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Canadian Journal of Fabrics

THE JOURNAL OF THE *Textile Trades of Canada.*

Vol. XIX. TORONTO AND MONTREAL, JANUARY, 1902. No. 1.

Read the Announcement On Page 26.

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INDUSTRY.

TECHNICAL EDUCATION IN THE WOOLEN

For years the Canadian Journal of Fabrics has preached for the establishment of a Canadian textile school. As we have frequently shown, the system of technical training that prevails in Germany has advanced that country immensely in the manufacture of woolen, cotton, jute, and other textile fabrics, as well as in the chemicals and dyestuffs that are specially used in the textile trades. Other countries, such as France, Austria, and Great Britain, have followed in Germany's lead, and they have been successful in proportion to the amount of attention they have given to technical training. Science applied to industry is continually removing mountains and doing what is otherwise impossible. For example, it had always been argued that no artificial dyestuff could fill the place of indigo; but German chemists set to work and produced by synthesis an artificial indigo that is chemically pure and identical in character with natural indigo, and so much cheaper than natural indigo that it is rapidly displacing that product in the world's market, and causing grave alarm to India, where the indigo planting is one of the staple industries. What is Canada going to do about it? If the textile industry of the country is to be redeemed those in authority must either fall into modern methods or a valuable branch of our manufacturing will be ruined. The ruin of such an industry would be a general calamity, as all Canadians must realize, who remember what excellent woolen fabrics were produced by our home mills under the primitive conditions of manufacturing that existed from 25 to 50 years ago. These conditions have passed away never to return, and large mills with high speed machinery and elaborate finishing and dyeing equipment must take the place of the old "custom" mill operating one or two sets of cards. It must be confessed that the great need of some of our mills is first-class machinery and modern methods. Some mill owners imagine that a cheap lot of second-hand machinery is a bargain, but such bargains are usually the worst investment they can make. The head of one of the largest and most successful cotton mills in the United States makes it a rule to have every department in the mill re-equipped with new machinery every ten years, if not oftener. Machinery is all too dear, even if got for nothing, if it fails to produce results which are obtained by rivals having machines that will do better work and do it more rapidly.

Another thing the Canadian manufacturer needs to look to closer, is the changing requirements of the trade. For instance, the raising of crossbred sheep for the sake of the mutton rather than the wool has required a different method of manufacture and some changes in machinery in order to utilize to the best advantage the coarser wool from crossbred sheep, which is now so cheap. The British manufacturer is already solving this problem successfully to his great gain, but what has the Canadian manufacturer done to adapt himself

to the new situation? It is one of the purposes of a college of textiles to assist in working out such problems, and we are glad to note that the Toronto Globe comes into line with these views in discussing the woolen situation. Some of our contemporaries are too blindly partizan to admit that the Canadian woolen manufacturer is suffering from a discrimination, when compared with the position of other home manufacturers, under the preferential tariff, but the Globe, while it apparently feels bound to make a show of defending the Government, on the tariff question, has at least enough patriotism to endeavor to find some other means of doing justice to this injured industry if it will not make an out-and-out demand for tariff reform. Regarding a textile school, the Globe says:

"Men of wide experience in textile industries are of the opinion that Canadian wool can be used in the manufacture of fine tweeds and dress goods, the only requisite being suitable machinery for handling and working it. But we have no manufacturers who could find it commercially profitable to undertake experiments with a view to devising efficient machinery. At present both the clothing, or short wool, and the combing, or long wool, are suited to lines of manufacture carried to the best pitch of development in the United States, and our wool growers and dealers feel the evil effects of the American tariff of twelve cents per pound. That tax is almost commercially prohibitive, and has so cut down the price in Canada that our sheep raisers pay little attention to wool, while such as has been marketed is lying in warehouses waiting for more favorable conditions. The price is generally regulated by the British market, but in shipping to Britain the competition of the Irish product would cut prices to an unprofitable level. The closing of the American market has been a real misfortune for Canadian wool growers, and the lesson of the situation is the urgent need of devising methods of using Canadian wool in our own textile industries. Such an innovation would also improve the condition of the local woolen industry, as it would make a new and comparatively cheap line of raw material available. To that end it may be necessary to develop the woolen industry by the establishment of a school of textile manufacture and design. A similar service has been effective in the cheese-making and dairying industries, both being put in a position to withstand the world's competition by the knowledge gained through experiments and instruction under Governmental supervision. It is reasonable to believe that there is an opening for similar development in the woolen industry. We are now producing wool for export, and the closing of the only available market has had such a discouraging effect that that industry has been diverted to other lines of production. We are importing wool for domestic use, and the ways of transportation companies, in levying excessive charges on local freight, have prevented the development of a local market. The English woolen manufacturer, when undertaking a contract, finds his raw material ready to hand, but in Canada there is no local source of supply. Our manufacturers do not know where they will be obliged to go for raw material when tendering, nor do they know with any degree of certainty how much it will cost them. The key to the situation will be found in devising methods of using Canadian wool to supply the local demand for yarns and fabrics. Experiments with that end in view would need to be conducted scientifically, until machinery could be designed for making up Canadian wool into fabrics suitable for our own market. Private enterprise will not be tempted into such experiments, as they do not hold out sufficient promise of personal gain. But a textile school could be made to serve the same purpose for the woolen industry that has been so well served by the School of Mines and the Agricultural College in other lines of productive industry. Our woolen industry must be relieved of the incubus of adverse railway discrimination, and the possibilities of Canadian wool in fine textile work should be tested by scientific experiments."

The Globe confesses to the injustice of the present situation by admitting that "there may also be room for improvement in regard to the duty on woolen mill machinery," but thinks that if the reforms alluded to "are effected, it is more than probable the woolen industry will not require a higher protection than 23 per cent."

The World takes up the subject and agrees that a technical school in textiles is needed, but argues for an increased tariff as more essential. To relieve the present situation, why not have both?

—The closing months of the year 1901 showed that employment in the spinning branch of the cotton trade, in the English manufacturing centres, was improving, but in the weaving branch there was a standing still. Employment in the woolen trade was good. In the worsted trade and in hosiery, there was an improvement. The British operative has cause to be much better satisfied with his condition than his German brother.

—The paper collar has come and gone, but now we are to have paper stockings. They will certainly never be worn on account of their comfort, for paper cannot be made as comfortable as cotton, wool or silk. However, they will be economical, and will require no darning. It is said that paper can easily be made into a sort of strong twine; this is roughened to give it a woolly look, and it is then knitted as though it were the real thing. They can be retailed at three half-pence per pair. We are not told how long they will wear, but if holes come in them, or they should dissolve in a couple of days, where would the economy come in?

—The Drapers' Record, while pleased with the expansion of trade between the Mother Country and Canada, thinks closer relations would be greatly facilitated by the passage of a Canadian bankruptcy law. This is an old complaint, for which there is good reason, but there seem almost insuperable difficulties in the way of bankruptcy legislation that will be satisfactory. All previous attempts have failed to produce a measure that will do justice to all interests.

—The old methods of textile manufacturing are still in use in some countries of Europe. Cotton weaving is carried on in the Florentine province in Italy by thirteen firms on hand looms. Only one mill employs workmen on the premises, the others distributing the work to be done at the weavers' houses. The number of weavers thus employed is over 400. Cotton bleaching and dyeing is done in small shops using no machinery. There are in the same province thirty-five small felt and woolen hat factories carrying on work in the same antiquated fashion, which seems strangely out of place in this progressive age.

—The exports of textile machinery from Great Britain continue to diminish. The Board of Trade returns for November, the last at hand, show a falling off for that month, as compared with the same month of 1900, of £129,936, and as compared with November, 1899, of £232,445. The falling off is very evenly distributed, India and South America being practically the only exceptions, there being an increase in both of these. It is worthy of note that the United States, notwithstanding its high tariff, imported during the first eleven months of 1901, £422,904 worth of textile machinery from Great Britain.

—The Wool and Cotton Reporter, in a special issue, which it calls its "Greater America Number," claims that causes are at work which will speedily force the United States to a top place among the world powers. Referring to the textile trades aspect of the matter, it speaks of the great expansion in the exports of their cotton manufactures, and while it has not become the fashion to regard exports of wool manufactures as among the probabilities, it holds the opinion that the day will surely come when their products of this class will seek foreign markets in larger amounts. It justifies its opinion on the sudden transformation in the conditions governing the movement of their steel and iron products. We do not see the analogy between steel and wool, but if a rapid growth in the export of iron and steel means a similar expansion in woolen products, there should be hope for Canada, Canadian woolen mills, now suffering from the operations of the preferential tariff, must seek relief in some quarter, and possibly we may hope to share in that enlarged foreign market, which the Reporter foresees, for Canada can surely produce as good an article and as cheaply as the United States.

—Substitutes for many of the natural products which enter into the arts seem to be increasing. We have been provided with artificial silk, now we are to have artificial horsehair produced by much the same methods. Nitrocellulose is dissolved in ether alcohol, and the collodion so produced is forced through fine tubes, whereby a thread is obtained of the desired thickness. This thread is then drawn through an ammoniacal solution of copper, then passed through a weak sulphuric acid bath, bleached in a chlorine bath, and finally washed and dried. It is stated that cotton, ramie, or other threads, may be dealt with in the same way. Whether this article is likely to be a commercial success is rather doubtful, as it is very questionable whether the artificial fibre will have anything like the strength of the natural fibre.

—A bill has been introduced in the United States Congress providing that goods of mixed wool and cotton shall be labelled and the proportion of each ingredient given. The effect of the measure, if it becomes law, will be to compel the manufacturer of every kind of imitation woolen goods—that is, all woolen goods not made "wholly of new or unused sheep's wool"—to label their products as such. This proposed law does not recognize every aspect of the situation. There are different kinds of shoddy. As pointed out by one contemporary, some is all wool, and of longer fibre than many low-grade wools, and when made into cloth commands a higher price in the market, on its merits, than the fabric made from the short staple low-grade wool; both are pure wool; both have been subjected to the same cleansing process in the carbonizer. Manifestly to label goods as being "made of shoddy," or "made of new wool," would not meet the difficulty, and unless the buyer were especially intelligent, and a judge of material, he would be deceived, and the label would only add to the deception. These are considerations which show that the problem of how best to promote honest dealing in woolens is not so simple as appears on the surface. Shoddy cannot be treated like oleomargarine.

—It is said that Ellen Terry, the noted English actress who supports Henry Irving, has a way of making her hotel rooms very "homey" in aspect through the use of fabrics which she picks up here and there for their effective and artistic qualities, no matter for what use they were originally intended. A prayer rug or a bit of organdie will prove equally important in the color scheme of her surroundings. In her attire she is equally unconventional, and departs from the beaten paths by picking up in an upholsterer's a bit of brocade and having it fashioned into a gown instead of a portiere or a wall hanging. This is why she is the despair of modistes, for this eccentricity applies to her house and street gowns, as well as those intended solely for stage wear.

OVER-PRODUCTION IN GERMANY.

Over-production is apparently bringing about a serious state of things in Germany, says Kuhlow's Trade Journal, where factories are being closed and mines are ceasing to pay. Manufacturers are clamoring for more markets and a reduction of duties and tariffs, while the Agrarians urge the increase of customs duties in order to protect their falling industry. It is the battle of free trade vs. protection over again, and the trade war that is being waged in Germany to-day will probably be rife in the United States to-morrow. In the case of Germany it is difficult to say who will be the victor, since the Agrarians are a very powerful party, but the inevitable end will come whether it be near or far distant. The commercial development of a nation cannot proceed with closed doors, and a self-containing country must be stationary in the matter of trade. Without doubt the German difficulty is a very real one. The Tariff Bill, if it becomes law, is sure to beget reprisals, and if it does not so become, danger from the Agrarians is more than probable. Free trade all round offers a possible solution, and if the three great commercial nations were in accord on this point their example, sooner or later, would be followed, and more or less freedom for commerce would become the heritage of the world.

THE ORIGIN OF THE "BOTANY" WOOL TRADE.

There are various claimants for the honor of being the first to introduce the merino sheep into Australia, but that honor appears to belong to a countryman of our own in the person of the Rev. Samuel Marsden, who was born at Farsley. He passed his youth as a blacksmith, working for a master at Horsforth, but by indomitable perseverance he worked his way to the University of Cambridge—no mean feat in those days. He was ordained in 1793, and was immediately afterwards appointed to the settlement at Sydney. New South Wales had been made a British settlement in 1788, and the settlers became possessed of their first sheep by the purchase of thirty head from the captain of a merchant vessel from Calcutta in 1793. These sheep were of Indian breed, but the flock was afterwards increased by importations from the Cape of Good Hope and England, and, favored by the climate, the flocks increased rapidly. Mr. Marsden arrived at Botany Bay and began his mission in 1794. He interested himself in the development of agriculture, and particularly in the rearing of sheep, and, to give practical effect to his scheme of educating the colonists, he established a model farm at Botany Bay. He returned to England on a visit in 1808, and brought over a quantity of the wool which had been grown in the settlement. It was packed in barrels, and had been so little appreciated in the Colony that it was only used to bed out cattle.

Mr. Marsden naturally visited his native village, and what happened there will best be told by an extract from a letter written by William Thompson, one of the chief actors in the inception of this interesting romance of trade:

"It was in the spring of 1808 when the Rev. Samuel Marsden returned to this country, and then brought the first wool with him that ever came from the Colony. He came over from Horsforth to dine with my father as an old acquaintance, and after dinner we went down to Park Mill, then employed by my brother Jeremiah and myself, under the firm of J. and W. Thompson. On going over the premises he saw some Cheviot fleeces, and enquired their value, at the same time stating that he had brought over a small quantity of wool from the Colony, but did not know its value. He offered the wool to me on condition that I would pay the carriage down from London, make a piece of black cloth from the finest (no admixture), and let him have a suit, which I agreed to. The wool was sent down, about ten or twelve stones, which was sorted, and about five stones of the finest sort made into a white cloth, then dyed black and finished, one-half of which, say, about twenty yards, was sent to him in London.

"The wool proved well, and made a cloth superior to his or my expectation; he had a suit made from it, and was so much pleased therewith as to visit King George III. in it, who admired it very much and expressed a wish to have a coat of the same cloth, which was at once readily granted.

"His Majesty was so impressed with the importance of the wool of the Colony that he gave orders for Mr. Marsden to have selected some of the best sheep from his flock of merinos at Windsor. They had a good deal of conversation about the Colony, and His Majesty expressed a fear that they would not be able to make returns, when Mr. Marsden informed him that he thought wool would ultimately be a large return."

Mr. Thompson goes on to say that "a while after Alexander Birnie & Co., wine and porter merchants, London, imported a large quantity of wool in casks, which I purchased from them, and a large proportion of it had evidently been buried in the earth. After this we received largely on consignment from the Rev. Samuel Marsden, Captain Edward Cox, and others." Mr. Cudworth says that "Mr. Marsden fitted out an expedition to civilize the cannibal tribes of New Zealand in 1814, and was the first man to teach the natives of the northern island religion, agriculture and the arts, and preached his first sermon in New Zealand on Christmas Day, 1815, from the words, "Behold I bring you good tidings." This remarkable Yorkshireman closed his life in Sydney in 1838, where a national monument has been erected to his memory. In remembrance of him as a native of the locality a number of stained glass windows have also been inserted in the Parish Church at Farsley."

His chief ornament, however, is the enormous trade of which he was the pioneer, worth to Australia alone £20,000,000 per annum, and which has had such a marvelous influence upn the trade of our own city. The six merino rams selected from the King's Windsor flock were taken out to Australia in 1810. The first consignment of merino wool arrived in 1811, and amounted to 167 lb., which was sold by auction at Garraway's Coffee House in London, so that these two dates mark the rise of the Australian wool trade and of the London Colonial Wool Sales.

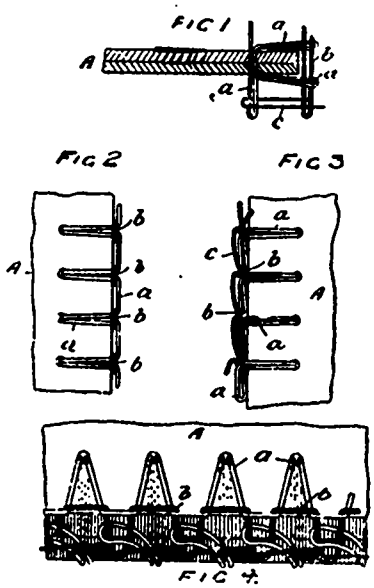
As the first wool came from Botany Bay it became known in the trade as "Botany" wool, a name which still remains in use in some respects, not only to distinguish it from other breeds, but also from its later rival, the produce of the La Plata. That important factor in the wool trade, now known as crossbred wool, was at first described on its introduction, some time in the 'sixties, as Leicester-Botany, a name which as the description of a cross between the Australian merino and the English Leicester breeds carries its own pedigree with it. The more recent history of the Colonial wool trade is fairly well known, but the development of one of its branches from half a bale to nearly a million and a half bales is a record in the annals of commerce. The career which began at blacksmith's anvil at Horsforth, the busy life of practical Christianity, the national monument at Sydney, and the gigantic consequences which are traceable to this one man's initiative are indeed historical facts which have in them all the interest of romance.—Yorkshire Daily Observer.

ROLL OF CARPET SAVED A LIFE.

In Chicago recently a roll of carpet was the means of saving a man's life. A window-cleaner was at work on the third floor of a building at Wabash avenue and Monroe street. He lost his balance and fell, to the horror of people in the street below. Just at this time a man was passing directly below the window, unaware of the danger. He was carrying on his shoulder a roll of carpet, upon which the falling man landed rather abruptly. Thinking that a part of the building had fallen on him, the fellow with the carpet ran into the street, dropping the roll. It was found that the window-cleaner's injuries were very slight.

A NEW OVERSEAM.

A recent British patent has been taken out for an improved overedge or buttonhole seam, having purled edges on both sides of the work, so that a buttonhole which has been overstitched thereby will present a finished appearance on both faces of the garment, and will cover the raw or cut edges. The threads are so interlooped that the stitches will not unravel at the end of a seam, or if a thread should break. Three threads are used—two being needle-threads and one a looper-thread. To form this improved seam as shown at Figs. I. to IV., a loop or depth-stitch thread *a* is carried to the edge of the material *A* on the upper side of the latter, and a loop of edge-stitch thread *b* is now passed—at the edge of the material—through the upper loop of depth-stitch thread and also through a lower loop of depth-stitch thread of the last formed stitch and which had been extended to the edge of the material on the lower face of the latter. A loop of looper-thread *c* is now



passed through the loop of edge-stitch thread from the edge of the material inward, and a second loop of depth-stitch thread is next passed through the material and through the loop of looper-thread and the said second or lower loop of depth-stitch thread is then carried or drawn to the edge of the material in readiness to be entered by the next edge-stitch loop. These several loops are so tightened that both of the depth-stitch loops will remain extended to the edge of the material, and a purl is formed on the upper side edge of the work by the interlooped depth-stitch and edge-stitch needle threads, and on the lower side edge of the work by all three of the interlooped depth-stitch, edge-stitch and looper-threads: thus providing a buttonhole or overedge seam, presenting a finished or purled appearance on both faces of the work. Another method is shown for producing a similar effect. This invention is communicated from abroad by the Singer Manufacturing Co., of New York.—Hosiery Trade Journal.

THE MOSQUITO AND THE COTTON MILLS.

In the course of an editorial suggested by "A New Danger Threatening the Mill Industry," in the Southern Textile Excelsior, the Mill News says. From Greensboro, N.C., comes a report of a new danger to the manufacturing interests of the South. Expert evidence of physicians who have been studying the mosquito question was introduced in the case of the board of health against the owners of the pond at the Revolution Mills. We haven't room for the evidence in full, but from a careful review of the case we have reached the following conclusions: Ever since the pair of mosquitoes came forth from the ark and began to "multiply and replenish the earth" the hand of man has been against them and their progeny, even to the twenty-thousandth generation (whenever the mosquito is not quick enough in his departure to avoid the hand that stands threateningly above him). And the sons of man have harbored a grudge against him; and now in these latter days come the learned doctors with an indictment against Mr. M. O. Squito, saying that it is he who is the great agent of destruction who scattereth pestilence among the people. Now, therefore, war has been declared against him and his tribe, in order to blot them from the face of the earth, the edict of the doctors has been made known, that no pond shall be allowed to remain where the said M. O. S. and his family may have their habitation. And now the condemnation has come upon the places where the sons of men would store up water to turn the wheels and run the spindles and looms of their cotton mills; and the manufacturers of cotton goods and of woolen goods, and of all manner of devices of man that depend upon the power that comes from the turning of the water wheel, are threatened with dire disaster on account of the edict that has gone forth against the deadly mosquito whose forefathers were saved from destruction in the days when the waters covered the face of the earth.

DYESTUFFS IN ENGLAND AND GERMANY.

At the Glasgow meeting of the British Association, Arthur C. Green, who is well qualified to speak on the subject, read a paper on the relative progress of the coal-tar industry in England and Germany during the last fifteen years, in which he handles the matter with almost brutal frankness, says the Popular Science Monthly. After sketching the wonderful advancement which has been made in the development of the industry during the period covered by his paper, the discovery of thousands of new dyestuffs, the introduction of hundreds of new synthetic pharmaceutical products, and the great advances in the production and design of chemical plants, occasioned by the vast requirements of the industry, he brings out the comparative statistics of the industry in the two countries. Among them the following are worthy of reproduction:

The exports of coal-tar colors, exclusive of alizarin, from Germany have increased from 4,646 tons in 1885 to 17,639 in 1899; those of anilin oil and salt from 1,713 tons in 1885 to 7,135 in 1895, and of alizarin colors from 4,284 to 8,927 tons in the same period. The values of the coal-tar colors exported increased from £2,600,000 in 1894 to £3,500,000 in 1898. In fifteen years the imports of coal-tar dyestuffs into England have increased 50 per cent., while the exports from England have decreased over 30 per cent. The Bradford Dyers' Association

uses at present 80 per cent. German coloring matters and only 1' per cent. English. The British Cotton and Wool Dyers' Association imports 78 per cent. of its anilin olors and over 98 per cent. of its alizarin colors. The English Sewing Cotton Co. used, out of a total of sixty tons of coloring matters, only 9 per cent. of English manufacture. In addition to this, the indigo industry, which now yields to India an income of £30c,000 a year, is seriously threatened by the synthetic indigo from Germany, and its days are in all probability numbered.

THE DYEING AND PRINTING OF FLANNELETTE.

From very small beginnings the dyeing and printing of flannelettes has grown into a trade of large dimensions. The fabric, whatever a coroner may have to say as to the fire risk involved in its use, has found favor with the public, who use it for a great variety of purposes, finding it to be cheap and to have good wearing qualities. It is, moreover, easily washed and cleaned, and has a good appearance. At first only white flannelettes were made; then came striped and checked cloths prepared from woven fabrics, and these have been followed by flannelettes dyed and printed after the nap has been raised on them. In these styles many fine shades and pleasing designs have been produced from time to time.

The methods of dyeing and printing these flannelette cloths are not novel. They are simply those commonly adopted in dyeing and printing any cotton cloths. The dyeing can be done on the jig or on a dye wince, or if need be on a padding machine; the printing is on the cylinder machine in the ordinary way; if anything, the rollers ought to be engraved a little deeper than usual so that a good deal of color is taken up, and this must be pressed past the nap, and well into the body of the fabric. Of course, the existence of the nap will prevent a sharply outlined design from being obtained, and so in the printing of flannelettes those effects whose beauty depends on sharpness of detail and line should be avoided, and designs chosen dependent for their harmony on broad effects.

The Diamine colors of Messrs. Leopold Cassela & Co. (Wm. J. Matheson & Co., sole United States and Canada agents), have been used to a very considerable extent in this style of work, and having used them for some time the author thinks an account of some of the effects he has produced by their means may not be without interest to the readers of this journal.

First of all, we will deal with the methods of dyeing. This is best done on the jigger, especially when medium and dark shades are being dyed, for here it is desirable to keep the dye liquors as strong as possible, and this is readily done in a jigger. Open wince dye-vats can also be used if thought necessary, or if most convenient to the individual dyer, but it is found in practice that the various dye-baths are not so thoroughly exhausted of dye stuffs as when a jigger is used. For medium to dark shades use the dye liquors as strong as possible; to every 10 gallons of water used add ¾-oz. soda crystals. It is also necessary to add ¾ to 1-lb. Glauber's salt, but this is best added in portions as the dyeing proceeds. It is advisable also to add the dyestuff in portions at a time, and not all at once at the commencement. Generally the process can be started at the boil, and as the cloth is run through the machine this temperature is maintained. A strong boil is quite unnecessary; a steady, gentle boil only is required. From one-half to three-quarters of an hour is needful to obtain the best results.

After being dyed the cloths are dried and then finished as usual. This is the usual course of procedure for all ordinary shades dyed direct. But many of the Diamine colors may be diazotized and developed up into new and faster shades. This is effected by the use of two baths: the first contains nitrite of soda and hydrochloric acid, the amounts of which should be proportioned to the quantities of goods being dyed and the quantity of water used. Generally 1½ lbs. of nitrite of soda and 4½ lbs. of hydrochloric acid may be allowed to 100 lbs. weight of cloth, but where a larger proportion of water is used than ordinary, which is generally the case when small lots of cloth are being dyed, then the quantities should be increased to 2½ lbs. nitrite of soda and 7 lbs. hydrochloric acid. This diazotizing bath is used cold, and takes from fifteen to twenty minutes. The cloths are rinsed with water afterwards.

Betanaphthol is the most used developer, and the bath is prepared by dissolving 1 lb. Betanaphthol in 2 lbs. caustic soda lye of 70° Tw., and adding this solution to the water needed to make up the bath. This is used cold, and the goods are run in it for about twenty minutes in order to give time for the color to properly develop and become fixed on the cloth. The following formulæ show how to produce some very useful shades with the Diamine colors. The quantities given are for 100 lbs. weight of flannelette:

Pale Orange.—13 ozs. Diamine Orange GC and ½ lb. Diamine Fast Yellow A.

Slate Blue.—3 ozs. Diamine Black BH and 1 oz. Diamine Brown M.

Dark Plum.—2 lbs. Oxy-Diamine Violet B and 1 lb. Diamine Brown M.

Bright Heliotrope.—2 ozs. Diamine Violet N and 2 ozs. Diamine Blue 3R.

Strawberry.—¾ lb. Diamine Bordeaux B and ¼ lb. Diamine Orange B.

Blue.—½ lb. Diamine Dark Blue B and 6 ozs. Diamine Blue Black R.

Dark Green.—3 lbs. Diamine Sky Blue FF and 13 ozs. Thioflavine S.

Dark Grey.—6 ozs. Diamine Black BH and 3 ozs. Diamine Brown M.

Dark Sea Green.—5 ozs. Diamine Black HW, 3 ozs. Diamine Catechine G, and 3 ozs. Diamine Fast Yellow B.

Dark Stone.—2¾ lbs. Oxy-Diamine Orange G and 5 ozs. Ozy-Diamine Black A.

For blacks there may be used 5 lbs. of any of the following: Oxy-Diamine Black A, Oxy-Diamine Black SOOO, and Oxy-Diamine Black D, for dried black shades; while Diamine Jet Black Cr. and Diamine Jet Black RB work well if after-treated with bichromate of potash and sulphate of copper, and Diamine Black BH and HW and Diaminogene produce good blacks on development. There is much done now in the production of discharge effects on dyed flannelettes, and here one may have white and colored designs printed on this, producing some very fine effects, if due care be taken in selecting those dyes which discharge well, and in using a proper discharge paste. It is also possible to combine aniline black, particularly if the Prudhomme process be used, as well as alizarine naphthol colors, as will be seen later on. We may note here that Thioflavine S, Oxy-Diamine Yellow GG, and Diamine Fast Yellow B are not dischargeable; Diamine Fast Yellow A and Diamine Orange GC are only serviceable for producing colored effects, as they do not produce good whites. Oxy-Diamine G and R, and Diamine Orange B are not dischargeable. Cotton Browns A and N are very serviceable for colored discharges, as is also Cotton Dark Brown BB; while Diamine Catechines G and B, Diamine Browns M and B can be used for both white and colored effects, but Cotton Dark Brown BM and Diamine Brown 3G are not dischargeable. The Diamine Brown 3G is not dischargeable. The Diamine Greens B and G are easily dis-

chargeable. Diamine Rose BD is a most useful dye for this work, as it gives good whites. Of the reds, Diamine Red 10B and Diamine Bordeaux B are readily dischargeable, while with the others it is not easy to produce white effects, although colored ones can be got. The same remark applies also to the violets. Of the Diamine Blues the following brands are easily dischargeable: Diamine Sky Blues, Diamine Blues 3B, RW, 2B, G, BG, BX, Diamine Azo Blue R; while Diamine Steel Blue L, Diamine Deep Blues B and R, Diamineral Blue R and Oxy-Diamine Blue 3R are most serviceable for colored discharge work. Diamine Azo Blue 2R is not dischargeable. Diamine Blacks BH and HW discharge very well, and so they may be used for white or colored discharges. Generally the blacks discharge to a white only in the case of light shades. Dark shades are not fully discharged, and hence only colored effects are obtainable on flannelettes dyed with them.

Yellow, Green and Black on Red.—The flannelette is first dyed with 2¼ lbs. Diamine Red 10B, and there is then printed on the following pastes: Yellow.—12 oz. Thioflavine T, ¾ pt. water, ¾ pt. acetic acid, 1¼ pt. gum thickening, 7 lb. Discharge Paste C, 4 lb. acetic tannin.

The Discharge Paste C used in this and following formulæ for producing colored discharges is made from 4 lb. acetate of tin, 30° Tw.; 6 oz. starch, ½ lb. dextrine, 1¼ lb. citric acid, 18 oz. tin crystals, 6 oz. acetate of soda. This is an excellent composition, scarcely to be surpassed, for colored discharge work on Diamine or other direct colors. Generally the dyestuff added to it to produce the desired color is a basic one, as that class of dyes do not discharge with tin crystals.

Green Discharge—6 oz. Thioflavine T, 3½ oz. Brilliant Green, ¾ pt. water, ¾ pt. acetic acid, 1¼ lb. gum thickening, 7 lb. Discharge Paste C, 4 lb. acetic tannin. For the aniline black use the steam prussiate black. After printing on the paste pass the goods through a steamer for five minutes, then wash well, soap, rinse and dry; pass through tartar emetic bath, wash well, soap lightly, rinse and dry.

White and Pink on Blue—Dye with 1½ lbs. Diamine Sky Blue FF, and then print on a pink discharge made as follows: 1¼ lb. Rhodamine B, ¾ pt. water, ¾ pt. acetic acid, 1¼ lb. gum thickening, 7 lb. Discharge Paste C, 4 lb. acetic tannin. The white is best got by a tin prussiate discharge, as this gives a purer white with the blues, and is best to use in all cases of a white discharge.

White Discharge A—3½ pt. water, 2½ oz. wheat starch, ½ lb. dextrine, 2 oz. citric acid, 2 lb. yellow prussiate of potash, 1½ pt. water, 5 lb. tin crystals, 1 lb. gum thickening, 1¾ pt. water. Print, steam and fix in tartar emetic, and finish in the usual manner.

Red, Yellow and Blue on Pale Green—Dye the cloth with 2 lbs. Diamine Sky Blue, and 1½ lbs. Diamine Gold. The yellow is the Thioflavine T discharge already given. Red Discharge—1¼ lb. Rhodamine B, 1½ oz. Thioflavine T, with other ingredients as in the recipes previously given. Blue Discharge —12 oz. New Methylene Blue N, 2 oz. Methyl Violet B B, with other ingredients as in the recipes previously given.

Yellow, Pink and Blue on Deep Blue—This effect is obtained by dyeing the cloth with 3½ lbs. Diamineral Blue R and 1 lb. Damine Brilliant Blue G, and discharging with the yellow, pink and blue discharges already given.

Yellow and Blue on Brown—Dye the cloth with 2¼ lbs. Diamine Catechine G and 3 ozs. Diamine Catechine B, and discharge with the yellow and blue discharges already given.

Green and Lilac on Blue—Dye the cloth with 2½ lbs. Diamineral Blue R and 1 lb. Diamine Brilliant Blue G. The green discharge is made from 6 oz. Brilliant Green, 3 oz. Thioflavine T, ¾ pt. water, ¾ pt. acetic acid, 1¼ lb. gum thickening, 1 lb. Discharge Paste C, 4 lb. acetic tannin. The lilac discharge is made from 5 oz. Tannin Heliotrope, ½ oz. New Methylene Blue N, ½ oz. Methyl Violet B B, ¾ pt. water, ¾ pt. acetic acid, 1¼ lb. gum thickening, 7 lb. Discharge Paste C, 4 lb. acetic tannin.

White, Pink and Green on Blue—Dye the cloth with 1½ per cent. Diaminogene Blue B B; diazotize in a bath of sodium nitrite and hydrochloric acid, and develop with betanaphthol. These operations are fairly well known, and so need not be described in detail. The white is best got by using the White Discharge A, which produces a very good white on Diaminogene Blues. The pink is got with Rhodamine 6 G discharge, and the green with the Thioflavine T and Brilliant Green discharge already given.

White, Lilac and Buff on Dark Blue—Dye the cloth with 2½ lbs. Diamine Blue B B, diazotizing and developing with betanaphthol in the usual way. The white and lilac discharges have already been given; the buff is made from 16 oz. Aniline Yellow, ¾ pt. water, ¾ pt. acetic acid, 1¼ lb. gum thickening, 7 lb. Discharge Paste C, 4 lb. acetic tannin. Diaminogene Blue B B discharges very well, and some excellent effects can be obtained with it. The discharge colors, particularly yellow, pink and white, come up very well. A further effect is obtainable by printing on a black, using either an aniline or logwood steam black. Without going into details we may indicate other methods of obtaining white and colored designs on grounds dyed with the Diamine dyes

First dye the goods, then print on a tin prussiate white discharge; steam and wash. Next prepare with betanaphthol, and print on a paranitraniline color. In this way it is quite possible to produce a four-color style, but the number of manipulations adds to the cost. Another style is to dye in the ordinary manner, and prepare with betanaphthol; then there are printed on any desired white or colored discharges, and along with them a paranitraniline line or alphanaphytylamine color, which may or may not cover any of the discharge portions; the goods are finished in the usual way. In this way several color effects can be readily produced. Taking advantage of the fact that the discharge color for the dyed ground acts as a resist for the naphthol color, an effect may be produced by dyeing, preparing with betanaphthol, printing on a white or colored discharge, and then developing in a bath of paranitraniline or alphanapthylamine or benzidine, prepared as in dyeing the naphthol colors on cotton.—"A Flannelette Printer" in Dye Stuffs.

A VALUABLE TABRIZ RUG.

A New York merchant, says the Carpet Trade Review, has in stock an Antique Tabriz silk rug 21 x 13 feet 2 inches, valued at $15,000. It is an interesting and valuable rug of artistically blended colors and rare design. The colors are a soft red, light and dark blue and green and the whole is a wonder of detail. The centre is a beautiful design of intertwining graceful curves and vines. It is in blue on a solid red background surrounded by sixteen marvellous medallions, each one perfect in detail and each of a different pattern. The border follows out the same general artistic scheme as the centre of the rug, with intertwining leaves and vines.

INCREASED USE OF SHODDY.

The constantly increased use of shoddy continues to be a prominent feature in the manufacture of woolen goods. The supply of domestic material for this purpose has proved to be insufficient, so great is the call for cheap clothing, and large quantities of shoddy are imported. Here is the key to the depression in the business of the wool growers. Less and

less wool is purchased, and the greater part of the woolen goods made in this country is said to be largely adulterated. The high tariff on wools has failed to answer the purpose for which it was devised; it has driven wool out of the composition of woolen goods to make a place for this cheaper substitute, and thus the quality of American woolen cloths has deteriorated, and those who buy them do not obtain so good an article as they should for the money it costs to purchase them, while the home wool raiser is complaining of a limited market that lowers the price of his production. The greed for a high tariff has defeated itself signally in this instance.—Boston Herald.

OLD LOOMS AGAIN IN.

In the little thatched cottages of Donegal and Connemara looms and spinning wheels are busy manufacturing homespuns for royal wearers. The kings and queens of Europe have decided that these manufactures are fit for court attire, and the peasants of the north and west of Ireland are reaping a golden harvest.

Two years ago Queen Victoria ordered a large quantity of Irish home-made woolens. This immediately created an outside interest in the goods and a few weeks sufficed to set all idle looms in motion. Orders are now being received from every city in Europe. A large order recently came from Persia, and even in Australia the homespun is not unknown. The Irish peasants are rapidly becoming prosperous compared with their circumstances a few years ago. The new market for their goods has claimed every yard they manufacture, so that while royalty flaunts the homespun the cotters are content with the cheaper mill article.

For hundreds of years the peasantry of Ireland clothed themselves in garments of their own manufacture. Less than fifty years ago no wedding was complete without a spinning wheel heading the list of presents from the parents of the bride. Even in "poor ould Ireland," however, machinery has made such strides that had Queen Victoria delayed much longer in placing the first royal order for the homespun the sound of the loom would not now be heard in the land. As it is old wheels are being dusted and renovated: fingers that had almost forgotten the duties required of them are being quickened again to work, and young hands are rapidly becoming expert with practice.

Donegal is the centre of the present activity in homespun circles, and the cottages along the mountain sides are filled with the hum of busy workers. The entire family spend the winter months at reel, wheel and loom. When the days lengthen and the sun grows more genial, work on the little patch of ground necessitates a decrease in production. Potatoes must be planted, a few cabbage plants "dibbled" in the ridges and a rood or two of oats "trenched." Then follows the haymaking season, with its delightful weather and cloudless sky. No matter how many orders royalty may send for homespun, these hardy hill folks will "take things aisy in summer days." These simple peasantry live to please themselves and their pleasure is usually the fulfillment of a general desire to take their own time for doing things. They like the sunshine and the growing meadows, the green pastures and the moss-covered banks; there is something in the whitethorn that calls them to the hedgerow when it is white with blossoms, and not for gold would they miss the small birds' chorus. Therefore it follows that the homespun harvest will be reaped only when the rain beats pitilessly on the roof and the wind moans and groans in the wicker chimney.

A cottage owning a loom may always be known by its unusual length. The loom fills one end of the cottage, which is only one story in height. Additional floor space for spinning wheels makes a greatly increased frontage necessary. This is done at the expense of proportion and gives the abode a squatty appearance that is deceiving. The walls of the cottages are whitewashed a couple of times each year, and are remarkable for their cleanliness.

The machines used in manufacturing the homespuns are amazingly crude in appearance. They are very serviceable and enduring, in spite of their lack of finished workmanship. Looms are handed down from one generation to another, and the secret of the age of most of the spinning wheels belongs to the workers of another time. All the machines are permeated with the odor of turf smoke, and the natural color of the wood used in their construction has long since been dyed black by the burnt peat.

It is astonishing with what accuracy these century-old machines operate. On one of these looms was woven the Irish linen presented to Queen Victoria on the occasion of her jubilee in 1887. The linen was said to be the finest ever manufactured.

Predictions have been made to the effect that the homespun industry will again spread over the whole of Ireland. Little surprise will be caused by this, at least to those who have followed the growth of the lace industry during the past few years. In many districts it has been almost impossible to engage servants on account of their being busily employed working the most costly Irish lace and other kinds of fancy needlework.

Schools have been established at different centres of population for instruction in the work, and as many as fifty pupils attend single seminaries daily. Special sales of Irish home-made products have been held with great success in London, Dublin and Belfast. The lace and homespuns industries are closely allied. The peasants of the south have practically a monopoly of the lace business, while the homespun weaving centres are in the north. Years ago large quantities of woolen fabrics were manufactured near Belfast, but the cottage looms have long since been ousted by the big factories employing thousands of men and women.

Most of the homespuns are sold to the merchants of the many small villages dotting the country. They are then purchased in bulk by the big retailer, who receives orders from all parts of the world. At present an attempt is being made to deal directly with the people without the interference of the middleman. As there is every chance of its succeeding, it is to be earnestly hoped that the weavers themselves will reap the profits.

WHITE WOOLENS.

It is impossible, even with the most energetic bleaching agents, to remove from wool a slightly yellow tinge, which is readily seen if bleached wool is compared with bleached cotton or silk. When attempts are made to hide this shade by means of a complementary blue—as is done on cottons, curtains, paper, etc.—bad results are obtained. Many attempts have been made to give the wool a brilliant white by covering it with white substances such as carbonate of magnesia, and this was used for some time for this purpose. But its use has been abandoned on account of the dust which comes from the wool when the goods are in store. It has also been proposed to cover the wool with cotton by dissolving the cotton in ammoniacal copper solution, impregnating the wool with the solution, and then fixing the cotton on the wool by means of acid. An ether bath has been finally applied to render the cellulose opaque.

Hallab reaches the desired result by the use of hydrosul-

phite of soda and indigo The effect is a double one; the hydrosulphite acts as an energetic bleaching agent, and on the other hand it renders the indigo which is deposited mechanically upon the fibre soluble and causes it to penetrate the fibre By subsequent oxidation in the air the indigo comes out with a complementary blue shade which neutralizes the yellow of the wool. It is doubtful, however, if an absolutely perfect neutralization of the yellow can be reached with a blue pigment in this way. The numerous experiments with different coloring matters, such as ultramarine, sulphindigotic acid, aniline blues, etc., have failed to give satisfaction.

The hydrosulphite of soda should be made just before it is to be used. Digest 7 parts of zinc powder, or 20 to 30 parts of feathered zinc or sheet zinc, with a concentrated solution of bisulphite of soda, representing 100 parts of the dry salt. This must be done in a closed vessel, and the mixture must be stirred from time to time for an hour. Decant the clear liquor, which contains the hydrosulphites of soda and zinc. The goods must be carefully purified, washed and scoured, and then worked in a bath of cold water containing indigo in suspension in a very finely divided state. The best indigo to use, says the Moniteur Scientifique, is that which furnishes reddish-blue shades in an ordinary vat. The wool should come from the bath evenly covered upon the surface with particles of indigo, and it is then plunged into the bleaching bath. This bath is composed of water and of the hydrosulphite liquor described above prepared so that the bath will stand from 1 to 4° Be. While the wool is passing through the bath, add a quantity of acetic acid equivalent to the hydrosulphite present. The goods must be properly worked in the bath so that there may be no unevenness in the reduction of the indigo.

DEFECTS IN DYED FABRICS.

There is no doubt that every dyer, no matter how great or extensive his practical experience may have been, is capable of recalling within his own experience instances of defective results which, in the light of later work, might have been averted. There are dyers, skilled men, too, who could cite instances, even in their current work, when what at the time seemed to be trivial omissions afterwards developed into matters of considerable importance. Of course, it will be almost impossible to cover, within the limits of this article, all causes which might lead to serious defects, but it is hoped that the few which we shall review will be of sufficient importance to serve in pointing out others to the dyer, who perhaps is a young man, eager to be piloted safely around dangerous places. One of the most serious defects in dyed goods is where one color runs into another, commonly called "bleeding," and it is primarily due to the fact that the color dyed on one part of the fabric is more soluble in wash water than the color dyed on another part, and consequently runs or "bleeds" into the adjacent part of the goods.

In cases of cotton goods consisting of white and colored stripes or checks, the colored part of which is dyed with basic or mordant dyes, bleeding may be, in nearly all instances, traced directly to a lack of proper washing at one or more stages of the dyeing process. As a general rule, the dyed cotton part of such goods is either dyed in the warps or skeins, or both, by first preparing with sumac decoction, solution of sumac extract, or tannic acid, afterwards fixing with a salt of antimony, such as tartar emetic or antimony salt, and then dyeing in a dilute solution of the proper color.

Now according to the usually accepted views of chemists and dyers regarding the actual changes that occur during the process of mordanting, we must accept the following conclusions: Cotton fibres take up from the tannin bath a certain amount of tannic acid, which is held more or less tenaciously, but which would be dissolved and removed from them unless caused to be permanently fixed by some chemical agent, the very best known of which is, no doubt, antimony. If the absorbed tannin was not so fixed, it would be nearly completely removed at the temperature of the dyebath. Consequently the fixation simply amounts to the conversion of the entire amount of tannic acid in the fibres into tannate of antimony, which is insoluble in any usual solution into which the goods may be placed. This tannate of antimony now on the fibres has a strong affinity for the color bases of the so-called "basic dyestuffs," forming insoluble colored deposits which are only as permanently fixed on the fibres as the mordant is, and thus we are brought directly back to first principles. If the mordanting has not been done thoroughly, and effectively washed after being worked in the antimony bath, it is somewhat unreasonable to expect that the resulting dyed threads will hold tenaciously the colored pigment or lake. The secret, if such it may be termed, of non-bleeding basic colors depends wholly upon the thoroughness of the washing after mordanting and after dyeing.. If the yarn is not well washed after dyeing, there will also lurk the dangerous possibilities of tinted whites, due to "loose color" or unfixed dyestuff.

The remark made regarding the fixation of basic colors upon mordanted goods applies with equal force to broad goods printing with basic colors, where the mordant and color are made up into one paste and then applied to the fabric from a shell or roller. In this case the color mixer always endeavors to assure himself that he has a moderate excess of mordant over the actual amount necessary to ensure complete fixation of the dyestuff, for if the conditions were reversed, the color (for which there would be no mordant) would surely run into the adjacent white. In the application of the direct-dyeing colors to cotton the same principle holds good, of course, for very light shades. All, or nearly all, of the dyestuff in the bath is taken up by the yarn, and in some cases only a light rinse will be found to be quite sufficient; but for heavy shades a thorough wash will be necessary. The uses to which dyed cotton goods are to be put will have a considerable influence upon the amount of washing requisite; for upholstery goods less washing will be requisite than for shirtings or dress goods. In the case of woolens dyed with alizarine upon a chrome mordant, a good washing after mordanting will have a marked influence upon obviating any chance of possible rubbing, while washing after dyeing will guard against bleeding.

Wool dyed with acid colors requires thorough washing for two purposes—to remove the remaining traces of dyestuff held mechanically by the fibres, and to ensure complete removal from the fibres of all traces of acids used in dyeing, which might otherwise serve to tender or rot the goods. This is especially important in dyeing carpet yarns, which, if not thoroughly freed from acid, gradually deteriorate and become brittle. Indeed, deficient washing after dyeing is a very fruitful source of trouble in carpet mills; as a rule, a quart of sulphuric acid to each kettle of yarn is the common practice, and amounts to nearly 4¼ lbs. of acid, or 4½ per cent. The dyed yarn is lifted out, rinsed, whizzed, and at once dried, during which operations there is a gradual concentration of acid liquor at the lowest extremities of the skeins, with the result that the acid accumulates at that point, and by the time the moisture has been driven off the vitriol has been concentrated to such an extent as to seriously weaken the threads at that point. The writer's attention was first drawn to this point by a series of complaints coming from one department of the

mill, and upon investigation it was noted that the tender spots were at nearly regular recurring intervals. After this was observed, the instructions were then issued covering the thorough washing of all grades of carpet yarns, with the result that no further complaints were heard of. Cotton velvets, which are dyed with salt colors, should be well washed before finishing, as they are mostly dyed heavy shades; it is essential that they should be sent to the finishing-room in as clean a condition as possible. If they are to be discharged before finishing, this thorough washing may be left for the final one, and the best results will then undoubtedly be secured. The final washing after discharging and steaming should be so thorough as to preclude any possibility of traces of the discharge chemicals remaining in the piece, which would surely weaken the fabric; this is particularly true if tin crystals is the discharging agent.

Woolen fabrics that have been dyed good colors with strong bodied dyestuffs are frequently required to be "topped" or otherwise subsequently treated in a separate dyebath of other colors, in order to modify the shade of the ground or body color. As a general rule, this supplementary color is of an entirely different character from that originally used. The reason for this is that it is popularly supposed that such different color will impart "bloom" or "transparency" which could not otherwise be secured. However this may be, it is bad practice, as the fixation of this color is not entirely possible, and the result will be that the fabric will "rub"—a very undesirable property.

Some time ago a series of samples of black dyed silk came under the writer's observation, and it was noticed that they possessed a very pleasing dark-bluish overcast, which was quite difficult to imitate. A preliminary examination showed that the silk had been dyed with logwood upon a heavy iron bottom, but this did not account for the blue shade. A number of trials were made upon large quantities of silk, but no very satisfactory results were secured. However, a test was made which at once indicated that the "topping" was done by a very common dyestuff—alkali or Nicholson's blue. At once tests were made, with the result that very good and satisfactory shades were secured; but even by using this dyestuff certain objections were to be met—one, that the silk would not stand the rubbing test. For some classes of fabrics this style of dyeing, however, is not to be recommended.

The dyeing of cottons with the direct-dyeing color and the subsequent topping with the basic colors have much in their favor, for the reason that the majority of the direct colors have a rather marked affinity for the basic colors, thereby almost serving as a mordant. This property can be made much greater use of than is usual at the present time. Some reds can be topped with basic reds to very good advantage. Indeed, it has been asserted that some of the direct colors which are acted upon by acids, such as benzopurpurine, may be much improved by the use of safranine. Of course, such modifications of existing and well-known methods of dyeing are not to be taken up without careful experimenting, so that probable defects due to local conditions may be met and overcome. One serious defect in woolen fabrics such as are chromed before dyeing, says the American Textile Record, can be traced to plaiting, and allowing them to stand or lie in a plaited state. It should be remembered that the salts of chromine, when in the presence of organic matter, are more or less susceptible to the influence of light, and consequently the exposed parts of the folds may take on a greater depth of color. Diazotized tetrazo dyes should always be developed as soon as washed; they should never be allowed to remain around, but at once put into the developing bath. If this is not done, light will cause a decomposition of the diazotized base of the yarn, with the result that the subsequent shade will be extremely uneven and of no practical value.—Textile Manufacturer.

WEAVE ROOM SUPPLIES.

Supplies for a weave room include pickers, shuttles, harnesses, reeds, bolts, nuts, replacing broken parts and various straps. By care on the part of those in charge the amount annually paid for supplies can be reduced much below what the average mill usually expends. Careless, ugly and incompetent fixers are responsible for a part of this expenditure, and this is particularly the case in mills running box looms. There are many ways by which the fixer can reduce or increase the annual bill for supplies. Nearly every weaver can tell of some case of a fixer breaking something in anger, or careless in adjusting parts so that they are quickly worn or broken.

The banter may not be properly adjusted, and in a short time a new banter is necessary, or the fingers on the protection are not adjusted so that the dagger does not squarely strike the banter but glances off occasionally. A loom so adjusted may run for weeks without doing any damage, and then it may break a shuttle, as well as making a smash. A weaver may go for a fixer to replace a worn picker or broken strap, which the fixer will do with bad grace, feeling aggrieved at being called. At the same time he will notice that the drop boxes are not level with the race board, but not enough out of true to throw the shuttles out.

He acts on the principle that anything that will run is good enough, and walks off, leaving the boxes unadjusted. Such a fixer is an expensive luxury in any mill, as it does not take long for the shuttles to wear on the bottom, so that they are useless. The weaver counts himself lucky if the worn shuttles do not break out half the warp before he gets a new set.

The scrap box receives many pieces of leather that might be used for buffers on the picker spindles or put to other uses by a careful fixer. The reed is often cut or bent by the shuttle, and much time is lost in bringing it back to a working condition.

The life of both reeds and harnesses is shortened by lack of care when not in use. If reeds and wire heddles are not kept dry they will rust, and it does not take much rust to destroy their usefulness Rusty reeds chafe the warp yarn, causing unnecessary breakage, and while the friction of the yarn rubbing on the dents may remove some of the rust it is a costly way to clean them, besides it will not smooth the rough places. Rusty wire heddles are a nuisance to the weaver, and a prolific cause of bad weaving, especially if the rods on which the heddles are strung become rusty. When they are in that condition, if disturbed, they do not move into place by the tension of the yarn, but remain immovable, causing the warp threads that are drawn out of a straight line to float either above or below.

The rod may be polished, but the best cure for rusty heddles is to consign them to the scrap box. The production of a weaver and the annual bill for supplies are good tests of the efficiency of an overseer and his corps of fixers.—Wool and Cotton Reporter.

A NEW VARIETY OF COTTON.

Dr. A. B. Duncan, the representative of Lee county in the Georgia Legislature, has lately had on exhibition in Atlanta a stalk of cotton that attracted a great deal of attention there, and in an interview published in the Journal of that city he said of it: "I've been growing this peculiar cotton

for two years, and it's the same every year. It beats anything I ever heard of, and if it holds up it is bound to revolutionize cotton growing in the South. This cotton was first discovered last year by C. H. Beasley. It grew on his place and there was only one stalk in the entire field. It was so full of bells and was so altogether peculiar that he saved the seed from every boll and carefully planted them this year. This gave him 12 or 15 stalks this year, and they are just like the original one. Now, the average cotton has from 6 to 20 bolls to the stalk, yet this has from 30 to 40. But the bolls themselves are equally wonderful; instead of from 4 to 6 locks on the boll, like ordinary cotton, this new cotton has from 10 to 20 locks. Instead of being planted in rows 3½ to 5 feet apart and 2 to 3 feet in the drill, like ordinary cotton, this can be planted in rows 3 feet apart and 12 inches in the drill, because the limbs are shorter and the foliage less. It is the most wonderful cotton I have ever seen, and I haven't found anyone yet who could explain it. Mr. Beasley will have enough seed next year to make a large experiment, and then he will know more about it."

We are afraid that this is the same old story and will pass into oblivion like the others, which have been sprung upon the public at various times. It was only a few years ago that some enterprising farmer had on exhibit at the State Fair in Birmingham, Ala., a variety of cotton with long silky fibre and a beautiful yellow tinge. His statement that he could produce different colored raw cotton fell flat, and no one has heard from him since. Another man was going to revolutionize the business by producing seedless cotton. Perhaps the story containing more humor if nothing more, was the one recently reported where some one had produced a cotton plant that would yield spun cotton yarn at the rate of one skein to the boll.—Excelsior.

GLOVE MAKING.

Most people believe that France is the glove-making country par excellence, but this view is incorrect if we accept Inventions as authority. That perodical tells us that Germany has the largest number of concerns engaged in the making of leather gloves of any country in Europe, the number being over 1,100. Of these 1,000 are engaged exclusively in the making of kid gloves. There are besides 100 tanneries for kid and 40 tanneries for shoe-making leather. There are 85 glove concerns that work exclusively for export. Of the other countries, Austria-Hungary has 350; France, 225; England, 190; Italy, 100; and Sweden, Norway and Spain, between 50 and 60 glove manufacturing firms each. Russia has only about 30. There is in Germany no important glove-making centre, the industry being scattered. In Austria the glove-making centres are Prague and Vienna; in France, Paris, Grenoble and Chaumont; in England, London and Worcester; in Italy, Naples, Milan and Turin; in Sweden, Stockholm and Malmo, and in Belgium, Brussels.

THE INDIGO CROP OF LAST YEAR.

The India Office has issued the following report by Mr. W. H. Moreland, director of the Department of Land Records and Agriculture, Northwestern Provinces and Oudh, dated Lucknow, October 2, giving the final forecast of the indigo crop of 1901:

Area.—The exact area sown with indigo is not known until December, when crop statements are received from the village accountants. The area estimated in this forecast is, therefore, taken from the return published by the Irrigation Department up to the end of July, and the preliminary statement furnished by the village accountants in June, due allowance being made for late sowings. Last year a slight improvement took place in the cultivation of this crop, but during the present year there has again been a very marked decline in consequence of the continued fall in prices. The total area returned in December, 1900, amounted to 262,175 acres; the area this year is estimated at 160,897 acres, which shows a decrease of about 39 per cent. Compared with the average areas of the preceding five and ten years the decline amounts to 50 per cent. in each case.

Condition.—In the first forecast, issued on July 11 last, it has been reported that some damage was done to the indigo crop in places by locusts, and in others by grasshoppers; while the late commencement of the rains stunted the growth of the plant. The prospects of the crop continued unsatisfactory till the end of August; but the fine dry weather during September was generally favorable for the manufacture, and the produce of dye is reported to have been better than was originally anticipated. Assuming 100 to represent a normal crop, the average condition of the present year's crop is now reported to vary from 50 to 85 per cent.

Outturn.—The total estimated production of indigo dye this year works out to 28,352 factory maunds, and is 40 per cent. below the last year's estimate and the average estimated yield of the preceding five and ten years. The exports of indigo from these provinces from October 1, 1900, to March 31, 1901, amounted to 37,791 standard maunds, of which 23,575 maunds went to Calcutta, 12,138 maunds to the Punjab, and the rest to other parts of the country.

WOOL—ITS QUALITIES AND THEIR MEANING.

Every wool grower knows that in speaking of the quality of his clip, or the grade of any parcel of wool, it is not sufficient to simply say whether it is merino or crossbred, these terms being but vague and insufficient and oftentimes misleading, but it is necessary to be more particular in defining what the quality is; hence it is customary to speak of that wool as being of 60's, 50's or 40's quality, just as the case may be. By so doing a man with any practical knowledge of wool will be able to form a correct estimate of what grade the wool is, and at once be able to estimate what purposes such a quality is fitted for. By this arrangement the whole trade has its best interests served, and all quibbling is done away with when the quality in numbers has been specified. But while users or buyers perhaps understand best the varied qualities of wools, has the general reader, in whose interests this article is mostly penned, a clear idea of what is meant when a wool is spoken of as being "40's" or "60's"? Let me see if I can shed a little light upon this important matter.

"How far will it spin?" is a question almost analogous to saying "what quality is it?" This is a question of great meaning in the woolen and worsted trades. Each and every quality of wool has its limits to which it will spin without the yarn becoming imperfect, i.e., unsound, uneven and unwearable, and this is always determined by its quality, spoken of as 32's, 36's, 40's, 60's, or any other length or number that is mentioned. In the worsted trade the highest limit to which each quality can be carried fixes the counts, and these range upwards from 32's to 80's, beyond which only the very choicest lots are spun. These counts in their turn become the standard qualities of the trade, whether applied to the wool at the time of sale or after sorting, the tops after the combing process, or the spun yarn, whether spun to its limit or any thicker count. This classification relates really to the processes through which wool goes in its manufacture, commencing with the wool-sorting, and differs rather from the more general

classification at the London wool sales, country markets and ordinary wool fairs in general, where the classification is that of the breed of the sheep in its widest sense and the locality where grown. When the quality is quoted by counts, it denotes that the wool is no longer in the fleece, but has entered on its way towards the production of a piece of fabric.

Taking then, a 32's quality as the lowest standard employed in the manufacture of worsted coatings, serges, and woolen goods, for any quality below 32's always shows a sprinkling of dead hairs, named kemps in the trade and which refuse to be dyed, we may ask what does 32's quality really mean? Answering that question simply means that a 32's quality wool will spin to the limit of 32 hanks to the pound weight, each hank containing 560 yards. In other words, 560 yards multiplied by 32 gives the total of 17,920 yards, this meaning that there are that number of yards length of yarn to one pound weight when it is spun. To speak of a 60's quality wool simply means that there are 60 hanks, each hank measuring 560 yards to weigh one pound, or, in other words, there are 33,600 yards of spun yarn of this quality to every one pound weight of material; 80's quality is a much finer quality wool still, and this means that it will spin to 80 hanks of 560 yards each before it will weigh one pound, or really a production of 44,800 yards to every pound in weight. Such a statement, which is actual fact, lends itself to much imagination, for such yarns when spun are indeed small, one single pound of 60's reaching over 19 miles in length.

To growers of the staple such facts must appeal in a most powerful manner, and they must see how important it is that their fleeces be grown in as perfect a manner as possible. When a wool is sound and full of elasticity, these immense lengths can be secured without the least difficulty, it being only when the fibres are damaged and rendered harsh and brittle that difficulty is experienced in the spinning proces. Quality to-day stands first in the eyes of the wool buyers, and ever will be. When fleeces degenerate on this head it always means a less price per pound, simply because it will not spin to such a long length; hence every grower must maintain a good general excellence throughout his flock.

NEW COTTON MILL IN CAUCASIA.

During the last few years many countries of which little has been known have come forward to take an important place in the commercial world. It is not long ago since Caucasia, the mountainous country lying to the South of Russia, between the Black Sea and the Caspian Sea, was chiefly peopled by a mixed assortment of tribes, hardy mountaineers with revolutionary tendencies, who, although nominally submissive to Russian military authority, were only partially kept under restraint. Then came the time when the district was found to be rich in mineral resources. The Russian Government showed great energy and creditable tact in opening up the country, pacifying the native tribes, and giving reliable security to the enterprising companies who first worked for minerals and petroleum. It is needless to say that the earlier efforts brought little returns, but since that time it has been definitely ascertained that the country holds a large store of wealth, and both Russian and foreign capital is trying to obtain further shares in working the land.

Bakou, on the western shore of the Caspian Sea and the eastern terminus of the Trans-Caucasian railway, has rapidly grown in importance during the changes wrought in the country, and it was chosen as the most suitable site for a cotton mill by Mr. G. Z. A. Tagieff, who wished to find work for the poorer section of the population. The enterprise was partially philanthropic, but was carried out in such an energetic, enterprising and business-like manner that commercial success has also been obtained. It was, however, a very risky speculation, for after building had got well under way, it was temporarily stopped by the Government, owing to some misunderstanding. It was resumed later, and, when completed, Dobson and Barlow, of Bolton, were entrusted with the order for 18,300 ring spindles and all the necessary preparing machinery for 650 looms and weaving plant, and also for the mill gearing and steam-heating installation.

A ready market was found for the manufactured goods, both in Caucasia and the adjoining kingdom of Persia as well as in other neighboring districts, whilst the cotton grown in plantations in close proximity to the works also turned out a success. This progress decided Mr. Tagieff to enlarge his premises, and the firm, now known as the Caucasian Staple Manufacturing Company, has recently been doubled in size and the second order for machinery entrusted to Dobson and Barlow. The mill has been built and equipped on the most modern lines, and the driving is by electric motors. These are placed in a corridor which divides the mill into two halves, which places the drive right in the centre of the machinery.

HOW CLOTHS WERE NAMED.

About the year 1329 the woolen trade of England became located at Worsted, about fifteen miles from Norwich, and it was at this place that the manufacture of the twisted double thread of woolen, afterwards called worsted, was first made, if not invented. Travellers by rail in Brittany often glide past Guingamp without remembering that it was here that was produced that useful fabric gingham. Muslin owes its name to Mussoul, a fortified town in Turkey in Asia. Tulle obtains its name from that of a city in the south of France. Linsey-woolsey was first made at Linsey, and was for a long time a very popular fabric. Kerseymere takes its name from the village of Kersey. We have to thank Gaza, in Palestine, the gates of which Samson carried away, for gaze or gauze. Gaza means "treasure," and precious to the fair is the tissue which covers without concealing their charms. Voltaire, wishing to describe some intellectual but perhaps dressy woman, said: "She is an eagle in a cage of gauze." Damask derives its name from the city of Damascus; calico from Calicut, a town in India, formerly celebrated for its cotton cloth, and there also calico was printed; cambric from Cambray, a town in Flanders, where it was first made, and tweed from a fabric worn by fishermen upon the river Tweed.

A REMARKABLE TAPESTRY.

In a corner of a store in Washington, D.C., hangs a piece of tapestry which is probably one of the most remarkable pieces of work of its kind. It is 27 by 13½ feet in size, and represents the discovery and development of America. Its maker was engaged almost constantly in the work for six years. The work was done on a single piece of silk and the entire scheme was worked out in strands of vari-colored silk, which form portraits, landscapes and allegorical pictures. The tapestry is the property of A. M. Peltinsky, a native of Poland, who is a naturalized citizen of the United States. Mr. Peltinsky was a tailor at work at his trade in New York in 1886, when he claims he had a dream in which the scheme for the tapestry was shown him. He immediately began to work out the dream and after six years of constant labor the piece of tapestry was evolved. It was exhibited at the World's Fair in Chicago, and it is said that Princess Eulalie, of Spain, offered its owner $40,000 for it, but he refused to sell.

The central feature of the decoration is a huge tree,

beside which stands Columbus and upon which are fruits representing the 45 States and Territories, each State being represented by its coat of arms. In the field are all the animals of the earth, representing the liberty that is offered the peoples of the world within the borders of this country Around this central section are the portraits of all the Presidents of the United States, from Washington to Cleveland, the picture of the Father of His Country being larger than the others and flanked on either side by portraits of Louis XVI., Kosciusko, Benjamin Franklin and Lafayette. At the base of the righthand section of the tapestry is a picture of the first landing on American shores, and along the outer edge are pictures of eight buildings in the United States which have become famous, the White House heading the list. In the centre is a collection of vegetables, representing the products of the United States. The development of the railroads is shewn by pictures of the various stages of transportation from the horse-car to the modern vestibule limited. The lefthand section has for its centrepiece pictures of the fruits grown in this country, and five more pictures are shown here, making thirteen buildings in all, representing the original thirteen States. Fulton's steamboat heads the line of pictures, showing the development of the steamboat. A series of pictures show Columbus' tomb. The base of the tapestry is made to represent the sea and the various kinds of life found in the water. The border of the tapestry represents a huge fish, which is coiled around the entire piece, the head and tail being separated only by Washington's portrait at the top. The scales of the fish contain the colors of all countries.—Carpet Trade Review.

A NEW TEXTILE FIBRE.

A new fibre, known as aramina, has recently been discovered by Dr. Silva Telles, of the Polytechnic school of Sao Paulo. It is obtained from a variety of plants known in Brazil as carrapichos. It is almost white in color, very fine and flexible, and is from two to three yards in length. It has an almost metallic lustre and wonderful flexibility. The plant is strong and vigorous, and no special care is required in its cultivation, being adapted to uncultivated lands. It grows wild throughout the entire western part of the State of Sao Paulo, and is being cultivated on a large scale on the plantations in the vicinity of Campinas. Articles made of this fibre include cords, twines, ropes and canvas suitable for coffee bags.

SCOURING HOSIERY.

Frequently the manufacturer has a new class of goods to make for which he is in doubt as to the proper means of handling in the various departments, and it is often very difficult to determine at the start how these goods should be handled in the scouring. Probably no product is subject to so many adulterations as soap, and for this reason every manufacturer should test the soap used in his mill at frequent intervals. Nothing cleanses wool and woolen goods so well as a pure soap, and if proper care be taken in its use it gives the goods a soft handle.

It is impossible to prescribe any fixed formula for a mixture of soap, soda ash and sal soda for scouring knit goods, as variations in the quality and weight of the goods necessitate corresponding changes in the composition of the scouring liquor. The best way is for the manufacturer to experiment with different proportions of soap and alkali, and note carefully the results. I will give some tests for impurities in soap. Dissolve an ounce of the soap in a given quantity of water, and add a quarter of an ounce of dilute sulphuric acid. The grease and fat will come to the top, while the earthy matter will fall to the bottom. The same results may be obtained by dissolving the soap in a strong solution of alcohol and heating the mixture. I have used the following formula for scouring hosiery with good results: 20 lbs. of caustic soda and 20 lbs. of sal soda dissolved in a barrel of water and boiled one hour; then add 12 gallons of red oil. Boil the mixture another hour and then reduce it by the addition of three barrels of hot water. When cool it is ready for use. Only enough should be used to make a good lather when scouring the goods.—"Old Superintendent" in Hosiery Trade Journal.

CLUBS IN MILL TOWNS.

In many mill towns of the South there are successful clubs which add much to the pleasure of life in a community. One of these at Rockingham, N.C., has a home of its own, a neat brick building. On the first floor of the building are the offices of four of the leading cotton mills of the town, while on the second floor are reading and library rooms. There is also a hall for lectures, entertainments, etc. Mill owners, managers and operatives are eligible to membership in the club.

NEW DEVICE IN KNITTING MACHINES.

A special device has been introduced on French circular frames by E. Dittrich, of Limbach, Germany, for transferring certain stitches from one needle to an adjoining one, to leave certain needles empty, to produce openings or holes in the fabrics to form lace work patterns. The Hosiery Trade Journal states that the principal improvement is in the special construction of the sinker or loop wheel, which contains coverers with points and sinker hooks. Each coverer alternates with a sinker and meets a needle in the machine, the sinker hooks passing into a space between the needles. Cams give action to the same to give them the necessary up and down and backward and forward motions. To transfer a stitch, the coverer and its adjacent sinker advances, the coverer is then in position over the beard of the needle, and at this position the sinker and coverer are both depressed; the point then depresses the needle beard, while the sinker holds the sinker loop beyond the needle beard, a backward movement of the sinker brings the loop on to the covering point; the sinker and point now rise to allow for the point to clear the needles; during this the needles have revolved at a slightly greater speed than the sinkers, so that when returning the loop the coverer is over the adjoining needle to that from which it took its loop. A variety of patterns can be made and the same can be discontinued at any time and plain knitting only produced.

ARTIFICIAL SILK IN GERMANY.

An artificial silk has been introduced into Germany, which, although claimed as new, is manufactured by a process which is only a modification of existing methods. Copper, ammonia, and cotton waste are mixed in a large vat. In about six hours a liquid of dark blue color is formed, which passes into a large filter press, and then out through small glass tubes through a mild sulphuric-acid bath. It is then of a gelatinuous consistency, and is caught by a small glass rod in the hand of a boy or girl, and reeled on to a large glass spool as it passes through the bath. The copper and ammonia, together with other chemicals, are deposited as a sediment and are used again. As the threads are reeled, they receive a bath of cold water from a syphon. The numerous spools centre on one

large spool, and are then reeled on to another, and so on, always under cold water, until all chemicals and acids are removed. This stage of the process takes four hours. The thread is then taken to a drying room. A corporation has been formed to work the process, with a paid-up capital of £100,000, called "Vereinigte Glanztoff-Fabriken;" it has now in operation a factory employing 400 hands, in the village of Dremen, ten miles from Aix-la-Chapelle, and a factory employing an equal number of hands at Mulhausen, Alsace, Germany.

DYEING BY THE ACTION OF LIGHT AND AIR.

A patent has been obtained by Mr. John Stevenson, of Edinburgh, for dyes and pigments, which, when applied to a textile fabric, gradually change on exposure. Two or more substances are used for each color, all of which may be non-permanent, or only some of them. Hence, the color gradually changes by the destruction of the non-permanent ingredients, and by fresh color-combinations among the others if such are present.

COST OF A MAN'S WARDROBE.

"Comparatively, what a man wears does not cost so much during a lifetime when you come to think of it," said an observant citizen, "and as a matter of fact the average man will be surprised by the figures. Of course, the man who attempts to keep up with the procession of the ultra-fashionables must necessarily spend a great sum of money during his lifetime. He must humor the changing moods of the men who set the pace in fashion. He must have the very latest thing out. His coat must be the proper cut, his hat the proper shape, his trousers just so and his tie the proper color. But there are many men in the world who cannot pay so much respect to fashion, and hence we may strike an average between the two extremes in dress.

"We will put the case hypothetically and assume that a man lives to be 35 years of age. We will assume that he will wear the clothes of a grown man for this length of time. On an average, I suppose a man will wear out six shirts during a year, or a total of 210 in a lifetime. Suppose he pays 75 cents each for them.. This would be $4.50 a year, or $157.50 that he would pay out in a lifetime of 35 years. He would wear out 12 collars a year, or 410 in 35 years, and if he wore the cheaper grade of collars, 15-cent collars, he would spend the sum of $63 in 35 years. Allowing two whole suits of clothes a year, he would need in a lifetime 70 suits, and at the average cost of $20 a suit he would spend in this way $1,400 in 35 years. If we allow him an average of four suits of underwear a year, he would need 140 suits, and at the nominal price of $1 a suit they would cost him $140 in 35 years. Two every twelve months would mean a total of 70 hats, and if he paid an average of $3 each for them the total number would cost him $210. His shoes, allowing him two pairs a year, and fixing the cost at $4 a pair, would cost him $280 in a lifetime. Now, on this basis of calculation, a man would spend about $2,250 in a lifetime for clothes. There are, of course, many men who spend much more than this amount, and there are many men who spend much less. But this calculation may be taken as a reasonable average.

"It will be observed that neckties, socks, suspenders, garters and things of that sort are not taken into consideration. Laundry bills, cleaning, mending and other things which increase the cost of a man's wearing apparel are not considered. These costs would probably double the figures, and in some instances, as in the case of shirts and collars the original cost of the article would be nothing in comparison to the cost of keeping them.

"But taking all things into consideration, a man's wearing apparel will cost him less than the food that he eats. Suppose a man is allowed three meals each day at the nominal cost of 25 cents a meal, in 35 years he would spend about $9,450 for food, or about four times the amount he would spend for clothes."—New Orleans Times-Democrat.

MEN'S WEAR FOR SPRING.

The Dry Goods Review anticipates that the kind of fabric and the patterns to be popular during the coming season will be tweeds and cheviots, grey checks and grey mixtures. The feeling is also in favor of brown and green mixtures and checks. Worsted suitings in checks and stripes will do a good trade. For spring overcoatings, waterproof coverts in greys, fawns and green fawns, and grey cheviots in Oxford and Cambridge, and Scotch tweeds, will probably have the call for the best trade. In trouserings, stripes and checks are both good. The stripes are a little wider. There is likely to be some feeling for tweeds. The large patterns will be worn in [illegible] but such colors as subdued browns and greens will also be in evidence.

THE ST. JOHN COTTON MILLS.

The Cornwall and York Cotton Mills (formerly Park's), are again in full operation, the machinery having been started on the 19th December. The first order for goods came from Nova Scotia. Every available share of the stock has been taken up, all except one small lot being held in St. John, showing the faith of local capitalists in the enterprise. The following have been elected directors of the company: Jas. F. Robertson, R. Keltie Jones, James Manchester, Thomas McAvity, W. H. Thorne, J. Morris Robinson and George W. Jones, and from among these the following officers were chosen: George W. Jones, president; James F. Robertson, vice-president; Stephen P. Gerow, secretary-treasurer. It has been decided to call the mill in the Valley the "Cornwall," and the one at Courtney Bay the "York." The product of the York mill will consist of woven goods, flannelettes, denims and colored cotton goods. Yarn and the different cotton cloths will be made at the Cornwall mill, and all dyeing will also be done at this mill. The mills were formerly noted for their warps. At present they are using about 100 bales of cotton per week, but this consumption will be gradually increased.

The following are the foremen in the different departments. Cornwall Mill—Carding room, Mr. Armstrong; throstle spinning, Mr. Naves; mule and ring spinning, Mr. Nuttall; weaving, Mr. Cox; dressing, Mr. Jackson; dyeing, Mr. Doig; engineer, Mr. Paterson; mechanic, Mr. Logan. York Mill—Carding room, Mr. Armstrong; ring and mule spinning, Thos. Whelan; dressing, Mr. Hall; cloth room, Mr. Fishwick; engineer, Mr. Garey. Preference has been given as far as possible to those formerly employed, and many who had left the city are returning. All hands engaged have had to produce a certificate of vaccination.

The presence in St. John, about the time the mills started, of C. J. Mitchell, of Toronto, who was a bidder at the sale, gave rise to considerable speculation, and it was stated that he was there to negotiate for the purchase of the entire output for an Ontario syndicate, but this has been denied. The re-opening of the mills comes at a most opportune time and causes great satisfaction in St. John.

Foreign Textile Centres

Manchester.—The future of the cotton trade hinges on the crop. The estimate at present is for about 1,250,000 bales, which is half a million less than was estimated a few weeks ago. An opinion prevails that the bureau's estimate is too pessimistic. Business has been rather poor in view of this uncertainty. Sales have not come up to expectations. Bombay and Calcutta have not taken much, nor has China been a free buyer, being now pretty well stocked. Some of the mills have orders to keep them well employed into the new year. Yarns have gone up a little. In linens there is not much doing at this time of the year, but it may be noted that buyers who are holding off receive little encouragement from the position of the market for raw material, the downward course of which seems to have been checked. In the case of some grades an increase may be noted. To merchants here the position of raw material means steadier prices and it is hoped by many distributors that flax will keep steady enough to enable producers and distributors to order yarns and cloth with more confidence than is possible where fluctuations in quotations of the fibre are frequent. The finer grades of linens as produced in Dunfermline are rather slow. Coarse goods have been the subject of further Government orders, but the linen industry hereabout has not received much benefit. American orders for linens have been slightly more encouraging, both New York and Chicago having been active buyers. Rio has also operated more freely, and as the yield of coffee is larger by 3,407,000 bags than last season the purchasing power of Brazil has been correspondingly increased. In silk the mills are moderately well employed. There is no boom but just a steady business. Of the wholesale trade generally November did not come up to expectations; nor has December proved much better.

Bradford.—The feeling here before the wool sales was that the very best merino wools were in a fairly strong position, and that prices were steady, but that all lower kinds of colonial wools were distinctly weaker, and that is really the position. If the great fall in the price of coarser cross-bred colonial wools was the direct result of a similar falling off in the consumption, the prospects of the trade would be dark; but the total sales of colonial wool in 1901 amount to 1,352 000 bales, whilst the total sales in 1900 were not much more than half this amount, only 728,000 bales. In a falling market only hand-to-mouth buying is done. This policy has been closely followed by the continental users of Bradford worsted yarns, but the fact that there has been no further declension of prices since the commencement of the London sales has caused enquiries as to price and delivery to be much more numerous than for some time past. There is very little new business to report in reference to any class of English wool, but prices are quite unchanged. The prospect for the spring trade in Bradford fabrics is good. Some makers of fancy dress goods have produced fabrics which are an advance on anything heretofore introduced. Serges and unspotable Amazon cloths have a promising future. Fine black alpacas and mohairs have sold well and will be in demand next summer. Lustres are dull. On the whole the market is quiet and there is no immediate prospect of higher values.

Leeds—Trade has reached the quietest stage of the year. Repeat orders, except in special cases, continue scarce, owing to the mildness of the season and the consequent slackness of the retail trade in winter goods. Wholesale warehouses are not busy, and piece merchants report a feeble demand for medium and low class fabrics. Some business is being done in the better class of light weight woolens for ladies' wear, but Venetians are not so readily disposed of. The wool market is quiet. The past year has shown great freedom from bad debts, a satisfactory indication.

Leicester—The hosiery industry is very satisfactory and active for specialties and fancy goods, while the cold weather has stimulated the demand for the best underwear. The yarn market is brisk in almost every department, and the lowness of prices compels spinners to seek relief in an extended output. The deliveries are only on a moderate scale, but large contracts have been booked, and the further orders offering give promise of a brisk spring season. Good sound worsted yarns at low prices have an exceptionally large trade.

Nottingham—Some moderate orders have been placed for lace and curtain yarns, but there is no buoyancy in the demand. Prices are firm, in some cases with an upward tendency. Merino and wool yarns for hosiery are in good request, and prices are well maintained. Brown cotton nets move slowly. Business in the fancy cotton millinery lace warehouses is more active in the pattern departments than with actual sales. Orders, however, are being placed for shipment and future delivery.

Kidderminster—The carpet market is in a healthy condition, and orders are coming in freely. There is a distinct improvement in the demand for best Wiltons and Brussels. In some cases overtime has been necessary to fill orders. The yarn trade is quiet, local demand keeps up, but there is little life. Prices are steady and there is no inclination to droop. All the mills were silent for several days at Christmas. Repairs were made and they all started again with the new year. By the regulations of the new Factory Act, which came into force on New Year's Day, the hours of labor in the carpet and spinning mills will be reduced from 56½ to 55½ hours per week. The local manufacturers have raised and considered the question whether, with a reduction in the hours of labor, the large number of day-hands in the mills should, in the future, be paid the same fixed wages as at present. A meeting was held but no decision arrived at. Other manufacturing towns are also interested.

Belfast—There is no change in this linen market, which is sluggish. Prices keep very irregular. The spinning branch is depressed, with increasing anxiety to make sales. The manufacturing end shows a fair amount of life at low prices. White goods for home markets are selling only in the fancy end. Yarns have been in moderate request, but rates have been rather unsettled. Spinners have been able to keep down stocks to a considerable extent, but prices continue to be of an unremunerative character, and are not firm even at this. There is considerable ground for thinking that prices have touched bottom for the present, and any change will be in an upward direction. The demand from the United States and the colonies is steady. There is a steady business in brown cloth and the outlook is hopeful.

Dundee—The prices of cloth in the Dundee market are being kept steady through a rise in the price of jute. The raw material is decidedly firmer all round. Fine jute is not offered. Sackings and baggings are in moderate request, and are maintaining their value. Hessians are dull. There is a demand for some of the heavier linen fabrics, such as ducks, sailcloth, etc., but orders for other kinds of linens are not coming in so freely. Yarns have been sold to a considerable extent.

South of Scotland—Most of the spring orders having been executed, business in the South of Scotland tweed trade is experiencing a lull now. Repeat orders are helping to keep

the machinery going. The Kirkcaldy linen trade continues to improve, while the floorcloth and linoleum industry is still dull. In the Glasgow wool market business is quiet, while, as regards cotton, there is a tendency towards higher values, the result being that transactions are limited

WINNERS IN RIFLE CONTEST.

The results of the rifle contest which was conducted by the J. Stevens Arms and Tool Company of Chicopee Falls has been announced and 60 boys were made happy at Christmas in the receipt of their prizes, won by their excellence in marksmanship. The first prize was won by Guss Bowers of Elm Grove, W. Va., who made a perfect score of 50. Four others won prizes with a score of 50, though falling a little short of perfection. Mr. Gould, editor of Shooting and Fishing in New York, was the judge of the contest, and some 275 scores, ranging all the way from 50 to 5, were submitted to him for judgment. Thirty-seven of the best scores on the list were questioned from the fact that they were better scores than have been made by the crack shots in the country at 75 yards. The company sent letters to the doubtful ones and required that they send an affidavit certifying to the correctness of their scores. About half of the 37 responded with the affidavit, and all of these won prizes. The contest was open to boys under 20 years of age, the conditions being 75 yards off-hand, open sight. The company will soon issue a booklet containing photographs of 13 of the prize winners and the list of all those who won prizes, with their scores. The contest has been so successful that the company will repeat it next summer. The amount of prizes offered will be $1,000, and the best score will win $100. To insure truthful scores the company will require that three witnesses observe the shooting and attach their signatures to the targets made. It will be open to boys under 20 in the United States and Canada.

DEATH OF JOHN CALDER.

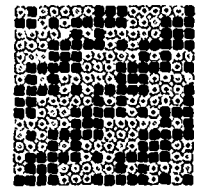
John Calder, a well known wholesale clothing merchant and manufacturer, Hamilton, died December 21, after an illness of about a year, aged 70 years. He was a native of Nairn, Scotland, and when a boy entered the wholesale dry goods house of Peter Buchanan & Sons, Glasgow. He came to Hamilton when a young man, and became manager and buyer for Isaac Buchanan's wholesale clothing house. Subsequently he became a partner in the wholesale dry goods firm of D. MacInnes & Co., where he remained till the MacInnes fire about twenty-three years ago. Then he began business in the manufacture of men's clothing, the firm being John Calder & Co. He conducted this business in so satisfactory a manner that his name became honored throughout the Dominion, the trade rightly regarding him as a man to be respected and trusted. Illness unfortunately resulted in financial difficulties last year, but he reorganized the firm of John Calder & Co. a few months ago and continued the business.

DEATH OF R. T. BRODIE.

Robert T. Brodie, one of the most widely known woolen manufacturers in Canada, died in Toronto on December 16, at the age of 71. Coming from Scotland with a good practical knowledge of the trade, he became foreman for Harvey & McQuesten at their Newcastle mills, afterwards removing to Hespeler when the Harvey & McQuesten firm purchased the big mills there. He shortly after left their employment, starting for himself a small mill at Plattsville. He then removed to Peterboro, and with his son soon had a mill running night and day to supply the demand for Brodie's Peterboro grey flannel. After the failure of Harvey & McQuesten at Hespeler, Mr. Brodie purchased the property, and the phenomenal success of these mills is well known. A few years ago he retired, selling out to his son, A. W., and removed with his family to Toronto. He leaves a wife, two sons and four daughters. He resided in Guelph for some years, going down on the train to Hespeler daily. His son is now proprietor of the Streetsville woolen mills.

Textile Design

FANCY WOOLEN TROUSERING.



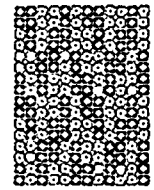
Complete Weave.
Repeat 16×16.

Warp :—3,700 ends, 16-harness straight draw.
Reed :—14×4.
Dress :—
2 ends, 2/48s worsted, dark red,
6 ends, 3¼-run woolen yarn, white,
2 ends, {5-run, black / 6½-run, white} twist, woolen yarn,
2 ends, 3½-run woolen yarn, black,
2 ends, {5-run, black / 6½-run, white} twist, woolen yarn,
6 ends, 3½-run woolen yarn, white,
2 ends, 3½-run woolen yarn, black,
2 ends, {5-run, black / 6½-run, white} twist, woolen yarn,
2 ends, 3½-run, woolen yarn, black,
6 ends, 3½-run, woolen yarn, white,
2 ends, {5-run, black / 6½-run, white} twist, woolen yarn,
2 ends, 3½-run woolen yarn, black,
2 ends, {5-run, black / 6½-run, white} twist, woolen yarn.
6 ends, 3½-run woolen yarn, white,
2 ends, 3½-run woolen yarn, black,
2 ends, {5-run, black / 6½-run, white} twist, woolen yarn.

48 ends in repeat of pattern.
Filling :—70 picks per inch, arranged thus :
8 picks, 3½-run woolen yarn, black,
8 picks, {5-run black / 6½-run pearl} twist, woolen yarn.

16 picks in repeat of pattern.
Finish :—Melton finish, scour well, shear clear; finished width, 56 inches.

WOOLEN SUITING.



Complete Weave.
Repeat 6×8.

Warp :—2,170 ends, all 2-run woolen yarn, 12-harness, straight draw.
Reed :—8×4.
Dress :—
1 end, red,
8 ends, black, } ×3 = 27 ends.
1 end, blue, = 1 end,
8 ends, black, = 8 ends,

Repeat of pattern 36 ends.
Filling :—32 picks per inch, the same counts, colors and arrangement of yarns as used for warp.
Finish :—Scour well, full slightly, shear and press, 56 inches wide.

LAST YEAR'S COTTON MARKET.

Reviewing the cotton market for 1901, Dun says: From 10¼ cents for middling uplands at this city there was a sharp advance to 12 cents late in January, while that month's option was successfully cornered and forced up to 12¾. Prices at this time were much the highest in over a decade. The artificial nature of the advance was shown by sales of February deliveries on the same day at 9.60 cents. Local contract stocks were low, and the market was in a perfect position for manipulation. As there was every indication of a full crop, the price appeared high, and traders undertook large ventures on the short side. When the squeeze began there was a wild scramble to rush supplies to this city. New England mills returned large quantities, and cotton already on board for export was unloaded to help break the corner. It was an inflation that meant no loss to consumers, for Sound steamers brought back the cotton en route for the spinners, and they sold at profitable prices to demoralized speculators. The available stocks rapidly rose, actual cotton was delivered on contracts, and on the last day of January the price broke to 9¼ cents. The fall did not end there, but gradually continued until 8.06 cents was quoted. Dulness in the domestic goods market and decreasing British exports were factors in the sagging tendency, as well as unprecedented sales of mules and fertilizers, and other evidences of heavy production. Texas growers endeavored to secure an agreement to restrict the acreage, but without success. Print cloths declined and the textile conferences made unfavorable exhibits. Cold and wet weather combined to delay planting, and labor was scarce owing to the excitement in the new oil fields. Yet the first bale of new cotton was marketed in Texas unusually early. At the end of August there had come recovery to 8⅝ cents. The annual report of The Financial Chronicle showed a crop of 10,425,141 bales for the crop year ending September 1st, against 9,439,559 in the previous year, and 11,235,383 in 1899. Exports were reported as 6,638,813 bales for the crop year, compared with 6,042,246 and 7,455,431 in the two preceding years. A heavy increase in spindles was reported, but it was well known that the record-breaking capacity of the country's cotton mills was by no means fully engaged. The Government report of condition on October 1 was only 61.4, which caused some advance, but heavy port receipts and poor reports from spinners brought a reaction to 7⅞ cents. There was a sudden change of base when the official report placed the yield at only 9,674,000 bales, 8½ cents being quickly attained. Mills also exhibited more activity, and exports were liberal, but the quotation was held back by incredulity regarding the department's figures, which were more than half a million bales below general expectations.

THE WOOL MARKET.

The sixth series of the 1901 wool auction sales closed in London, December 14, with offerings of 9,170 bales, including a selection of fine new clips. Demand was brisk, and full rates were obtained. Some West Australian lots were bought in, holders refusing to accept the prices offered. Buenos Ayres was in good demand and firm. The attendance throughout the series was particularly good for the season. There was brisk competition every day for most grades of merinos and finer crossbreds, while coarse greasies sold well at the low values established. When the sale opened good merinos were firm, and 5 per cent. above the October average throughout the series. Inferior and faulty merinos were five per cent. cheaper, but this weakness disappeared near the close. Good greasy sold well, mostly for foreign account. Superior and faultless scoureds sold about the October rates, faulty, seedy were 5 to 10 per cent. lower; fine crossbreds were scarce, and in keen request, at an average advance of 5 to 7½ per cent. Medium and coarse grades at the outset of the series were 7½ per cent. lower. Later, under the influence of American and French competition, medium greasy improved 5 per cent. above the opening, following a very irregular course. The demand for scoured was better, slipes were in large supply. Finest grades sold at previous quotations, but other grades, particularly medium lambs, showed a 10 per cent. decline. Cape of Good Hope and Natal scoured snow whites were 5 per cent., and greasy snow whites were 5 to 7½ per cent. cheaper, despite the short supply. The close of the series was generally firm. There were 1,195,035 bales catalogued. The total amount purchased for the Continent amounted to 87,000 bales, and for the United States 3,000. The new season's wool as a rule is finer and somewhat shorter than last season, and generally light in grease, and generally burry and seedy. Many Queensland clips show a large percentage of earthy waste. Following are the closing day's sales in detail. New South Wales, 1,200 bales; scoureds, 5d. to 1s. 5½d.; greasy, 3¾d. to 10½d. Queensland, 600 bales; scoured, 1s. 3½d. to 1s. 6d.; greasy, 2¼d. to 9d. South Australia, 100 bales; greasy, 2¾ to 6¾d. West Australia, 600 bales; greasy, 4½d. to 8d. New Zealand, 4,200 bales; scoured, 3½d. to 1s. 4d.; greasy, 3d. to 9d. Cape of Good Hope and Natal, 700 bales; scoured, 6¾d. to 1s. 2d.; greasy, 4d. to 7¾d. Buenos Ayres, 600 bales; greasy, 2d. to 6½d.

The first series of sales for 1902 will begin January 21. A large quantity has arrived for the sale.

In the United States the market for December was quite active. The American Woolen Co. was the chief buyer, and is estimated to have taken something like 60,000,000 pounds of various grades. Other manufacturers bought moderately. Practically all the business of the month was done at October prices although holders made strong efforts to raise the level of values. A considerable percentage of recent business has been secured by dating bills after January 1. The large purchases in seaboard markets have had a tendency to strengthen the views of interior holders of wool, and Eastern dealers, whose stocks have been depleted by recent sales, have found great difficulty in replacing them except at higher cost. There are fewer lots lying round than for years, and there is rath a speculative tendency. During the holidays there was not quite so much movement, owing to stock-taking and clearing up generally, but prices continue stiff. In Minneapolis there has been a rise of ½ cent per lb.

A number of sales of Ontario wool were made in December for shipment to the United States. The price was equal to 14c. in Toronto. This was barely sufficient to give a small profit to the exporters. It would certainly not be remunerative to many who bought wool during the past two seasons, and have been holding it for much higher prices. There is a great deal of fleece wool still remaining in the hands of Ontario people for sale, and as they have long been holding it in the expectation that values would improve, and give them an opportunity to dispose of their property at a profit, they are not likely to force it on the market. If, therefore, the conditions in the wool markets abroad continue to improve, and the American woolen mills continue to enquire for our wool, there is likely to be a further advance in prices.

In Toronto prices remain as at last quotations, and business is dull.

In Montreal during the holiday season very little wool business was being done, but we hear of several good sales

of Canadian wools for the United States within the last few days, at 16½ to 17½c. for pulled. Foreign fine wools are not much in demand, but sellers are firm, and an advance is expected.

In a review of the wool market for 1901 Dun says: Further declines occurred in the price of this staple during the opening months of 1901, and the bottom was not reached until July 1, when one hundred grades, according to Coates Brothers' circular, were quoted at 17.06 cents. This represented a loss of 31 per cent. from the high point of 24.70 in December, 1899. With the absorption of surplus stocks and general revival in the industry, the turning point was reached in September. Further strength and activity was in evidence each succeeding month. Record-breaking purchases and shipments occurred in the autumn, and holders gradually grew more stubborn about making the slightest concession. Demand was sufficient to hold the price very firm, notwithstanding the largest crop of recent years. General prosperity was productive of increased purchases of better grade cloths, less shoddy and cheap Chinese wools being used by the mills. It was a long and tedious period in this industry from the excessive importations of the three fiscal years ending July 1, 1897, and the reaction from prices violently inflated before these stocks had been exhausted. Assimilation has been accomplished at last, and the heavy buying by the mills puts the raw material in a decidedly more satisfactory position.

THREE WAYS OUT.

Speaking of the closing of the Cornwall woolen mill and the disability under which the manufacturers labor, The Freeholder points out three alternatives. It says the Government may agree to raise the tariff and tax the people for the maintenance of the industry under conditions as unsatisfactory as those existent before 1897. Or it may reduce the duties on yarns and machinery. Or the manufacturers may be induced to realize that the restricted market is the great evil and educated to follow the example of the Canadian farmers and the Canadian leather-makers in adapting their operations to the conditions of the British market. Great Britain could take care of our production without noticing its influence upon competition, for Great Britain is the distributing centre of the world's commerce, and her merchants would do for Canadian fabrics what they already do for Canadian leather and Canadian butter and bacon, sell them against the world's competition. The need is not for higher duties so much as for lower duties and greater enterprise.

ABOUT WOAD.

Woad, the famous blue dye of the Ancient Britons, was the subject of a paper recently read before the British Archæological Association. The earliest mention of woad as a source of a blue dye occurs in the classics, the most familiar being that of Cæsar in his commentaries, Pomponius, Mela and Pliny also refer to it. At the opening of a barrow at Sheen, near Hartington, some years ago, a considerable quantity of woad-indigo was found in lumps and in powder, the grave probably being that of a dyer. Frequent reference is made in ancient documents to the sale of woad, or "wad," as it was then called, and still is by the woad-grower of the fenlands of East Anglia. There is a roll preserved in the records of the borough of King's Lynn, dated 1243, setting forth the dues payable upon various commodities, in which "woad" or "wad," is included. There is one locality in England where woad is still regularly cultivated for dyeing purposes—namely, the fenland districts of Cambridgeshire and Lincolnshire. In the discussion that followed the paper, it was stated that woad was at first called "glastum" or "glast." Glastonbury (or, with the Saxons, Glastingbury) having a reference to it; and at Bridgewater, in Somersetshire, there used to be a large trade carried on in woad.

FABRIC ITEMS.

The demand for ready-made goods for woman's wear is rapidly increasing.

Wm. Bell, one of the oldest dry goods merchants in Winnipeg, has made an assignment.

J. G. McIlwraith & Co., a prominent dry goods firm in Hamilton, have made an assignment.

The Hudson Bay Knitting Co. has already placed its travellers on the road with its warm winter specialties for next season.

The season of 1902 promises an increasing demand for flannel for summer suits. The finer cashmere effects promise to be in favor.

The wholesale dry goods firm of J. G. Mackenzie & Co., Montreal, announce that they have no intention of going out of business, as was stated extensively in the press.

Recently, at a sale in Paris, a piece of 16th century tapestry fetched $1,140; a piece of 17th century work, $1,180, and two chairs seated in 16th century tapestry work, $980.

A company, to be known as the Imperial Bag Co. is being organized in Toronto to establish a factory for the production of jute and cotton bags, which will employ about 100 hands.

The Sovereen Mitt, Glove and Robe Company of Delhi, Ont., has been incorporated with a capital of $40,000. The provisional directors are: Jacob Sovereen, R. A. Speers, N. S. Sovereen, D. Dalton, G. Chandler.

The W. R. Brock Co., of Toronto and Montreal, have effected a large transaction in worsted serges, having secured one lot of 19,000 yards from a manufacturer whose mills are not busy. The price of this class of goods is 33⅓ per cent. below that of last year.

There is a growing demand for a good class of fabric gloves, such as real Lisle, with clasps and embroidered backs similar in style and color to the kid gloves. Lace gloves and mitts are growing in popularity, but, so far, there has been no particular demand in this country.

The Corticelli Silk Co. now occupy splendid new offices and show rooms on St. Helen street, Montreal. The company won at the Buffalo Pan-American what is stated to be the highest award ever given for variety and quality of silk goods, namely, four gold medals.

The Montreal Cotton Co. is showing some fine imitations of Glasgow lawns, soft and gauzy in texture, and of high quality and finish. The Dominion Cotton Co. is showing printed lawns of high grade. These have been well received by the dry goods trade.

At the annual meeting of the Montreal Dry Goods Association the following were elected officers for the ensuing year: President, A. W. D. Howell; vice-president, George Sumner; treasurer, R. L. Gault; directors, Geo. B. Fraser, P. P. Martin, A. Racine and R. N. Smyth.

About $500 worth of woolens were recently stolen from the warehouse of R. B. Hutchinson & Co., Toronto. They com-

prised eight pieces of imported goods, and measured about 200 yards. The goods were too heavy to be carried away by one man, and it is thought that the thief used a sleigh.

David Liebling, dry goods merchant, Quebec, has assigned.

H.R.H. the Prince of Wales has consented to become patron of the Silk Association of Great Britain and Ireland.

The stock of the F. W. Watkins Co., dry goods, Hamilton, has been sold for 65 cents on the dollar to the T. Pratt Co.

The woolen manufacturers visited Ottawa on January 7 to ask the Government for further protection. Their representations were promised due consideration.

It is stated that the net profits of the American Woolen Co. for 1901 will show an increase of about $5,000,000. The woolen business there seems to be better than in Canada.

The profits of the celebrated carpet manufacturing firm of John Crossley & Sons for the past year were £60,608 16s. 10d., which includes £1,349 1s. 10d. brought forward from the previous year.

The winter of 1900-1901 was one of the best ever experienced for sorting orders and the present one bids fair to equal it. This improvement is due probably to the fact that more men are employed in the winter in the various industries of the country than was the case some years ago, thus increasing the purchasing power of the people.

The opinion of the trade seems to be that the summer of 1902 will see a big demand for muslins, and already orders have been booked for good sized lots. Muslins were quite fashionable in both the United States and the Old Country this season and it is fully expected that their popularity will be universal throughout Canada.

Some anxiety is felt in Great Britain as to whether the supply of ermine will be sufficient for the coronation ceremonies. No fewer than sixty ermine skins are required for each peer's cape, and the same number is needed for his collar. As a result of the increased demand, ermine now costs nearly £9 ($45) for a "timber" of forty skins, the highest price known in the trade, and the price is still rising. The majority of the skins come from Siberia.

At a recent meeting of the directors of S. F. McKinnon & Co., wholesale dry goods, Toronto, S. F. McKinnon, as president, and R. Millichamp, as director, tendered their resignations, which were accepted. At a subsequent meeting J. M. Alexander was elected president; George Caldbeck, vice-president, and Alexander Mackie a director. The above, along with J. S. McKinnon and William Guthrie, will form the new Board of Directors. Charles Reid continues in his capacity as secretary.

A Winnipeg business man in the woolen trade speaks of the development of that trade as enormous, and expanding every month. He says the demand in the Northwest and British Columbia is for a high class of goods, in fact, they would not think of taking out there many of the lines of cheap goods manufactured for eastern trade. The coldness of the winters also makes a difference, and heavier lines are carried. People want good warm clothing and are willing to pay for it.

The Maritime Merchant, speaking of the cotton trade in the lower provinces says: The demand for cottons is fairly good. There has been an advance in raw cotton, but none in Canadian manufactured goods. The impression of the trade is that prices will go no lower. Mills working on low-priced goods are now refusing orders. A better delivery of Canadian staples is looked for this season. Customers last year were inclined to speculate on the prospect of a rise and placed large orders, causing the mills to delay shipment.

LITERARY NOTES.

The 1902 edition of the American Textile Directory has been issued. This work was established in 1870 as Babcock's Textile Directory, and the business is now continued on an extended scale by the American Directory Co., 102 Fulton street, New York. The book under review comprises the cotton, woolen, flax, silk and other textile mills of the United States, Canada, Mexico and Central and South America, besides the commission merchants and wholesale dealers in manufactured textile materials as well as those in raw materials, such as wool, waste, rags, etc. It also gives a directory of dealers in machinery and mill supplies, a list of textile associations with information on the textile trades of the countries named. This edition makes a well bound volume of 462 pages, 7½ x 10-in., and the price is $5. A valuable feature is a list of projected mills and recent changes in mills.

Ira D. Sankey, in an interesting article on his trip through Palestine, which appears in the February Delineator, gives an entertaining description of the Holy Land as he saw it. Concerning the Tower of David, he says: "From the top we behold one of the grandest and most interesting sights to be witnessed anywhere in the world. At our feet lay the city, with its narrow streets, its mosques, its domes, and temples; and beyond its massive walls, we could see Gethsemane, Calvary and Olivet; the valley of Jehosaphat, the vale of Kedron and the barren hills that surround the city. In the far distance to the eastward we could see the River Jordan and the Dead Sea, with many other points of great Biblical interest." The illustrations which accompany the article are of unusual merit.

The January Century Magazine gives us many interesting reminiscences of Thackeray in the United States, and the great novelist is shown in his most delightful vein, as writer and artist. Among many other valuable features, Isaac N. Ford, London correspondent of the New York Tribune, contributes a timely paper on "Electric Transit in London and Paris," while a new writer, Arthur Ruhl, contributes an odd story of Chinese life in New York, entitled, "Their Native Correspondent."

The current number of The Canadian Magazine has a timely and strong presentation of the case for an Imperial postal convention looking to a cheap rate of newspaper postage throughout the British Empire. The cheap circulation of newspapers over-sea throughout Greater Britain would be one of the surest means of maintaining the unity of the Anglo-Saxon world.

In the January Ladies' Home Journal, John E. Watkins gives an instructive account of how United States bank note paper is made. From this it would seem that if there is any secret which Uncle Sam jealously guards it is the process of manufacturing the fibre paper upon which his money notes are printed. He pays a Massachusetts firm 43 cents a pound for it, and this firm does its work under the surveillance of a Government agent. The paper is manufactured of the finest rags, cleaned, boiled and mashed into pulp. As it is rolled into thin sheets silk threads are introduced into it by a secret process. These are the distinguishing marks making imitation of the paper well-nigh impossible. The sheets of paper, already counted twice and placed in uniform packages at the

paper mill, are stored in a Treasury vault and issued to the Bureau of Engraving and Printing as wanted. Before leaving the Treasury they are counted three times more, and the receiving official at the bureau must receipt for them. Then the bundles are unwrapped and the sheets are counted 28 times by a corps of women. This is to ensure that each printer gets the recorded number—no more, no less. If one sheet of this precious paper be lost the entire force of men and women having access to the room where the misplacement has occurred are kept in, like so many school children, to find it. Each sheet is issued from the vault for the printing of a definite amount of money upon it. If the lost sheet were intended to ultimately represent four thousand dollars' worth of notes the group of employees to whom the responsibility of its misplacement has been traced must make good that amount if they cannot locate it within a reasonable time. The most expensive loss which has thus occurred was of a blank sheet issued for the printing of $80 upon its face.

The 1902 issue of The Canadian Almanac forms the 55th of the series, and is indispensable to every office and library. Many of the lists given are not found elsewhere, and in no other volume can so much information about Canada be found in so small a space. The Canadian Almanac contains a full account of the census of Canada so far as issued, giving the population of all the districts in the various provinces, and also the principal cities as compared with 1891. The census of Great Britain is also published. The militia information is very full and complete, and includes a full list of the troops sent to South Africa, honors and awards, a list of killed in action and those who died of wounds, etc. The list of titled Canadians, which was first published in the Almanac, is revised, and, in addition to the usual Governmental information, will be found a list of the principal officers of the British Government; and also a complete list of all the countries in the world, with their population, area, reigning sovereign, and form of Government. The other departments of The Canadian Almanac are revised and brought up to date, and the historical diary has been continued and enlarged. The Almanac contains 416 pages, and the price in paper covers is 25 cents. Published by the Copp, Clark Company, Limited, Toronto.

The Dominion Dyewood and Chemical Co., Toronto, have sent out their most useful desk calendar pad for 1902. This is a New Year's gift which their customers will all appreciate.

A NEW COTTON SEED PROCESS.

A remarkable new process of delinting and hulling cotton seed and extracting the oil is just now agitating cotton circles, and is expected to revolutionize modern methods. It is a chemical process, and the results are thus summed up: The hulls and lint removed from a ton of seed by the new process are said to yield 1,000 pounds of paper stock, as compared with less than 400 pounds by the method now in use; and this paper stock is worth, in the condition left by the new processes, from $10 to $20 a ton, as compared with between $3 and $4 per ton for the amount of paper stock recovered in poor condition by the usual method. This alone would constitute a net gain of from $9 to $18 a ton, or, on the basis of last year's product, it is contended, would save to the cotton growers of the south about $38,000,000. In the process of extracting the oil, the oil cake is freed from the chemical and becomes adapted for use as a food product for cattle or as a fertilizer. Under the usual method it is possible to extract only about 40 per cent. of oil from the seed, while the new process, its backers assert, makes possible the extraction of practically 100 per cent., and the cost of producing crude oil by the new method is reduced 50 per cent. The oil refined by the secret process is, in addition, it is asserted by chemists who have made careful analysis, equal to any imported olive oil sold on the American market, while the cost of refining is no greater than the present cost of refining crude cottonseed oil. In addition it is proposed to roast the seeds and place them on the market in the same manner as peanuts are now sold, both salted and roasted, and it is believed by the promoters that they will in time acquire similar popularity.

Personal

W. Scrimger has been engaged as master mechanic in T. B. Caldwell's woolen mill at Appleton.

E. G. Forbes, of the Forbes Woolen Co. has been elected Mayor of Hespeler for 1902.

James Slessor has resigned his position as managing director of the Montreal branch of The W. R. Brock & Co., wholesale dry goods.

A. B. Mole, general manager of Plunkett's Mills, Adams, Mass., has been appointed general manager of the Dominion Cotton Mills, Montreal.

News has come of the sudden death at Salt Lake City, of Henry J. Coyle, who was at one time connected with the Dominion Cotton Mills, Montreal.

Joseph Ainley, for the past eighteen years superintendent of the Elmsdale Flannel Mills, Almonte, has been presented with an address and a water pitcher, on the occasion of his severing his connection with the mills.

Jas. Malone, overseer of the spinning and winding department of the Almonte Knitting Mill, was presented by the workers under him with an address and a handsome easy chair, on the occasion of his leaving the mill.

Alex. Gibson, son of the founder of the Gibson Cotton Mills at Marysville, N.B., has been re-elected M.P. for York county, by a majority of over 800. He was successful by a small majority at the general election in 1900, but unseated, and has now defeated the same opponent, Rev. Dr. McLeod.

John Bellamy, of North Augusta, who died a few days ago, formerly operated the woolen mills known as Bellamy's, back of Brockville. The water-power which r . them was acquired some years ago by the counties and the township of Augusta, with the object of letting the water out of the pond and recovering the drowned land. Since then the mills have not been in operation.

Leopold Cassella & Co., of Frankfort-on-Main, have issued a very well got up work on the Immedial Colors and their application on cotton. It contains many samples and must prove a most useful work of reference.

The machinery of the Canadian Cordage Company at Peterboro, is being placed in position. C. F. Holmes, of Plymouth, Mass., the new superintendent of the company, is on the spot. He will bring a little later foremen for the various departments, all of whom have been in the employ of the Plymouth Cordage Company, one of the largest concerns of its kind in America. F. M. Clarke is manager of the new company.

COTTON MANUFACTURING IN THE UNITED STATES

A statement exhibiting the extent of the cotton manufacturing industry of the United States for the year 1900, as compared with 1890, ten years before, has been issued by the census bureau. It places the total value of cotton manufacturing products at $336,974,882, a gain of more than 25 per cent. since 1890. The number of establishments in 1900 was 1,051, a gain of 16 per cent.; the capital employed $467,240,157, a gain of 32 per cent., salaried officials, 4,996, a gain of 84 per cent.; amount paid in salaries, $7,535,129, a gain of 117 per cent.; average number of wage earners, 302 861, a gain of 38 per cent.; total wages paid, $90,384,532, a gain of 36 per cent; cost of materials used $176,551,527, a gain of 14 per cent.

THE BORDER TWEED TRADE.

Speaking of the border tweed trade, a correspondent of the Textile Mercury says it is many years since the close approach of New Year time has witnessed so much briskness, and there is every likelihood of good work until spring. In Galashiels all firms are fully employed. Female weavers are at a premium, and in some factories, which hitherto were closed to learners, they are now largely welcomed, and when proficient are given looms. Boy labour is also very scarce, and wages for growing lads rank higher than they have done for nearly a quarter of a century. Selkirk factories are also kept busy, while in Hawick both hosiery and tweed firms are full. In Dumfries two concerns are actively at work. Langholm, which has been unfortunately too quiet in the past, now shows signs of increased prosperity, while at Peebles, Innerleithen, and Walkerburn manufacturers appear highly satisfied with the state of trade.

Among the Mills

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

Great Britain has 45,500,000 spindles in her cotton mills, as compared with 19,000,000 in American mills.

The rubber factory at Granby, which was shut down during the Christmas holidays, is again in full operation.

H. S. Burrell, of Belleville, is after Wm. Lott, woolen manufacturer, having brought an action against him for maintaining a pier on his (Burrell's) property.

The Montmorency Cotton Mills Co. give notice of application to Parliament for power to change the value of its shares from $100 to $10, and to issue ten shares of the reduced value for each one of the old shares.

The shoddy mill at the Canada Woolen Mill Company's mill at Hespeler was the scene of a fire on the 14th January which caused damage to the extent of several hundred dollars. Loss fully covered by insurance.

It is expected the Cornwall woolen mill will be fully closed by the end of January. Each department is closing as its work is finished. The future policy of the company is not decided upon. The closing of the mill will throw about 150 hands out of employment.

The Chipman-Holton Knitting Co., Ltd., has been incorporated under the Ontario Act; capital, $150 000; head office, Hamilton; incorporators, F. L. Chipman, W. E. Chipman, C. H. Holton and P. S. Dyer, of Easton, Pa., and William Arthur Holton of Hamilton.

The old lock factory at Moncton, which was purchased over a year ago by J. A. Humphrey and Son, woolen manufacturers, is to be utilized in connection with their mills at Humphrey's Station. Machinery is now being put in for the manufacture of yarns and leggins.

Charles T. Grantham, formerly of Yarmouth, and who now has so large an interest in the Yarmouth duck and yarn mills, on the occasion of a recent visit to St John, expressed his opinion for a successful career for the Cornwall and York mills. The Yarmouth mills, with which he is connected, employ about 150 persons.

The Penman Company at Paris, Ont., has just received an order for 4,000 dozen suits of underwear for use of the soldiers in South Africa. The quality of the goods is to be the finest. At this season of the year the mills are usually slack, and not all the hands are required, but owing to this order, the factories will be running night and day.

A syndicate from Niagara Falls, N.Y., is seeking to rent the vacant bicycle factory at St. Catharines, with the intention of turning it into a knitting factory. The factory is owned by the city on a $10,000 mortgage. The promoters of the proposed knitting works state they will pay out $1 000 a week in wages. They will manufacture all kinds of woolen underwear.

The Kingston News regrets that the ratepayers of that city had not power to vote further exemption from taxation for the hosiery mill. According to the Ontario law the city council is only permitted to recommend exemption for ten years, and a renewal of the privilege for a further period of ten years. The company having reached its limit will have to seek special legislation from parliament, if it wishes further exemption.

The Cordage Co.'s works at Peterboro are rapidly approaching completion. The buildings cover an entire block and consist of preparation building 74 x 122; spinning building, 92 x 140; rope department 92 x 130; repair shop, 30 x 44; three motor houses each 12 x 14; warehouse, 53 x 260; tar house, 24 x 72; tank house,. 20 x 20; boiler house and offices. The Wm. Hamilton Mnfg. Co. is putting in the boilers. A railway siding has also been built to the works.

The Dominion Cotton Mills Co. will app'y to Parliament to amend its charter so as to enable it to issue bonds and debentures based upon the valuation of the company's property machinery, plant and assets, instead of the bonds which the company is now authorized to issue, based upon their paid-up capital stock. It is now engaged in making improvements to its Moncton mill. Samuel Hartley, from the head office, has recently been in Moncton superintending the putting in of new machinery and making improvements that will necessitate the employment of additional labor. The mill of late has been run to its fullest capacity, which is to be increased by a third.

A fire broke out in the picking room of the Imperial Cotton Company's mill at Hamilton, December 24, and resulted in damage to the extent of $1,500. It is thought a small stone got into the hopper of one of the picking machines, and when it struck the steel teeth a spark was caused which set fire to the cotton in the machine. This spread quickly and in an instant the machine was wrapped in flames. There was a large amount of cotton lying on the floors. Most of it was loose, although there were six bales, each containing about 600 pounds. The company has sprinklers, and these and two lines of hose were soon playing on the blaze. When the firemen arrived they set to work to throw the cotton out of the windows, the company's employees assisting. There was very little damage done to the building, but two picking machines were destroyed.

The Rosamond woolen mills at Almonte are running full time.

Frank Scantlion has disposed of his shoddy mill business at Almonte to Lee & Taylor, and will take a rest.

Carbonneau & Monteford have bought the Galetta woolen mill from Galetta C. White. The new firm is making etoffes and friezes.

The firm of Sabourin & Fraser, woolen manufacturers, Plantaganet, Ont., has been dissolved, and is succeeded by A. A. Fraser, who will manufacture flannels, blankets and yarns.

About 25 finishers, employed at the Eagle Knitting Company's factory at Hamilton, refused to start work one morning because the price on a certain line was cut to 7½ cents. The trouble was soon settled, and the strikers returned to work

Fred. Clark, son of Wm. Clark, the well known woolen manufacturer of West Flamboro, Ont., is one of the 2nd Canadian Mounted Rifles, who are now on their way to South Africa.

W. H. Wylie, formerly proprietor of the Hawthorne woolen mills at Carleton Place, and since then engaged successively in mining at Marmora and fruit raising at Niagara, has returned to his old love, and is now manager of the Elmsdale flannel mill at Almonte, which position he assumed 1st January.

We learn that the Cassella Color Company has been formed to continue the business in Coal Tar Dyes heretofore carried on by Wm. J. Matheson & Co., Ltd., New York and Montreal. One of the partners in the firm of Leopold Cassella & Co., and William J. Matheson will be directors in the new company, which will also have the services of the entire organization including the staff of managers and salesmen employed in this department of Wm. J. Matheson & Co., Ltd. They also inform us that the company known as "The Selling Company," recently incorporated, will hereafter be the selling agents, throughout America for the following products: aniline oil, aniline salts, myrbane oil, etc., manufactured by W. C. Barnes & Co., Ltd.; hyposulphite of soda, sulphite of soda, manufactured by the Walpole Chemical Company; hemolin, patented; morin yellow, patented; logwood, sumac, indigo and other extracts, heretofore made by Wm. J. Matheson & Company, Ltd., and now by the Hemolin Company. The last named is a newly organized company, which has purchased the patents for Hemolin and other dry dyestuffs of similar character, and leased the works and taken over that portion of the dyestuff business, recently carried on by Wm. J. Matheson & Co., Ltd.

THE LARGEST LOOM IN THE WORLD.

To the Editor, The Canadian Journal of Fabrics.

Sir,—I am always pleased to read in your journal what is being done in the different countries of the world, and in your December number, page 360, I have read with interest about the largest loom in the world, but I beg to inform you that the largest loom in the world is in operation at Lachute Mills, Que., Canada. The reed of this loom is 50 ft. 3 in., and was made by the J. C. McLaren Belting Co., of Montreal. Within a few months another loom will be set up that will nearly double this loom in width. It will take a reed 95 ft. and the total weight of this loom, including the harness will be about 60 tons. There are also a dozen looms at these mills ranging in width from 16 ft to 50 ft., all of which were made at the mills. Trusting that you will publish this contradiction for the benefit of the public.

PROGRESS.

PATENTS GRANTED.

The following Canadian patents relating to the textile trades have been granted:

Hook and eye; Charles Leib, Philadelphia. New Method of forming the hook.

Loom mechanism; N. Guindon and O. Goyette, Montreal. Device for holding cloth roller.

Smoothing Iron; Joe Jones, Summitt, Miss. Iron heated by acetylene gas generated therein.

Undervest and corset cover; Corinne Dafour, Savannah, Ga. Combined undervest and corset cover.

Shoe sewing machine; C. Vander Straeten, Brussels, Belgium. Needle to be reciprocated longitudinally, improved work feed and friction plate.

Weaving process; La Societe des Inventions, Vienna, Austria. Weaving cards with metallic plate coated with an actinic film, photographically copying a weaving pattern on film.

Loom; Northrop Loom Co., Saco, Maine. Leasing Means.

Stitch forming and finishing machine; United Shoe Machinery Co., Paterson, N.J. Means for lengthening or shortening stitch.

Buttonhole sewing machine; W. N. Parkes, Brooklyn, N.Y.

Buttonhole sewing and cutting machine; Marietta Ruce, Boston, and F. A. Shea, Brookline, Mass.

Cloth measuring and winding machine; Burdis Anderson, Boardman, N.C.

Flax cleaner; T. F. Lowery, Bowden, N.D.

Fibre bleaching apparatus; F. J. Briggs, Everett, and G. F. Tarbell and H. A. Locke, Cambridge, Mass.

Sewing machine; C. A. Dearborn, New York. Combination of needle and looper.

Loom; Northrop Loom Co., Saco, Me. Let-off mechanism.

Loom; C. N. Newcomb, Davenport, Iowa. Interchangeable cams and star wheel for moving rock bar.

Loom stop motion; J. C. Cottam, Bradford, and Joseph Bentley, Windhill, Shipley, Eng. Combination of swell at shuttle box, stop block and stop finger with means for operating.

The Truro Knitting Mills Co., Ltd., has been incorporated; capital, $300,000. The following form the company: John, Frank, Harold M., Lydia, Emma M., Frances Jane and Annie E. Stanfield, and Geo. L. Fisher.

The Big Four Cap Co., Ltd., has been incorporated, with a capital of $20,000; head office, Toronto; to take over the business of Hughes & Jones, and to carry on the manufacture of caps. The incorporators are Richard Hughes, John Jones, Maude M. Hughes, Lilly Jones and Mary Ann Goulding.

Slight price concessions in cottons have just been denied jobbers by the manufacturers, who are at present fully taxed to meet demands for the spring and summer trade. Woolen mills which are turning out high grade goods are also reported to be busy. One large mill has received an order from a Toronto house for 1,000 pieces of goods, and is running night and day to fill the orders, prompt delivery being stipulated. Another mill is taxed to the utmost to fill its orders for Canadian dress goods, which are in much demand.

TEXTILE PUBLICATIONS.

In order to accommodate readers of The Canadian Journal of Fabrics, the publishers will be pleased to mail any book in the following list on receipt of the publisher's price, duty free. Books on technical and practical subjects, not in this list, can be obtained and mailed at publisher's prices. In ordering, please give full address, written plainly:

Loom Fixing; a handbook for loom fixers working on plain and fancy worsteds and woolens; containing chapters on shuttles and bobbins, and their management; head motion; putting in warps; filling; adjusting and starting new looms; chain building, etc.; 104 pages, by Albert Ainley $1 00

Technology of Textile Design; explains the designing for all kinds of fabrics executed on the harness loom, by E. A. Posselt 5 00

Structure of Fibers, Yarns and Fabrics, the most important work on the structure of cotton, wool, silk, flax, carding, combing, drawing and spinning, as well as calculations for the manufacture of textile fabrics, by E. A. Posselt 5 00

Textile Machinery Relating to Weaving, the first work of consequence ever published on the construction of modern power looms, by E. A. Posselt..... 3 00

The Jacquard Machine Analyzed and Explained; explains the various Jacquard machines in use, the tying up of Jacquard harness, card stamping and lacing, and how to make Jacquard designs, by E. A. Posselt..... 3 00

Textile Calculations; a complete guide to calculations relating to the construction of all kinds of yarns and fabrics, the analysis of cloth, etc., by E. A. Posselt.. 2 00

Wool Dyeing; an up-to-date book on the subject, by E. A. Posselt 2 00

Worrall's Directory of Cotton Spinners, Manufacturers, Dyers, Calico-printers and Bleachers of Lancashire, giving the mills of the British cotton district, with number of looms and spindles, products of the mills, cable addresses, etc $2 00

Worrall's Directory of the Textile Trades of Yorkshire, comprising the woolen, worsted, cotton, silk, linen, hemp, carpet, and all other textile mills, giving looms and spindles, and the various lines of goods manufactured, etc $2 00

Worrall's Textile Directory of the Manufacturing Districts of Ireland, Scotland, Wales, and the counties of Chester, Derby, Gloucester, Leicester, Nottingham, Worcester, and other centres not included in preceding works, with capacity, products of mills, cable addresses 2 00

The Wool Carder's Vade-Mecum, by Bramwell; third edition, revised and enlarged: illustrated; 12mo..... 2 50

CHEMICALS AND DYESTUFFS.

There is no change in quotations. Prices remain steady as undernoted:

Bleaching powder	$ 2 75	to	$ 3 00
Bicarb. soda	2 00	to	2 05
Sal soda	0 75	to	0 80
Carbolic acid, 1 lb. bottles	0 50	to	0 60
Caustic soda, 60°	2 35	to	2 60
Caustic soda, 70°	2 60	to	2 85
Chlorate of potash	0 13	to	0 15
Alum	1 35	to	1 50
Copperas	0 65	to	0 70
Sulphur flour	2 00	to	2 50
Sulphur roll	2 00	to	3 00
Sulphate of copper	6 00	to	6 25
White sugar of lead	0 08	to	0 08
Bich. potash	0 11	to	0 12
Sumac, Sicily, per ton	75 00	to	80 00
Soda ash, 48° to 58°	1 30	to	1 40
Chip logwood	1 90	to	2 00
Castor oil	0 09	to	0 10
Cocoanut oil	0 10	to	0 11

A BIT OF ENGLISH HISTORY.

The rumors of a Royal intention to encourage a revival of the silk manufacture in Spitalfields awake some interesting memories of the past. Spitalfields, which is a quarter of London, as an industrial centre has a very curious history, it was made by intolerance and ruined by free trade," says The Glasgow Herald. "Among the French refugees who fled to this country at the revocation of the Edict of Nantes in 1685 there were many silk weavers from southern France, and these formed an industrial colony in the quarter of Tower Hamlets, which had taken its name from the old Hospital of St. Mary, founded in Norman times. As a consequence the silk manufacture grew and flourished in Spitalfields, which for considerably more than a century remained the headquarters of that industry in Great Britain. The weavers were a numerous and often a very turbulent body, and showed themselves fiercely jealous of what they thought the rightful privileges of their trade. Once in the reign of George III., when a bill for imposing duties on Italian silks was rejected they pelted the peers going to the House of Lords, attacked the Duke of Bedford's town house and sacked the shop of a mercer who dealt in foreign silks. The feeble Government of the day was intimidated and passed the bill, with the result that the weavers marched in triumphant procession to Whitehall. In 1825 the place was at the height of its prosperity, and contained some 24,000 hand looms; but with the introduction of free trade came decadence, which resulted in something like ruin after Mr. Cobden's French Treaty of 1860. Not more than 1,200 looms were at work in the place in 1887, and the number is probably even smaller to-day. It will be interesting to see if Royal influence can prevail against economic tendencies and bring back prosperity to a place which the main current of industry has deserted. The project, though not by any means so desperate as King Canute's, is yet not one of the most hopeful; but it is, at least, altogether patriotic and benevolent, and such as even British Royalty, with all its limitations, may constitutionally and laudably attempt."

THE TRADE IN WOOLENS.

The Maritime Merchant in discussing trade matters speaks thus of the woolen business: While the prices of woolens remain unchanged there is considerable uncertainty owing to the efforts of the Canadian manufacturers to effect a change in the tariff at the coming session of Parliament. Much pressure is being brought to bear on the Finance Minister in the direction of greater protection to the Canadian mills. Those making the better class of goods are busy and are behind in filling orders. Canadian goods of fair quality compare very favorably with the English and compete successfully with them at the same prices. Dealers report business very quiet at present for spring delivery. In a few weeks travelers will be taking orders for next winter's goods, the samples of which are now being received.

Opinions of the Press

CHART OF THE METRIC SYSTEM.

The publishers have received many letters complimenting them on the issue of the popular Chart of the Metric System of weights and measures. The following are a few sample opinions:

I have very much pleasure in seeing you step to the aid of those pressing the Metric System to the front. I shall be glad to call the attention of teachers to your chart. The Metric System has for a number of years—since I came into office—been taught in all the schools of the province; and the metric measures are those called for in the returns from all our high schools—dimensions of school rooms, etc. I have much pleasure in sending you a few copies of my brochure on the "Three Great Reforms," in which it will be seen that for a number of years I had been an advocate of the system—even in the conservative city of Toronto. Wishing you much success.—A. H. Mackay, Superintendent of Education, Nova Scotia.

I am in receipt of your favor of the 7th ult., together with a copy of The Canadian Engineer for June, and a specimen of the Chart of the Metric System prepared by your firm. I am very pleased to read your article, but I wish particularly to compliment you on the chart. It is, I believe, the best I have seen for explaining briefly the principles of the Metric System. It will afford my committee much pleasure to hear of this awakening interest in Canada. Australia too is showing a growing disposition to adopt Decimal Coinage and Metric Weights and Measures, and here we keep gaining a step month by month.—E. Johnson, Secretary Decimal Association, London, Eng.

We see that you, too, advocate the general adoption of the Metric System of weights and measures, and we believe that as much as possible everywhere the same means should be employed to accomplish the desired aim. The widest possible distribution of your chart would no doubt be a good step forward. We request you therefore to forward to us two copies for our office and for the library of the American Society of Dyers.—L. M. Carriat, Philadelphia.

The Monetary Times has a review of your Chart of the Metric System. I notice the price is stated at ten cents per copy, but if you have any other more expensive editions printed, I should be glad to receive a copy or two; as it is my intention to frame a copy (if possible), and present it to the library of the society of which I am an associate, viz., the Incorporated Accountants (Eng.). It is high time that British traders and accountants awoke to the necessity of adopting decimal coinage and measures. Enclosed please find $1 (Canadian), to cover your expenses for as many copies as the remittance will pay for. Trusting you will be able to assist our efforts on this side to foster "intercolonial and home-country" trade, and lessen the tide of German competition, which is a danger to all the English-speaking countries, if Germany gets the upper hand (both politically and socially), and assuring you of the awakening of the British to their surrounding dangers of subsidized continental competition.—E. Woodroffe, 121 Stapleton Hall Road, Stroud Green, London, England.

Please accept my thanks for the Metric System Charts. The adoption of the Metric System must shortly take place, as everything is to be said for it and next to nothing against it. As to the chart, I consider it is a valuable one, and one which every progressive citizen ought to have in his home. The mass of information, which it explains, is handled in such a simple manner that anybody can understand it without becoming in the least confused as to the use of the different terms, which is the only drawback, that I know of, to the Metric System. There is no doubt though that, if the system were adopted, the terms would be abbreviated to suit the rapid business methods this side of the Atlantic. I expect that a number of people, to whom I have shown the chart, will be calling upon you for copies of it ere long, as they have already expressed intentions of doing so.—Dermot McEvoy, Mechanical Engineer.

The T. Eaton Co., of Toronto, is about to remove its cloak department to Hamilton. This is the result of a recent decision raising the assessment of the company. It had outgrown its premises, and was about to add three stories to its present factory, but the assessment difficulty has caused it to make the move indicated. It is expected that power will be obtained from the Cataract Power Co.

AS TO BELT LACING.

In a large factory where there are a number of machines, all of the belts are of leather and were originally put on endless, says the Wood-Worker.. From time to time, as the joints pulled apart or the belts became too slack for their work, the joints were made of lacing. As is usual in a shop where every man mends his own belts, the varieties and styles therein exhibited were fearful and wonderful to behold. There did not seem to be any other fastening in use but the lacing, and the combination of this and the narrow belts did not produce a very good result on the machines or the work. This was not a small shop, either, but one large enough to have afforded a special man for the belts, and he would have been a paying investment.

In domestic hosiery for the spring trade the call has been for fancy effects almost to the entire neglect of solid colors. In goods of the latter character certain lines in men's wear, however, still have a good call.