North Chelmsford, Mass., has patented a knitting machine which includes a number of excellent and ingenious devices for facilitating the work of production.

TURKISH CARPET WEAVING.

Long before Homer sang the prophet Amos denounced the Philistines, there were rude looms for carpet manufacture in Asia Minor. The carpets of Turkey, on account of their almost everlasting qualities, their softness, harmonious shading, tasteful grouping of colors, and usually quiet, unobtrusive effect, continue to maintain a very high position in the estimation of buyers. Although Ouchak is one of the earliest homes of carpet weaving, there is no such thing as a factory in the town in the European sense of the term, the work being done in private houses.

The wool from which the carpets is made is that of the "fat tailed sheep," obtained from the Turkoman tribes in the vicinity. It is washed, combed and spun by the old women of the town. In order that the various colored yarns may mingle together in the pattern, they are spun loosely, and this is the reason why a true Eastern carpet contrasts so favorably with some of its European rivals.

The dyes are made from vegetable pigments: madder root for reds, yellow berries for yellow and green for greens, valonia for cream color and browns, indigo for blues, and cochineal for the brighter reds. The process of weaving is very simple. The loom is generally outside the house, under a verandah; the wool is worked into the warp in rows firmly knotted, and beaten close by a heavy comb; the surface is clipped with a pair of shears. Many of the designs are woven from memory.

Precious, however, as many of the Turkish carpets are, their value has been surpassed by some famous Persian and Indian fabrics, both on account of the time expended in their manufacture and the costly materials employed in the weaving. Perhaps the most costly carpet in the world is a valuable heirloom contained in the treasure room of the Maharajah of Baroda (India). This carpet is about 10 feet by 6, and is made entirely of strings of pearls, pure and colored, with great central and corner circles of diamonds. This carpet took three years to make, and cost \$1,000,000. This was one of Khande Rao's mad freaks, and was intended to be sent to Mecca to please a Mohammedan lady.

COCHINEAL SCARLET P. S.

Farbenfabriken vorm Friedr. Bayer & Co. have got a new color belonging to the class of Azo Acid Colors, and will be found exceedingly useful in wool dyeing. Cochineal Scarlet P S dyes wool with an addition of Glauber's salt and sulphuric acid, and produces a beautiful scarlet red, which is especially remarkable on account of its clear and fiery color. As will be understood from the name, this new color will chiefly be used as a substitute for cochineal, which it even excels in fastness to light and air. It dyes wool evenly, and also penetrates well. It is further remarkably fast to stoving, and also perfectly fast to alkali and acids. The color, if printed on acid in the usual manner, is very suitable for direct wool printing. When dyed on woolen cloth, it can be discharged with tin crystals, and should therefore be useful for colored discharge printing. The Dominion Dyewood and Chemical Co., Toronto, Ont., are sole agents.

PERSONAL.

Wm. O. Tompkins, employed in the cotton mill at Marysville, N.B., died of consumption on October 18th.

A. Holden has returned from Mount Forest to Singhampton, Ont., to take charge of W. Pearson's woolen mill.

Mrs. M. Code, mother of T. A. Code, proprietor of the woolen mills at Perth, Ont., died at her home at Innisville, Ont., lately.

John Dunlop, for many years a trusted employé of the Baird mill, has accepted the position of foreman in the woolen mill of Watchorn Bros., Merrickville, Ont.

Frank Neado, who has been employed in a Canadian mill for three or four years, has returned to Waterville, U.S.A., and entered the employ of the H. L. Welch Hosiery Company.

John Livingstone, of Listowell, Ont., the flax mill owner, and brother of the celebrated African explorer, Dr. Livingstone, has left for California, where he will spend the winter.

The estate of Raphael & Hodges, fancy dry goods commission merchants, Montreal, was bought in by Mr. Raphael, and will realize about 25 cents on the dollar for the creditors.

John B. Cudlip, of St. John, N.B., has been appointed superintendent of A. Gibson's cotton factory at Marysville, N.B. Mr. Cudlip previously travelled for a Boston machinery house.

J. P. Cleghorn, of the wholesale dry goods firm of J. G. McKenzie & Co., of Montreal, has been elected to the directorate of the Molsons Bank, to fill the vacancy caused by the death of the late R. W. Sheppard.

Alex. G. Rosamond, son of Jas. Rosamond, treasurer of the Rosamond Woolen Co., Almonte, and nephew of B. Rosamond, M.P., president of the company, who has been in England for the past three years taking a technical course at the Yorkshire College, Leeds, has returned to Canada.

A large party of the employés of the Cornwall Manufacturing Co. waited on T. Scott, who has held an important position with the company for some time, at his residence a few days ago, and presented him with an appreciative address and valuable meerschau pipe on the occasion of his leaving Cornwall.

J. Slingsby, manager of the Slingsby Manufacturing Co., Brantford, Ont., died at his home in that town recently. Mr. Slingsby, who had not been in good health for some time, received a serious shock a few weeks ago by a false alarm with reference to one of the engine boilers having run empty. The resulting nervous prostration proved fatal. Mr. Slingsby was born in the town of Dundas, and there spent his early life. He afterwards removed to Canning, where he was engaged in the woolen business, coming to Brantford 24 years ago. He was a member of the Wm. Slingsby & Co. firm and afterwards of the Slingsby Bros. firm. When the company assumed its present shape a few years ago he was appointed manager of the mills, which position he has since held. He was highly respected by all who knew him. Deceased leaves a wife, four daughters and one son, who will have the sincere sympathy of a large number of friends in their sad bereavement.

G. Holdsworth, of Kidderminster, England, is paying his annual visit to Canada.

J. A. Fraser, ex-mayor of Port Arthur, Ont., has gone to Vancouver, where he is said to be interested in the establishment of a silk factory.

Mr. Kendry, manager of the Auburn woolen mills, Peterboro, was in Montreal recently attending the wedding of Miss Mabel Gault and Mr. D. Morrice.

Robert L. Gault, of Gault Bros. & Co., wholesale dry goods, Montreal, is dangerously ill. His daughter, Mrs. D. Morrice, whose marriage we announced in another column, has returned hastily from her wedding journey to her father's bedside.

Senator Sanford, of the W. E. Canford Mfg. Co., Hamilton, Ont., is at the Arkansas Hot Springs, endeavoring to get rid of a bad attack of rheumatism, contracted during the voyage to Canada in the "Blenheim," with the remains of the late Sir John Thompson, last January.

Graham Brothers, of Aurora, Ont., who were accused in August last of claiming insurance on wool which they said was in a burned freight shed, when the wool, it was alleged, was not there, are now suing for the insurance, in order to have the whole matter gone into in the courts and their innocence of fraud proved, if possible.

J. M. Barbour, a member of the well-known firm of Wm. Barbour & Sons, Lisburn, Ireland, is in Canada. In addition to thread-making, the firm manufactures fishing nets, and a very large proportion of those used on the Fraser, Skeena, and Columbia Rivers, and in Alaska waters, come from the famous Hilden works at Lisburn.

John Gordon, of John Gordon & Son, dry goods commission merchants, Montreal, died last month at his home in that city. Mr. Gordon had been in the dry goods trade for over forty years, having entered the employ of Wm. Stephen & Co. in 1853. He was afterwards with James Roy & Co., but latterly in business for himself. He leaves three sons, Charles, James and William.

Arthur P. Taylor, chemist, Dominion Dyewood and Chemical Co., Toronto, has returned from Germany. Mr. Taylor has been taking a practical course of chemistry, as applied to dyeing, in the works of Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld. The Dominion Dyewood and Chemical Co. is now in a better position than ever for supplying latest information as to the best method of using alizarine, cyanine and aniline products on different fibres.

Among the Mills

Camelford Bros., of Paris, Ont., carpet weavers, have dissolved partnership.

The Royal Carpet Co., of Guelph, Ont., have added a dye plant to their equipment.

The establishment of a flax mill at Mission City, B.C., is under discussion at present.

The Brussels, Ont., council has decided to sell the woolen mill in that town by public auction.

D. M. Fraser, Almonte, Ont., is having a new water wheel put into his knitting mill by J. C. Wilson & Co.

Two thousand cords of wood, and the barns in connection with McEwen's flax mill at Hensall, Ont., were burnt not long ago.

The loom fixers in the St. Croix cotton mill are preparing for their annual ball on Thanksgiving eve in the Milltown, N.B., opera house.

The projectors of the stock company for the manufacture of mantles, clothing, etc., St. Johns, Que., are diligently working the matter up.

A prominent manufacturing firm in the Maritime Provinces announced that they have registered as their trade mark a tuft woven into the end of each piece of goods. This is in line with the suggestions of THE JOURNAL OF FABRICS some months ago.

S. Kaufman is advertising the New Dundee, Ont., woolen mill for sale.

The Rosamond Woolen Co. are now showing their heavy samples.

The carding mill of A. Brazeau, Pakenham, Ont., will soon be in operation.

The Canning Yarn Company has been shut down for a time lately, owing to an obstruction in the wheel, says the *Paris Review*.

The case of Kirvin v. Canada Cotton Mills, mentioned in our last issue, is now in appeal. Judgment was given against the company for \$3,500.

Ananias Gingras, manager for Charles Bellerive, glove manufacturer, Que., has disappeared, leaving his books and stock about \$5,000 short.

A building permit has been issued to E. VanAllen & Co., Hamilton, Ont., for the erection of a brick addition to their shirt factory on George street.

Messrs. Harvey, Van Norman, Taylor and others of Toronto, Ont., are seeking incorporation as the Maple Leaf Rubber Co., to manufacture rubber goods.

The binder twine factory at Kingston Penitentiary is now running on next season's work. The output will be 620 tons, considerably in excess of former seasons.

Both Penman's, Nos. 1 and 2, knitting mills, Paris, Ont., have been working over time for the past few weeks. Larger orders than usual and more of them is the cause.

There seems to be some probability that the silk factory which a large Oriental firm have proposed to establish at Vancouver or Victoria, B.C., will become an accomplished fact.

The St. John *Record* says that the rope works there, operated by the Consumers' Cordage Co., are now employing twenty-four men. New machinery will be put in in the spring.

Jos. Boothroyd, who was employed for many years as superintendent in Baird's woolen mill at Almonte, Ont., has secured a good position with the Cornwall Mfg. Co., Cornwall, Ont.

Robert & Co., Montreal, have been appointed sole agents in Canada for John R. Greigy & Co., of Basle, Switzerland, the celebrated manufacturers of aniline colors, dyewood extracts, etc.

According to the Sherbrooke, Que., *Gazette*, Johnson & Sons, who ran a wool carding and cloth establishment in Ways Mills, Que., have skipped to Uncle Sam's domains, leaving a large number of creditors.

C. B. Morris, ex-secretary of the Consumers' Cordage Co., has entered an action for \$208 against the company, claiming that he is entitled to be paid his salary until the expiry of his engagement in March next.

W. E. Channell, knitted goods manufacturer, St. Catharines, Ont., is asking the city council for exemption from taxes for ten years. He now employs only fifteen hands, but proposes to extend his operations.

The Port Elgin, Ont., *Times* says that John Humberstone is going to erect a large flax mill at Ripley, Ont. Canvassers are now at work among the farmers in order to secure a large acreage being sown next spring.

The friends of George M. Ewan, manager of the Yarmouth, N.S., woolen mill, will regret to hear of the bereavement he sustained a few days ago in the death of his little daughter, who was killed by an electric car in that town.

Chas. Raymond, sewing machine manufacturer of Guelph, Ont., has decided not to remove his factory to Brantford. A joint stock company is being formed to carry on the business on a much larger scale, and the city has granted exemption from taxes.

At a special meeting of the council of Tilbury, Ont., a communication was read from a flax syndicate, agreeing to erect a mill and to employ an average of 40 hands throughout the year. A resolution was passed granting the proposed company free water, exemption from taxes and fire protection.

Dominion Cotton Mills Co., Magog, Que., are taking advantage of the low water to clear away the remains of the old dam.

We regret to state that Robt. L. Gault, of Gault Bros. & Co., Montreal, whose illness is mentioned elsewhere, is dead. An obituary notice will appear in next issue.

J. C. Whyte, of the Galetta woolen mills, had his store at Galetta, Ont., used as the scene of a safe-blowing act lately. Only \$27 was secured.

The wincey mills at Paris, Ont., which have been shut down for two weeks for repairs, are now running both night and day making 24 working hours a day.

The recent gale did a great deal of damage to the fisheries in the Maritime Provinces. The number of nets destroyed was very great, and as they cost the fishermen \$6 a piece, the loss is heavy.

Felix Bergeron has taken action against B. Took, shirt manufacturer, Montreal, for \$10,000 for injuries sustained by his daughter Blanche from a hot shaft which tore off her ear and part of her scalp.

The Regina Leader says that the North-West Felt Manufacturing Company are turning out felt boots from their factory, at Hedgesford, Assinibola. It is proposed to open salesrooms in Regina.

The factory being erected by W. B. Berry, near Indian Lorette, Que., for the manufacture of asbestos cloth and woolens, is nearly completed. The factory will have a special siding from the Quebec & Lake St. John Railway.

P. Erbach, of Germany, reports that he has shipped 100 car loads of flax seed from Manitoba to Berlin; the price is 70 cents a bushel. He estimates that a million bushels will be exported from Canada this season.

The Hanover Spring Bed and Mattress Factory Co.'s works at Hanover, Ont., were partly burned on Nov. 11th. The north building is a total loss. The fire is supposed to have been caused by spontaneous combustion in the picker room.

Thomas Bamford, of West Selkirk, Manitoba, formerly engaged in woolen manufacturing in the Yorkshire district, England, contemplates starting a woolen mill somewhere in Manitoba, and is now looking for the most advantageous site.

The Eureka Mineral Wool and Asbestos Co., of 124 Bay street, Toronto, recently made a large shipment of their sectional mineral wool covering to South America. We are always pleased to see Canadian goods distancing competitors in the markets of the world.

The Dominion Oil Cloth Company of Montreal, Que., gives notice that it will apply for incorporation under the Companies Act of the Dominion Parliament, and withdraw the company from the operation of the Joint Stock Companies Incorporation Act of the Province of Quebec.

Only a short time ago a number of the most prominent manufacturers of Hamilton, including the Sanford Manufacturing Co., Eagle Knitting Co., and the Can. Colored Cotton Co., were summoned before the magistrate on the charge of failing to have a sufficient number of fire escapes on their buildings.

Scutching began in the flax mill at Sebringville, Ont., on the 21st inst., and will be continued until the whole stock is converted into fibre. Four hundred and fifty-eight tons were delivered at the mill this season. The company expected seven hundred tons, but Jack Frost maliciously knocked out their expectations.

The case of Long vs. Carter was before the courts at Toronto this month. The defendant appealed from the judgment of Justice Robertson, who tried action at Hamilton, in favor of plaintiffs. The action was by Long & Blsby, wool merchants, of Hamilton, against the assignee for creditors of Smith Bros., who carried on business at Dresden and Sarnia, to recover \$200.01 for moneys belonging to plaintiffs alleged to have been appropriated by defendant, and for damages for detention of plaintiffs' wool, which money and goods, as alleged, were in the possession of Smith Bros. at the time of the assignment. The appellant contended that the money and goods were never the property of the plaintiffs. Judgment is reserved.

The city council of St. Catharines, Ont., has passed a by-law exempting the Stagg Dominion Hair Cloth Company, Jas. Prior, proprietor, from municipal taxes, less water and school rates, for ten years, provided they pay from \$2,000 to \$4,000 annually in wages, and employ not less than five hands from the date of the passing of the by-law.

The Dominion Cotton Company's 6 per cent. debentures to the amount of \$1,500,000, all of which are held in Montreal and other parts of Canada, will fall due on Jan. 2nd; and A. F. Gault, president, has received a cable saying that the issue has been made in London at 4½ per cent. This means that \$1,500,000 of English money will be brought to Canada.

James Randle, of Meaford, Ont., was standing on a large loom in his woolen mill to put a belt on an overhanging pulley with the shaft in motion, the belt in some way became engaged with the shaft, and the large loom, weighing over three tons, was torn from its foundation and was suspended in the air. The belt broke, and the loom fell with such force that it broke through a double floor. Mr. Randle was uninjured.

While William Scott was oiling a shaft in Wylie & Shaw's blanket factory, Almonte, Ont., recently, his smock caught in the shafting and he would have been whirled to death but for the fact that his body came in contact with a perpendicular pipe that projects through the floor. This gave him a severe but not dangerous wound on the jaw, and knocked out several of his teeth; but as it released him, it saved him a more serious result.

William Fetterley was the victim of an accident while attending to his duties in the dyeing-room of the Stormont Mill, Cornwall, Ont., recently. A large machine, called the extractor, moving at the rate of 1,600 revolutions per minute, broke, and a piece of the brass rim struck the unfortunate man across the back of the legs. It cut clean to the bone of the right leg, and cut deeply into the left leg from the inside, breaking the bone near the thigh. The injuries will not prove fatal.

THE dry goods clerks are organizing to take part in the coming municipal elections in Montreal.

THE "United Empire" recently landed fifteen carloads of flax seed at Sarnia from Fort William.

A SPECIAL meeting of the twist and sewing silk manufacturers is to be held in New York, on November 20th, to consider a further advance in the price of manufactured silks.

AN extensive flax grower in Australia has made successful experiments in flax cutting with a binder, instead of pulling. The work was better done, and in less than half the time.

A HUNDRED thousand dollar fire took place in J. W. Hill's storage warehouse, Montreal, on Nov. 8th. A very large quantity of hemp stored on the upper flats was destroyed. Combustion is supposed to have been spontaneous.

THE dry goods section of the Toronto Board of Trade appointed a committee to wait on the Government and endeavor to have the laws amended as to private agreements re chattel mortgages and arrearages of rent in cases of insolvents.

THE Hartford Mills Company, Limited, of Preston, England, whose manufacturers have for thirty-four years gone to India, have issued a circular stating that in consequence of the Government having taken no steps to remedy the loss inflicted on Lancashire manufacturers by the Indian cotton duties, they are reluctantly compelled to stop all their machinery which supplied the Indian markets.

THE American Wool and Cotton Reporter said in a recent issue: "A determined attempt will be made to secure for our domestic mills the fancy worsted business for next season, and if agents and manufacturers do not demand other than a small advance, there is every promise that we shall be able to hold this market against foreign competition. Unless manufacturers imprudently advance prices too far, the foreigner promises to cut a much less important figure in next season's business than in the past."

ELBERT, the centre of the French woolen manufacture, is so well off that it has abolished nearly all its town taxes, and now petitions the Government for leave to do away with the octroi, the duty on provisions entering the town.

EDWARD E. STEWART, manufacturers' agent, 70 Bay st., Toronto, was arrested on Nov. 4th, on a charge of obtaining \$415 by fraud. He was the Toronto agent of J. Ward & Co., London, and had obtained notes from Geo. C. Rogers, hatter and furrier, Toronto, in excess of the amount due Ward & Co., by representing that he was unable to get the notes discounted which Mr. Rogers had already given him, and which he claimed he had destroyed.

A CASE of interest to wholesale houses occurred in Winnipeg a few days ago. E. Dumaresq, representative of Z Paquet, fur manufacturer, Quebec, delivered purchased goods to a customer from his samples, and was immediately charged by the police with violation of the transient traders' by-law, and was fined \$10 and costs for lacking a license. He protested that his action was general among travellers. This, however, did not exonerate him.

THREE prominent young men, W. C. Learoid, aged 27, member of the firm of dry goods merchants, Learoid Bros., Kingsville; W. McDonough, son of Rev. W. McDonough, and H. L. Drake, of St. Thomas, brother of the wife of A. D. Learoid, were arrested a short time ago at Detroit, charged with smuggling a valuable consignment of silks. When arrested they had \$60 worth of silk in their possession.

LINENS are distinguished by the number of threads given to a warp width of 37 inches, as sixteen hundreds linen, eighteen hundreds linen, and so on. The linen glass has a round hole in the brass piece that is 1-200 of 37 inches in diameter. Consequently the number of threads exposed to the magnifying glass multiplied by 200 gives the count of the linen. Thus, if eight threads are exposed, $8 \times 200 = 1600$, a sixteen hundred linen. This glass is technically known in Belfast as the "thirty-seven."

AN English correspondent says:—"There is every reason to believe that the coming season will be a good one for the fur trade. Sealskin jackets will be as much worn as they were last year, and there has already been a great run upon sable necklets, especially those dyed the new dark brown, the most successful imitation of the natural coloring of the rarest and most expensive skins that has yet been seen. So perfect is this dye that a sable which can be sold wholesale for thirty-five shillings can scarcely be distinguished from a natural colored one of the value of a dozen guineas. Sealskin is also cheaper than it was this time last year, though the tendency of price is decidedly upwards."

THIS method of preparing sheepskins with the wool on, is strongly recommended: Wash in a cold lather which has been made with hot water. Rinse till clean. Dissolve one pound each of salt and alum in two gallons of hot water, and put the skin into a tub sufficient to cover it. Let it soak for twelve hours, and then hang it over a pole to drain. When well drained stretch it carefully on a board to dry, stretching several times while drying. Before it is quite dry sprinkle on the flesh side one ounce each of finely pulverized alum and saltpetre, rubbing this mixture in. Try if the wool be firm on the skin; if not let it remain a day or two, turning over each day till quite dry. Scrape the flesh side with a blunt knife and rub with pumice or rotten stone.

THE ranchers in the west are looking toward the English market as the most profitable one for their sheep. It is to be hoped that the unfounded agitation to keep them out on the score that they are diseased, which the papers announced a short time ago, will amount to nothing. The experimental shipment of fat sheep sent to the British markets several weeks ago by ranchers in the Medicine Hat district, has "panned out" in a manner which has exceeded the most sanguine expectations. The sheep were landed in Glasgow in splendid condition and were offered for sale as "1,000 Canadian Weeders, fat or in full condition for early feeding." The lot was knocked down at 34s. 6d., or about \$8.40 per head, and will net the ranchers about \$4.75 a head, after freight and all the other expenses have been paid.

THE French Minister at Teheran reports two large firms established there for the manufacture of carpets. Within the last twenty years this trade has made enormous progress; in fact, there is no other place in Persia where it has been so prosperous.

THE total catch of the British Columbia sealing fleet for the past season is placed at 72,414 skins. Of this number, 9,258 skins were taken on the B.C. coast, 26,409 on the Siberian coast, and 36,747 in Behring Sea. The catch in 1894 was 94,474 skins.

JAMES CUDDY, dry goods merchant, 1317 Notre Dame street, has assigned at the instance of Thibaudeau Bros. & Co. H. B. Picken, representing Gault Bros., has been appointed provisional guardian. The assets consist of the stock in trade, etc., and two lots of land in St. James' Ward, three in St. Mary's Ward, and one at Cote Visitation. The liabilities will range from \$10,000 to \$20,000. The chief creditors are Thibaudeau Bros. & Co., \$854; Gault Bros. & Co., \$1,469, J. Johnston & Co., \$873, Liddell, Lesperance & Co., \$357, Brophy, Cains & Co., \$241, Benning & Barsalou, \$278; L. J. Forget & Co., \$1,078, corporation of Montreal, \$3,000.

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

As mentioned some time ago, the Continental Twine and Cordage Company has decided to open a new factory either in Brantford or Hamilton. A member of the firm says that the new mill will be a 250-spindle mill, 200 spindles of which will be devoted to the manufacture of binder twine, and 50 spindles to the manufacture of cordage of different sizes, lath yarns, etc. About 200 hands will be employed. The company is anxious to secure a building already erected, so that work may commence at once. In Brantford negotiations are being carried on for the purchase of the winery mill, which has been idle for several years. The company also intend building a factory in Quebec for supplying the Maritime Provinces with cordage for the use of fishermen and vessel supplies.

LINEN threads used in the construction of dress goods for spring promise to be very popular, says the *Dry Goods Economist*. Their use produces a light fabric, which is specially desirable for summer wear, and introduces with it one of the features of mohair which is so popular this fall. For these reasons such goods are sure to be very desirable stock for next spring. Silk Striped Linen Batiste is one of the novelties in dress goods for next spring's business. It is a very light-weight fabric, cleanly shorn and transparent, with silk stripes of a contrasting color running the length of the fabric. It is composed of silk, linen and cotton threads. The silk and cotton threads are used entirely in the warps; the silk being used to produce the differently colored silk stripes, and the cotton in all the other warp threads where this silk stripe is not required. The filling threads are composed entirely of linen. The cotton and linen threads used are of a fine quality, and both are dyed in the yarn the same color. The silk is finely spun, and is dyed a different color to either the cotton or linen. The weave is as simple as that of a cheese cloth, and as the materials used are of fine count, and few picks proportionately are thrown in to the inch, the transparent effect of the fabric is a consequence. This transparency is further increased by the fabric being shorn of all stray fibres by being run across red-hot plates to singe them off, and after the fabric is thoroughly washed and dried it is ready for the market.

AUSTRALIANS are going in more extensively for flax culture, and it is said that about 1,000 producers are now growing flax. The sowing time is from July to September.

GRIFFIN & WRIGHT, dry goods merchants, St. Thomas, Ont., have assigned to G. C. Gibbons, London. The assets are said to be considerably in excess of the liabilities.

S. O. SHOREY, of H. Shorey & Co., Montreal, at Ottawa recently secured the order for 2,000 overcoats for the Militia Department.

ROBERT FEE, a defaulting bookkeeper employed by Sadler, Dundas & Flavell, dry goods, Lindsay, Ont., who fled on the occasion of an audit of the books, not long ago, has been arrested at Rochester, N.Y. There was a shortage of \$800 or more.

SOME time ago a Halifax clothier, Jacob Goldberg, went to Montreal, representing himself to be worth \$30,000, and obtained large supplies of clothing on credit. Afterwards he gave a bill of sale of his stock and then assigned, preferring his brother, Ike Goldberg, and other relatives, for some \$15,000. An officer from Montreal arrested him on a charge of obtaining goods under false pretences. He was brought up before Judge Desnoyers on the 13th Nov., and committed to stand his trial for obtaining \$1,400 worth of goods from A. Jacob, of Montreal. Charges are also made by Porter, Teskey & Co. and others.

CHEMICALS AND DYESTUFFS.

There has been no marked change in the state of the market since last report, and there are no alterations in price to notice. Prices show signs of remaining steady for some time. Glycerine and sulphate of copper are stronger. Gambier is easier. The following are current quotations in Montreal:

Bleaching powder.....	\$ 2 15	to \$ 2 30
Bicarb soda.....	2 25	" 2 35
Sal soda.....	0 67½	" 0 70
Carbolic acid, 1 lb bottles.....	0 25	" 0 30
Caustic soda, 60°.....	1 90	" 2 00
Caustic soda, 70°.....	2 25	" 2 35
Chlorate of potash.....	0 15	" 0 20
Alum.....	1 40	" 1 50
Copperas.....	0 70	" 0 75
Sulphur flour.....	1 50	" 1 75
Sulphur roll.....	1 50	" 1 75
Sulphate of copper.....	4 00	" 5 00
White sugar of lead.....	0 07½	" 0 08½
Bich potash.....	0	" 0 12
Sumac, Sicily, per ton.....	65	" 70 00
Soda ash, 48° to 58°.....	1 25	" 1 50
Chip logwood.....	2 00	" 2 10
Castor oil.....	0 06½	" 0 07
Cocoonut oil.....	0 06½	" 0 07

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122 PEARL STREET, NEW YORK

Chemicals and Dyestuffs

ANILINE COLORS OF EVERY KIND

SPECIALTIES

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

Also CAUSTIC POTASH FOR WOOL SCOURING

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DYEING WITH CARBOLIC ACID EMULSION.

On operating in the dyehouse laboratory with pure carbolic acid, says a writer in the *Färbere Muster Zeitung*, I made observations which caused me to examine certain actions in different applications, arriving at results which it may be of interest for technical chemists to further develop.

Pure carbolic acid, mixed with water in various proportions, dissolves only to a small portion, but by energetic stirring forms a fine emulsion. Carbolic acid proves to be one of the strongest solvents for nearly all groups of tar dyestuffs. Such dyestuff solutions in carbolic acid, when added to larger quantities of water, form likewise fine emulsions. In such finely distributed state, suspended in water baths, the carbolic acid shows an uncommonly great affinity to both vegetable and animal fibrous matters.

I found that raw loose cotton, which is very difficult to wet out in water, when put into an emulsion of carbolic acid, sinks to the bottom without special mechanical assistance, while the bath is exhausted of carbolic acid—that is, the latter rapidly associates with the fibre material. I have found the same observation under equal conditions, confirmed in the case of raw wool fibre, which fact may be based upon physical as well as chemical actions.

As the substance of the cotton fibre, freed of the atmospheric air adhering to it and contained in the lumina, is of higher specific gravity than water, while that of pure carbolic acid is less than water, it may, on the one hand, be inferred that by the rapid penetration of the carbolic acid into the individual fibres an energetic expulsion of the particles of air is effected; and on the other hand that a thorough scouring, respectively alteration of the oily, fatty, and resinous components of the raw fibre, takes place.

When solutions of tar and other dyestuffs in carbolic acid are diluted with water, the solutions of dyestuff behave like pure carbolic acid; the latter gives off to the water only a very small quantity of the dyestuff, but holds it fast as emulsion, and as the dyestuff containing carbolic acid shows again the same behavior to the fibrous material as pure carbolic acid, this behavior explains the uncommonly rapid level coloration which takes place when cotton, wool, or silk is immersed in such emulsified solutions of dyestuff. The coloration, respectively exhaustion of the baths, takes place without difference, whether the cotton be raw, boiled off or bleached, the wool raw or scoured, the silk raw or ungummed; and the degrees of coloration obtained represent the normal effects of certain weights of dyestuffs. Raw yarns and tissues are subject to similar influences of carbolic acid.

Dyes carried out in this manner, without any other preparatory or after treatment, showed in some cases greater resistance to chemical influences; in other cases at least the same features as can be claimed for the several dyestuffs applied after the usual dyeing methods. In order to remove the bad odors, respectively of all unnecessary remnants of free carbolic acid, if thorough airing is not sufficient, steaming may be resorted to, which, by the way, contributes to the fixation of the coloring bodies.

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BOSTON: 115 and 117 High St.
PHILADELPHIA: 122 and 124 Arch St.

A. W. LEITON, 16 Haghson St. South, HAMILTON, ONT.

THE SILK COTTON TREE.

There are two species of plants which furnish the silk cotton, or the kapok of commerce, growing in the Island of Ceylon. One, the more commonly found tree, is the *Eriodendron anfractuosum*—Singhalese, Imbul, and Tamil, Elavum, and the other is the *Bombax Malabaricum*, the red cotton tree, or the Katu Imbul of the Singhalese and the Parutti of the Tamils.

Both these trees grow wild in Ceylon, but the former is more common than the latter. The *E. anfractuosum* thrives well in the warmer parts of the island up to high elevations, and is found much in cultivated places. The tree attains to very large dimensions, often growing to the height of 80 feet. The trunk is straight, and the branches are borne on the top of the tree; the bark nearer the base is covered sparsely with thick prickles, which form into small knot-like masses as the tree grows old. The timber of this tree is very light, and hence is only adapted for the purpose of fuel, but of late it has been sawn into planks and used in the manufacture of tea boxes.

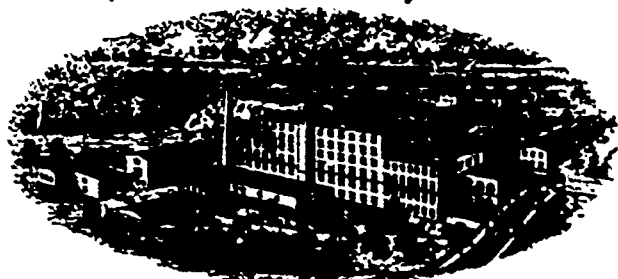
The plant in its third year begins to bear. The flowers, which are of a fairly large size, with a thick whitish corolla and a cup-shaped thick green calyx, are borne on the trees once a year in February-March, and the fruits are formed very soon, as they are ready for plucking in April, May and June. During the flowering time flying foxes frequent the trees, as they are very fond of the young blossoms, but their ravages do not spoil the crop to any extent. The fruits are long and cylindrical, about five inches in length and three inches in circumference. These fruits are filled with a downy soft silky cotton, the staple very short and curved, and the whole is interspersed with black shot-like light seed, which separate when dry. In the dry state the outer coverings of the fruit separate easily, and, if not plucked, the silky down is wafted by the wind. When the fruits begin to dry they are collected by men, who ascend the trees with long sticks. These fruits are dried, and the first operation done is the removal of the dry outer coverings. Thus cleaned, the down with the seed is packed in bags, and is sent to the mills for a final cleaning, when the down is carefully sifted and the seed removed. The last process is that of packing, which is easily done by the common baling machines, and then the product (kapok) is ready for export.

Sometimes the product is prepared outside the mills, by drying and hand-picking, but if it is to be exported, baling has to be done at the mills. Locally kapok is largely used for stuffing pillows. The staple is so thin that it is considered to be unfit for weaving purposes.

The export trade in kapok in Ceylon is of very recent origin, probably not more than ten years. Previous to this the product had only a local demand for the purpose of stuffing pillows, cushions, etc.

The current price of uncleaned kapok is Rs. 6.00 per cwt. in Colombo, and cleaned Rs. 26 to Rs. 30.

There is a large demand for the article in Australia, where it is used in the manufacture of pillows and cushions; it is also

ROSAMOND WOOLEN CO., ALMONTE, Ont.

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and now in use by Toronto Street Railway
Company, Niagara Navigation Company,
Toronto Ferry Company, etc., etc.**Impervious to Heat, Cold,
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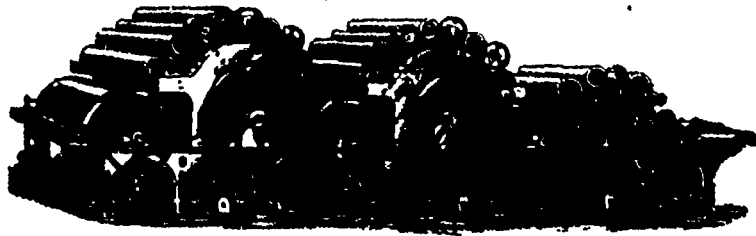
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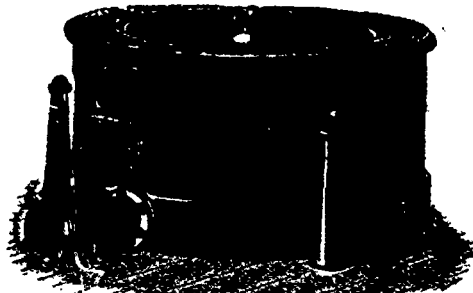
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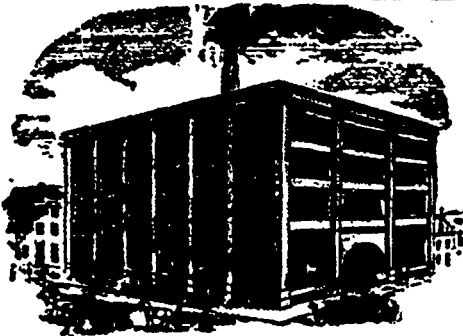
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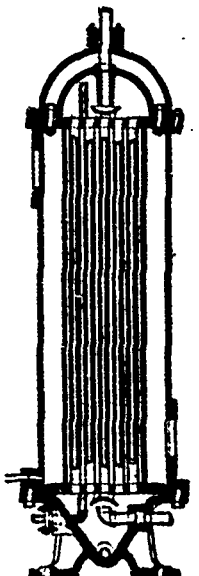
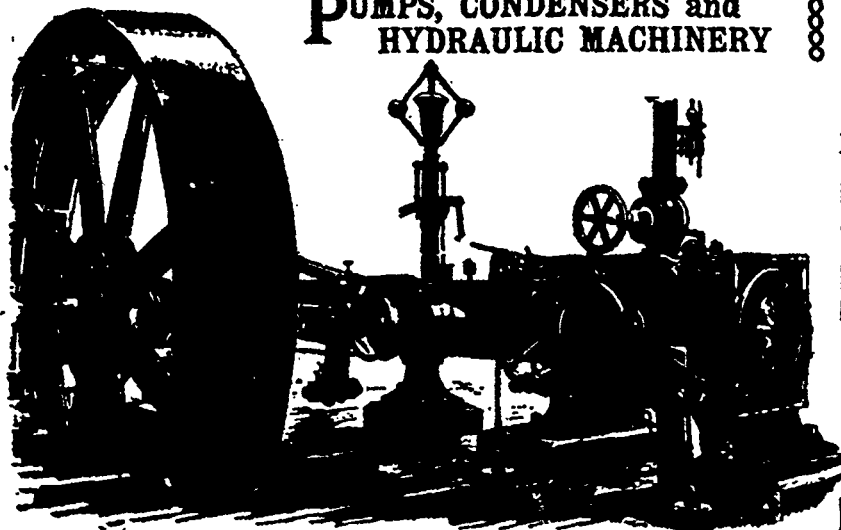
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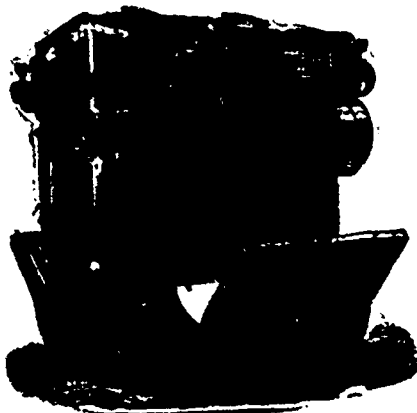
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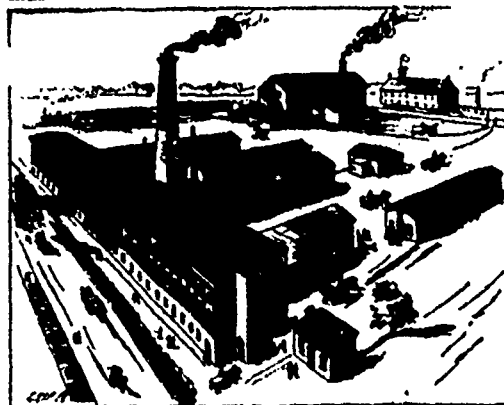
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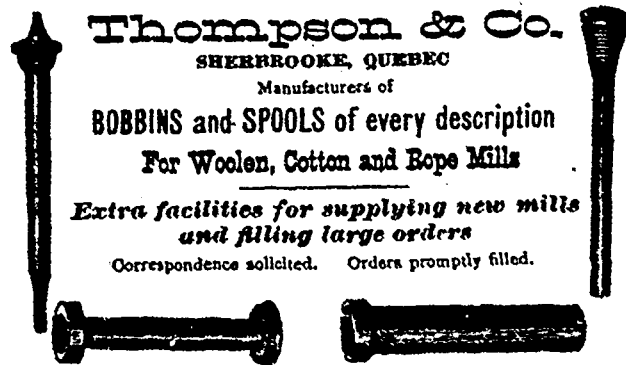
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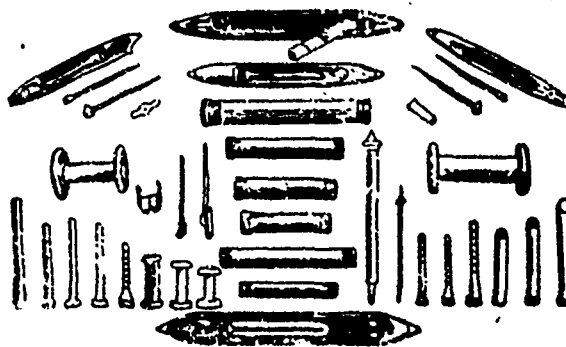
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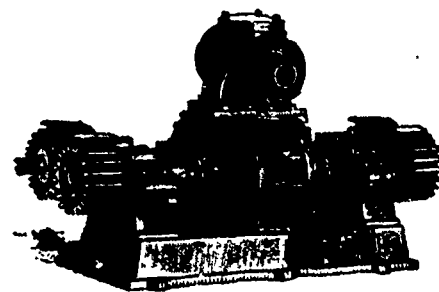


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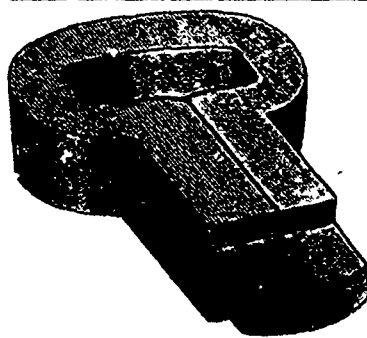
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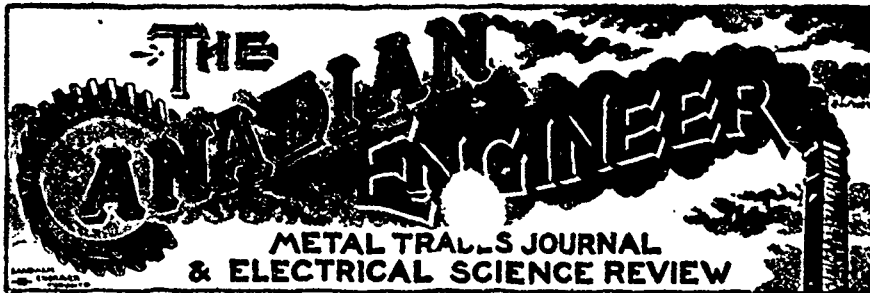
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CONTENTS OF NOVEMBER, 1895, NUMBER:

	PAGES		PAGE
American St. Ry. Convention, 173-181	173-181	Horseless Carriages in England...	174
Ball Nozzle Fire Jet	186	Industrial Notes	191
Boilers, Facts About.....	178	Lever Safety Valve.....	168
Bridge and Trestle Timbers, Strength of	174	McMaster, John.....	171
Can. Society Civil Engineers.....	186	Metal Imports from Great Britain.....	190
Can. Ass'n of Stationary Engineers.....	189	Metal Trade Review	186
do. New Constitution of.....	188	Mining Matters	194
Canadian Nickel in Naval Work.....	180	Moto-Cycle Notes.....	190
Concrete Construction	176	Moto-Cycle Race at Chicago.....	172
Electric Supply, Consolidation of two Systems	184	Patents	196
Electric Flashes.....	193	Personal	196
Fires of the Month	190	Pumpage, Uses of	186
Gas Engines for Electric Light and Power	177	Pumps, The M. T. Davidson	187
Grip Socket Case.....	196	Railway and Marine	195
		Safety Valves	168
		Tidal Motor.....	180
		Toronto Technical School.....	170

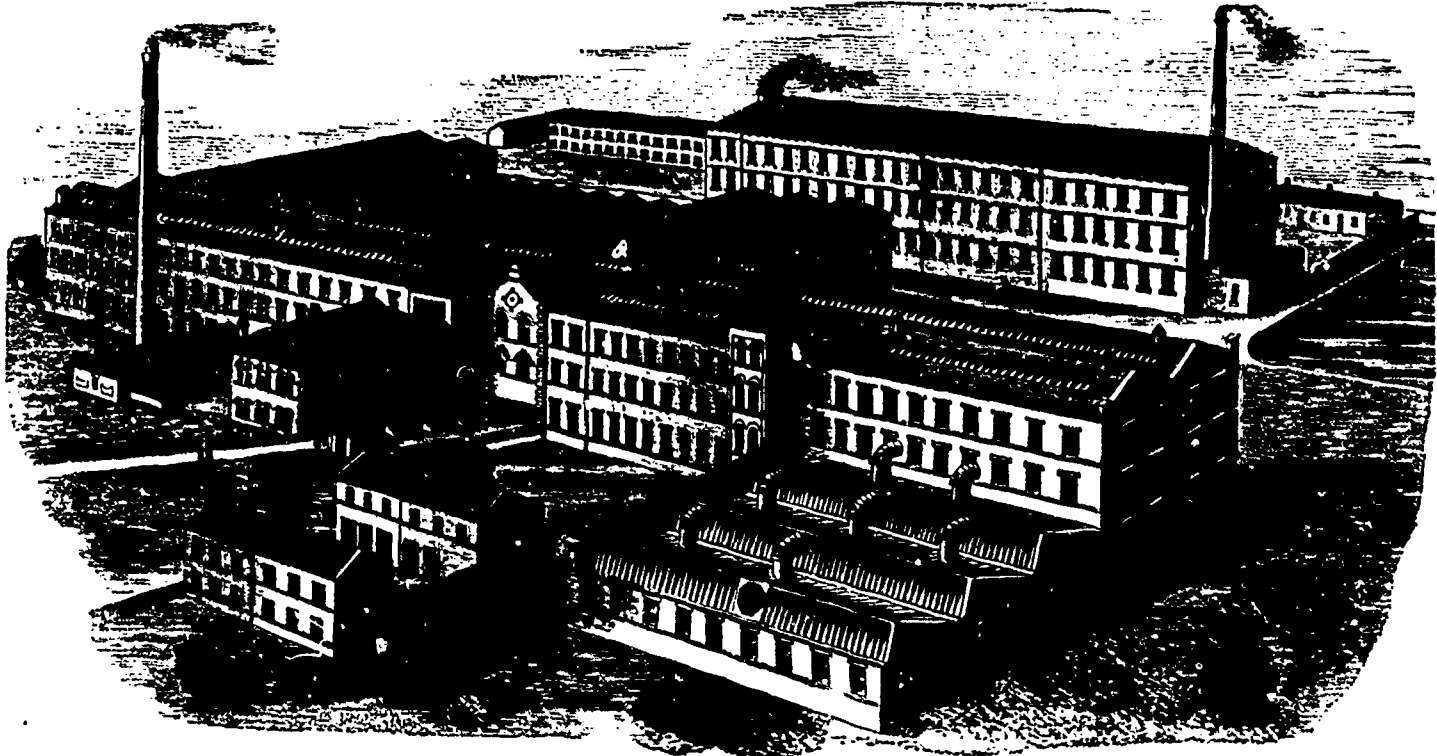
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Deep Walnut on Wool.—For 100 lbs. wool.—Mordant by boiling for 1½ hours in a bath of 3 lbs. bichromate of potash and 2½ lbs. tartar. Then dye in a bath of 12 lbs. Anthracene Brown W, 3 lbs. Alizarine Red WL, 1 lb. Mordant Yellow, working for 1½ hours at the boil; then lift, wash, and dry; 3 lbs. acetic should be added to the dye-bath.

Indigo Blue on Half-wool.—For 100 lbs. half-wool.—Prepare a dye-bath with 5 lbs. Diamine sky-blue, 2 lbs. Diamine blue BX, 1½ lbs. sulphoazurine, 3 lbs. soda, 5 lbs. carbonate of ammonia. Work for ¼ hr. at 80 to 90 deg. C., lift, and add to the bath 2 lbs. bisulphate of soda, and 8 lbs. Glauber's salt. Work for ½ hr. at the boil, then for ¼ hr. without steam, lift, rinse and dry.

Tobacco Brown on Cotton.—For 100 lbs. cotton.—Work the cotton in a bath of 54 lbs. Cutch, using a bath of 8 deg. Tw. strength; then lift, wring, and pass into a bath of 12 lbs. acetate of copper, 18 deg. Tw.; then chrome in a bath of 2 lbs. bichromate of potash; lift, wash and dry.

Terra Cotta Red on Wool.—For 100 lbs. wool.—Mordant by boiling in a bath made with 1½ lbs. bichromate of potash, 1 lb. of

tartar, and 1 lb. sulphuric acid, working for 1 hr.; lift, rinse, and dye in a bath of 32 lbs of Sandar's wood, 34 lbs. fustic, and 1 lb. scarlet OO, working at the boil for 1½ hr.; lift, and wash and dry.

Lilac on Wool.—For 100 lbs. wool.—Prepare a dye-bath with 6 ozs. XL Red, 1¼ ozs. Indigo extract powder, ½ oz. acid yellow, 10 lbs. Glauber's salt, and 2 lbs. sulphuric acid, working at the boil for 1 hour; then lift, wash and dry.

Sea Green on Wool.—For 100 lbs. wool.—Prepare a dye-bath with 4 ozs. XL Red, 4 ozs. Indigo extract powder, 2 ozs. acid yellow, 10 lbs. Glauber's salt, and 2 lbs. sulphuric acid; working at the boil for 1 hour, then lift, wash and dry.

Olive on Wool.—For 100 lbs. wool.—First mordant in a bath made with 3 lbs. bichromate of potash, 1½ lbs. bluestone, and 1 lb. sulphuric acid, boiling for 1½ hours; then rinse and dye in a new bath, containing 2 lbs. milling yellow, 1 lb. logwood extract, and 10 lbs. bisulphate of soda; working at the boil for 1½ hours, then lift, wash and dry.

Black on Hemp.—For 100 lbs. hemp.—Make a bath with 2 lbs. coal black B extra, and 2 lbs. Glauber's salt, enter into a hot bath, heat to the boil, work for ½ hr., then lift, wash and dry.

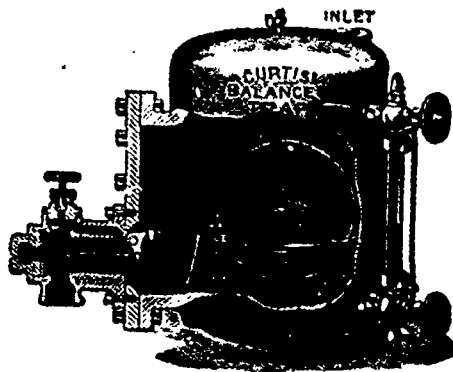
Fawn on Cotton.—For 100 lbs. cotton.—Prepare a dye-bath with ¼ lb. Benzo Fast Grey, ¼ lb. Benzo Orange R, 10 lbs. common salt, and 2 lbs. soda; working at the boil for 1 hr., then lift, wash and dry.

Black upon Hair and Bristles.—Dissolve 30 grms. tartaric in 1 lit. hot water, add gradually 30 grms. soda crystals, 50 grms. wool black and 2.5 grms. naphthol yellow S. Have the hair or bristles perfectly cleaned, particularly free from grease, and lay them down in the hot bath for about 1 hour, drain or squeeze off the adhering bath liquor and dry the material; then wash in water and finish with a cold solution of 3 grms. tragacanth and 20 grms. glycerin in 1 lit. water. After drying, the hair or bristles appear glossy black.

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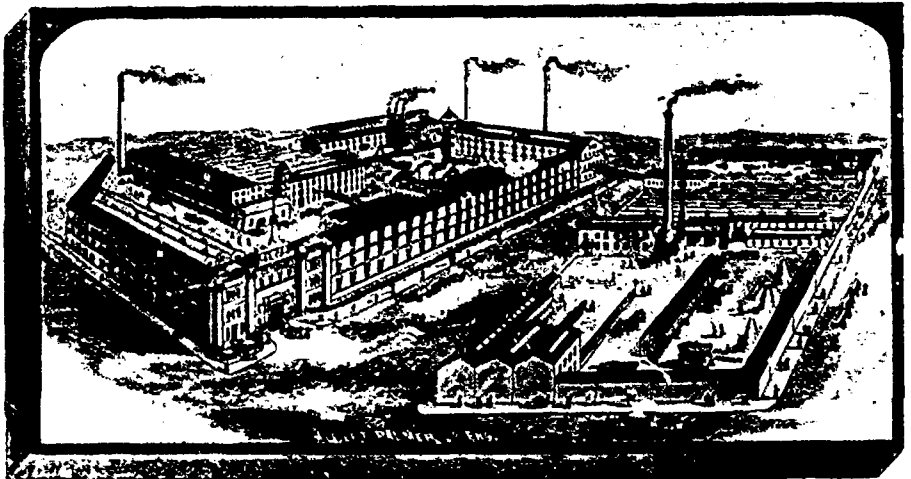
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