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CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XX.

TORONTO AND MONTREAL, SEPTEMBER, 1903.

No. 9.

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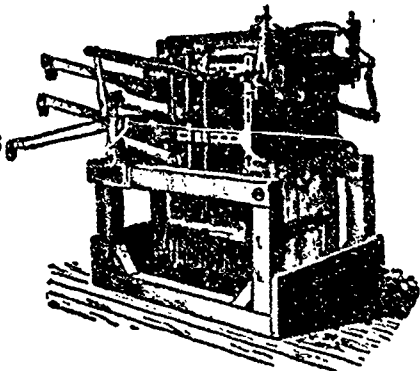
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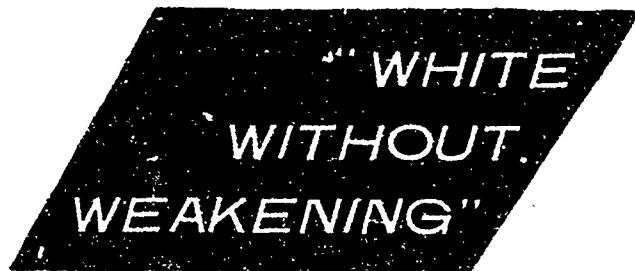
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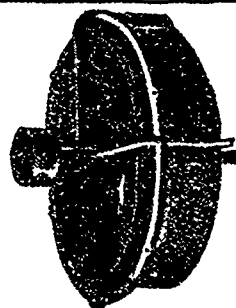
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CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XX.

TORONTO AND MONTREAL, SEPTEMBER, 1903.

No. 9.

Canadian Journal of Fabrics

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

Subscription: Canada, United States and Great Britain, \$1.00 per year. Foreign, 5/6. Advertising rates on application.

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

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GOOD OUT OF EVIL.

'Tis an ill-wind that blows nobody good. The selfish greed of those who have been manipulating the cotton market for months past for the benefit of their own pockets, but to the disorganization of trade and to the misery and suffering of hundreds of thousands of working men forced into idleness by the needless closing of the mills in the United States and Great Britain, will give a timely impetus to cotton growing in the British colonies. The creation of large

cotton growing areas within the British Empire will not only render Great Britain comparatively safe from any future attempt to "starve out" the cotton industry of Great Britain and Canada by cutting off supplies of the raw material, but it will give increased diversity of staple which the world's cotton industry needs, and, incidentally, will render it almost impossible for the callous greed of the ring of cotton sharps to wreak the pain and misery which it has brought to so many victims in the past six months. It is very gratifying to learn that the cotton growing movement has taken firm hold in several of the colonies. The manufacturers of the Old Country at last realize that it is to their best interest to encourage it; but they and the colonies that essay the agricultural branch of the movement must expect to encounter initial discouragements through mistakes and lack of experience, and they must exercise patience and perseverance. The cotton industry was not extended in Egypt, the United States and India without local difficulties and failures, but considering the present magnitude of the business in those countries, a few individual failures and set-backs will be a cheap price to pay for the permanent establishment of an industry of such imperial importance.

By good luck, or let us say good Providence, rather than by any special gift of fore-knowledge, in most cases, the Canadian cotton manufacturers found themselves with a good supply of raw cotton at the beginning of the crisis, and so we in Canada have escaped the woes from which British and United States mill owners and operatives have suffered through the cotton sharks, and now it is comforting to note that reports from the South indicate a larger cotton crop this year than for several years past, the grip on cotton in stock being already loosened by the prospect. Because Canada happens to have escaped the pinch this time, our manufacturers should not be insensible to the lesson of the crisis, but should give every moral and material support to the movement to increase and diversify the area of cotton planting, and so render our manufacturers safer, not merely from dangers arising out of hostile politics, but from the no less real dangers of a cotton famine arising out of drought or pest.

PRIZES FOR NEATNESS.

The Pocasset Worsted Company, of Thornton, R.I., is offering special inducements this year to its operatives to keep the new industrial village tidy and clean. The company owns all the double cottages in the village and has fitted the place up with modern improvements, the task occupying five years. The improvements include lawns, concrete walks in the yards and asphalted and curbed sidewalks in the streets. To perpetuate the neat appearance, the corporation offers prizes, 10 or more in number, to the householder keeping his or her premises in the most attractive condition. Gardening tools, implements, seeds, and every other requirement are furnished by the company. The amount of the prizes will be sufficiently large to make them well worth competing for.

—Silk is the name of a new publication issued at Tallulah Falls, Georgia. It is freely illustrated, and its name indicates the industry to which it is devoted. It advises the farmers to raise silk, as it will pay, and remove their mortgages. Its motto is, 'Cotton is King—Silk is Queen.'

—In view of hard times, many of the Lancashire cotton operatives are leaving for Canada, despite sensational reports published in the English press of emigrants stranded in this country. We are glad to have them come if they are prepared to take employment in other branches, for Canada can offer employment to only a limited number in that line of trade.

—In reply to a letter addressed to him by A. G. Boscawen, of the Tariff Reform League, Joseph Chamberlain states that he has never, in his preferential tariff scheme, suggested any tax whatever on raw materials such as wool or cotton. Mr. Chamberlain's views in this matter have been frequently misrepresented, and it is well to have this explanation over his own signature.

—Although Mexico has a number of woollen factories, and the production of certain kinds of cloth has increased materially, the importations are large, principally from France and Germany. In view of the investment of Canadian capital in that country in electrical development, the name of Canada should become familiar and we should be able to secure a share of the market it offers for textile goods.

—Too much praise cannot be accorded to the woollen manufacturers for the magnificent display made by them at the Toronto Exhibition, referred to in detail elsewhere. They put their heads together and resolved to make a representative display of Canadian woollens, and they succeeded in placing be-

fore visitors an exhibit which we venture to say could not be excelled for quality in any part of the world. The results will, we trust, amply repay them.

—Troy, New York, has always been understood to produce more collars and cuffs than perhaps any place under the sun. The last census of the United States helps to bear out this view. Of the wage-earners living in Troy, 68.7 per cent. are employed making collars and cuffs; while measured by the value of products, more than 85 per cent. of the collar and cuff manufacture of the United States is carried on in that city.

—Congress will be asked by the cotton mill owners of the United States to investigate the present corner in raw cotton and to enact legislation that will prevent a similar condition of affairs in the future. Competent legal minds express the view that changes enacting legislation to prevent cotton corners will be justified on the ground that they interfere with interstate commerce. This is all very well, but some means will be discovered to evade the law if it is enacted.

—Since the United States has seen fit to handicap manufacturers of binder twine outside their own country by imposing a duty on raw manilla exported from the Philippines, it only remains for Canada and other countries which make and use binder twine to seek other sources of supply for their raw material. Though the Philippine Islands have been the chief source of supply in the past, they are not the only country in which manilla will grow.

—The climate and soil of Formosa seem to be eminently well suited to the cultivation of fibrous plants of all kinds, and, with some Government assistance, the export of flax, hemp, and jute should become an important item in the future. In 1902, the export of fibre from North Formosa amounted in value to nearly £20,000, an increase of about £2,000 over 1901. The island will take textile goods in return. Here is a field into which Canada might enter with profit.

—Australia has hitherto been regarded as only a wool growing country, so far as its textile possibilities are concerned. The question of cotton cultivation is now being discussed, and a scheme for extensive cotton cultivation in the more tropical districts is being considered. A correspondent of a Melbourne paper says that all that is required is for the Lancashire manufacturers to send out a couple of competent experts to spy out the land and assist in the working out of a definite scheme. Uganda is also said to be well adapted for cotton growing. The plant grows

wild and is of very high quality, and labor is cheap. Germany has already given some encouragement to cotton cultivation in East Africa.

—Can it be that the day of binder twine is about over? It does not seem long since the self-binder came into use, thereby creating a market for twine, and building up a new industry in which thousands of dollars have been and are being invested. Now we hear of a header which goes through the harvest fields at the rate of forty acres a day, and clips off the heads of grain, dumping them into a wagon which bears them off to the barn, thereby doing away with any necessity for binding. Conditions change rapidly nowadays, and it may be that the binder twine factories may have to turn their attention in some other direction.

—Regarding the use of flax for binder twine, a wealthy firm of Chicago engineers and contractors, holding an interest in a number of patent processes, have established a flax fibre plant in northern Michigan, and are now planning to put up another near Chanute, Kan. They expect to follow this with one in southern Minnesota. They are now supplying the International Harvester Company to the extent of their present ability. The future of flax twine will of course depend to a large extent upon the cost of sisal and manilla fibre. In the United States flax twine can be produced at less than sisal at present prices, while in Canada the handicap on manilla fibre should make flax come far cheaper.

—A German gentleman, Herr Bocker, of high commercial standing, who recently made a tour in America and has published a report of his visit, remarks therein upon the extraordinary resources of the country. He expresses the belief that the enormous progress of the United States in the last decade will continue at an increasing ratio, and that America will still find the largest market for her industrial production within her own borders. We are not aware whether H. Bocker visited Canada, and whether he includes us when he speaks of America, but we hope he does, and there is no reason to doubt that his remarks as to progress hold good as applied to Canada. Our fiscal policy should be such as to keep as far as possible Canada for the Canadians. H. Bocker also points out certain lessons which Germany can learn from America, among which are the specialization of industry, the reduction of cost through the use of labor-saving machinery, and the distribution of work among affiliated companies. The first two always hold good, the last is being practised in Canada through such amalgamations as the Canada Woolen Mills Co., and the Canada Furniture Co.

DELEGATES TO CHAMBERS OF COMMERCE CONGRESS.

Among the delegates to the recent Congress of Chambers of Congress of the Empire at Montreal, were the following who are interested in the textile trades: J. S. Booth, a cloth manufacturer, at Wakefield, England, who exports extensively to Canada. He commenced business as a cloth manufacturer in 1867, bought Castle Bank Mills, Wakefield, in 1869, and removed the entire business there in 1870. The premises are admirably situated on the banks of the river Calder; W. E. Cooper, a leather manufacturer in India, and a Government contractor for the supply of boots to the army; F. W. Cook, Dudley, England, governing director of the wholesale and retail dry goods establishment of F. W. Cook, founded in the year of Queen Victoria's birth; Henry Darler, Luton, an able controversialist, who recently took part in the discussion on the new German tariff in its application to the bleaching industry, his views being bitterly criticized in the German newspapers; Elijah Helm, Manchester, who has an extensive practical knowledge of industrial and commercial affairs at home and abroad, particularly of the cotton industry; Amos Crabtree, Bradford, one of the largest mohair merchants in the trade and a recognized authority on mohair; D. Marshall and H. W. Macalister, Oldham, both largely interested in the cotton trade in the Oldham district, as well as in the making of cotton spinning machinery; Alex. McRobert, Cawnpore, India, who imports much Australian wool; George Ordish, Luton, England, manufacturer of straw hats, and a large exporter to Canada; J. Peate, Leeds, a very extensive woolen manufacturer; W. Horsfall, Halifax, England, owner of one of the largest manufactories in the district, which is also one of the largest of its kind in the Kingdom, sending blankets to almost all parts of the world, and turning out some ten thousand per week; Fred. Ordish, Luton, engaged in the straw goods trade; Geo. Wigley, Nottingham, senior partner of the firm of Geo. Wigley & Son, silk merchants and throwsters, of Nottingham, Derby, Calais and Chemnitz; John Hunter, Derby, at first an engineer, but later became assistant to his father, the late John Hunter, then a partner in the firm of W. G. and J. Strut, cotton spinners of Belper, established in 1776. He succeeded his father as partner in the firm, and on its absorption by the English Sewing Cotton Co., was a director for three years, 1897-1900; James Glen, Greenock, local manager of the British Linen Co. Bank; John Falconer, Dover, England, who served an apprenticeship as a tailor at Aberdeen, afterwards going to London, where he worked as a journeyman and as a cutter, in some of the best West End shops, till an opportunity occurred for him to start on his own account in Dover, in the year 1872, now senior partner of the firm of Falconer & Sons, civil, military and ladies' tailors and outfitters; A. P. Arnold Forster, Burley-in-Wharfedale, Leeds, delegate from Bradford, worsted spinner and manufacturer; Hugh Helm, Manchester, a cotton spinner and manufacturer and merchant, who has written much during the last thirty years on industrial, commercial and economic subjects; W. J. Jackson, Belfast, managing director of the Northern Linen Company, Belfast, and president of the Linen Merchants' Association.

ALIZARINE AS A SUBSTITUTE.

It is many years since alizarine blue was first presented to the dyeing world as a superior substitute for natural indigo says the Textile Excelsior, but, although it possesses good qualities, it has not yet succeeded in rivalling it. Each of the

two dyes holds its place in the textile industry, an industry which, from year to year, demands ever-increasing quantities of dyestuffs, and time will show for what particular use each one is best adapted. Up to the present, cloths dyed with natural indigo have withstood the effects of sea journeys and of the sun's rays better than all others. It would not be in accordance with facts to assume that in the competition between alizarine blue and natural indigo a decision has yet been reached in favor of or against one or other of the products.

PECULIARITIES OF SOME WEAVERS.

"Some weavers are curious in their likes and dislikes," said a loom fixer recently. "I know some of them who will not take a job on wide looms on any kind of goods if they can get a place on narrow looms. There are some weavers who have grown accustomed to certain classes who will leave the mill and go elsewhere if the goods are changed. Plenty of weavers who have grown accustomed to the speed of narrow looms will not accept a place on slow running wide looms. A good fancy weaver will sometimes turn up his nose at an offer to take plain work, and there are hundreds of weavers who can't be driven to learn fancy weaving. A short time ago a weaver who had worked where the weavers never had to clean or oil, came to our mill. He stayed three days and went back to the mill where he wouldn't have to soil his hands."

EARLY HISTORY OF SHODDY.

John J. Dewey, of Quechee, Vt., writing to the Textile Manufacturers' Journal, says: "I notice in the article entitled 'Shoddy: Its Uses and Abuses,' being a paper read before the Alumni Association of the Philadelphia School of Industrial Art, published in your paper of June 13, 1903, that the author makes the statement that shoddy was first made in this country by a Mr. Day at Dawsonville, Holden, Mass., in 1852 or 1853, and as the statement is repeated in the article, I conclude it must be as the author wrote it and true as to his information of the early history of the shoddy business in this country. It seems that he was not well posted, for I have information, but not personally substantiated, that Richard Ardiel, of Dewsbury, England, sent a ragpicker to this country in 1831, and soon followed himself, and started the first shoddy mill in this country at Marlboro, Ulster County, N.Y., where he continued the business for many years. In 1840, Reuben Daniels, of Woodstock, Vt., who was a large manufacturer of woolen machinery, invented and built a machine for making shoddy which was installed in a mill at Quechee, Vt., and which was operated for several years, supplying four sets of cards making satinets, with the addition of a small percentage of wool. In 1841, my father, A. G. Dewey, started two sets of cards on satinets, using shoddy from the machine referred to, making six sets, which were run most of the time until January 1, 1846, when he came into possession of the machine and patents. He operated the machine until 1858, when he changed to the English picker. I know of only one other shoddy machine that was built by Mr. Daniels, and that was built soon after the first one, and was in operation several years near Troy, N.Y.

As the author of the paper referred to mentions that, in 1840, soft yarn waste had been used . . . and opened up by running through a Daniels' picker, it appears that he had a very slight impression of the Daniels' picker; for the rags (and they certainly were soft woolen rags, not waste) were first run through a picker, like a Daniels mixing picker, but

with smaller cylinder and run at higher speed, and then went through the machine Mr. Daniels invented, which was called a grinder. This machine was like a double-cylinder card with the workers on the under side of the cylinders, and all arranged in a box so the stock was mixed with water and run through the machine similar to paper stock in a paper engine. The cylinders and workers were iron filled with teeth made of No. 10 wire milled to a point, and they would reduce the stock so it could be put on a card clothed with diamond point wire. It is the belief of those who knew Mr. Daniels that it was an original idea with him to reduce rags to wool, although shoddy was made at Batley, England, as early as 1813. About 1848 Messrs. J. P. & J. G. Ray, of Franklin, Mass., began making shoddy, and by 1852 or 1853 they were doing a large business; so it seems there were at least four concerns making shoddy before Mr. Day commenced the business at Dawsonville.

I write this simply in the interest of making correct history of the early shoddy business in this country, and you can use it in any way you may think proper for that purpose.

A NEW DYEING COMPOUND—VEGETALIN.

Vegetalin is the name of a new compound for dyers and tanners which has lately made its appearance in Germany, although it has not yet been introduced into America. Its manufacturers recommend it to tanners for removing lime, mordanting and plumping. It is a product recovered from the liquors which are squeezed out of sauer kraut and other food products, the sugar-like bodies these liquors contain being transformed into lactic acid by means of the bacteria which causes lactic fermentation, just as sour milk is now made into lactic acid, only this new product is made by natural fermentation, while the lactic acid of commerce is made artificially. Of course we expect and do find in vegetalin a number of other acids besides lactic. The commercial article contains 15 to 16 per cent. total acids, together with some salts. It costs about 2½ times as much as the ordinary lactic acid. An analysis of vegetalin gives us the following percentages of acids: Lactic acid, 31.9 per cent.; butyric acid, 7.43 per cent.; propionic acid, 3.27 per cent., and tartaric acid, 1.82 per cent. The description of it does not say so, but such a combination from such a source is sure to result in an odor that is without an equal on this side of the world.

Textile Design

WOOLEN CHEVIOT SUITING.

×3 ×3 ×2



Complete Weave.
Repeat 32 × 4.

Warp:—2,380 ends, 8-harness fancy draw.
Reed:—17½ × 2 = 68 inches wide in loom.
Dress:—

24 ends woolen yarn, dark gray mix.
1 end 2/48's cheviot worsted yarn, blue.
6 ends, 4-run woolen yarn, dark gray mix.
1 end, 2/48's cheviot worsted yarn, red.

32 ends, repeat of pattern.

Filling:—42 picks per inch, all plain, 4-run, woolen yarn, black and fancy mix.

Finish:—Woolen cheviot finish, scour well, full slightly.
Clip on shear.—Textile World Record.

DOMINION INDUSTRIAL EXHIBITION.

The Industrial Exhibition, held at Toronto from August 27th to September 12th, was the most successful of the long series which have taken place annually for so many years. This year it became the Dominion Industrial, a grant having been given by the Dominion Government, and the period was extended by several days. It came under new management, Mr. Hill having been succeeded by Dr. Orr, and if we have had occasion to criticize in the past, we have no reason to do so this year, Dr. Orr having proved himself the right man in the right place. W. K. McNaught, president, gave valuable service, as well as the other directors and officials. The new Manufacturers' Building, which was uncompleted in time for last year's exhibition, gave excellent accommodation, and the old Main Building was given over to exhibits in the transportation section. The old Music Building was converted into a place for the exhibition of women's work, and a number of the buildings near the entrance were removed, giving the visitor a much better impression on entering the grounds. The Dairy Building, of concrete block construction, had been enlarged by the addition of a circular demonstrating theatre, seating 1,200 persons, in which the opening ceremonies were conducted by Lord Strathcona. The Process Building was a new and excellent feature, in which manufacturing was carried on in a number of branches, including weaving and other textile operations. It proved a great centre of interest. The chief attraction of the exhibition was the jubilee presents sent to the late Queen Victoria by her subjects in all parts of the Empire, kindly loaned by King Edward VII., a gracious act which deserves special mention. To the collection, which represented probably millions' value, the King added some saddlery and other presents received by himself during his visit to India, and the Marchioness of Dufferin contributed a case of valuable presents given to the late Marquis while Governor-General of India.

The attendance at the exhibition was the largest ever known, and the weather during most of the time was favorable.

The following exhibits in connection with the textile and kindred trades were noted:

The J. C. McLaren Belting Co., of Montreal, had a large exhibit of "Ye Olde Englishe" oak-tanned leather belting and mill supplies for textile manufacturers. The banner shown in this exhibit, in Machinery Hall, apprised the public that this firm has been established 45 years.

Toronto Carpet Manufacturing Co., rug loom in operation, in Process Building. The company also had a magnificent display of carpets and rugs in the Manufacturers' Building.

R. Forbes Co., Hespeler, loom in operation weaving cloth. This was a modern loom, capable of weaving a piece of cloth ninety inches wide, and was a centre of attraction as it wove three or four pieces of worsted at a time.

Merchants' Cotton Co., Montreal, cotton-bag loom in operation.

Chandler & Massey, dealers in physicians' supplies, Toronto, had a loom in operation weaving elastic hosiery. A card stated that the machine was invented 100 years ago, but is still the latest process for this work.

D. K. McLaren, leather belting and textile mill supplies, Montreal, occupied his old corner in Machinery Hall, the exhibit being in charge of R. M. W. McLaren. In addition to samples of English oak-tanned leather belting

and cotton and woolen mill supplies, the firm showed samples of walrus hide, used for silver polishing, and Asiatic buffalo hide, used for steel polishing; these exhibits attracting much attention.

Berlin Rubber Co., manufacture of rubber shoes in operation.

J. D. King Co., Toronto, manufacture of boots and shoes in operation.

Brantford Cordage Co., Maple Leaf brand of binder twine.

Plymouth binder twine.

Paper Goods Co., Toronto, paper cigar cases and other goods.

Toronto Laundry Machine Co., laundry machinery.

Hutchison, Shurly & Derrett, Dovecourt Twine Mills, Toronto, a fine collection of samples of twine, cordage, hammocks, etc.

R. Simpson Co., T. Eaton Co., Fairweather & Co., Stan Walker, W. E. Orr & Co., all of Toronto, furs and other textile goods.

E. C. Walker and Sons, Toronto, millinery wire.

Cooper & Sons, Toronto, slipper soles and form reducers (corsets).

Crompton Corset Co., Toronto, corsets.

Robt. Harvie, Toronto, paper shades.

Dommon Oilcloth Co., Montreal, a large and beautiful display of oilcloths of handsome design. This company has about completed a linoleum factory, the first in Canada.

Gutta Percha & Rubber Mfg. Co., Toronto, rubber goods:

Wickett & Craig, Toronto, leathers.

East & Co., Toronto, umbrellas, etc.

St. Lawrence Starch Co., Port Credit, ivory gloss starch.

Edwardsburg Starch Co., Cardinal, Ont., starch.

Ivory gloss starch.

C. Richardson, Toronto, pant dressing and shaping machine.

Abel Morrall's egg-eyed needles.

Arlington Co., a United States firm, represented by Power & Chantler, Toronto, rubber collars.

G. L. MacKay, Toronto, ladies' and men's shirts in process of manufacture.

Singer Manufacturing Co., sewing machines.

Standard sewing machines.

E. C. Hill Mfg. Co., Canadian Empire sewing machines.

In the Woman's Building—C. Babayan & Co., Oriental rugs; Bell's fibre moth bags; California Cushion Co., Toronto, leather embroidered cushions; Marshall Sanitary Mattress Co., Toronto, ventilated sanitary mattresses; a varied assortment of rag carpets, quilts, lace, knitting, crochet, embroidery, marquetric, paper flowers, etc.; also a collection of goods made by French Canadian, Dunk habor and Galician women of excellence and interest, some ecclesiastical embroidery lent for exhibition; designs for wall paper, etc.

The finest exhibit in this department was that of the woolen manufacturers of Canada, who joined together and determined to make a display worthy of the important industry they represent. Their goods were well displayed, and in quality and excellence could not be surpassed anywhere. The exhibit comprised tweeds, dress goods, blankets, wool sheetings, blanket cloaking, shawls, wool buffalo robes, bed room slippers, sweaters, golf goods, house gowns, bath

robes, knitted underwear, hosiery, yarns, etc., and was contributed to by the following mills: Canada Woolen Mills Co., Hespeler, Waterloo and Carleton Place Mills; R. Forbes Co., Hespeler; Montreal Woolen Mill Co.; Cobourg Woolen Mills; Geo. Pattinson & Co., Preston; Rosamond Woolen Co., Almonte; Auburn Woolen Co., Peterboro; Maple Leaf Woolen Mills Co., Markham; Hewson Woolen Mills, Amherst, N.S.; Galt Knitting Co.; Penman Manufacturing Co., three mills at Paris, Ont., and mills at Thorold, Port Dover, Coaticook and St. Hyacinthe; Watson Manufacturing Co., Paris, Ont.; Kingston Hosiery Co.; Brown & Wigle, Kingsville, Ont.; Slingsby Manufacturing Co., Brantford. In all 23 mills were represented, though each did not show samples of all the goods manufactured by them. The whole exhibit was most creditable.

A card "Made in Canada" was prominent in all parts of the exhibition.

PROCESS OF KHAKI DYEING.

Shades from an olive to a dark brown are obtained by fixing on to the cotton the oxides of chromium and manganese. The cotton is padded with a solution containing bichromate of soda or potash, chloride of manganese and acetate or formate of soda. It is then washed and worked in an alkaline solution of at least 22 degrees Tw. This concentration is necessary in order to make the fibre slightly shrink and fix the oxides of chromium and manganese. Then follows a good washing and drying. In cases where the shade comes out too light the material is padded again with the original solution, but not passed through the alkaline bath. This khaki is fast to light, washing, and chlorine. This is a French patent process.

WOOL MARKETS.

The next Colonial wool sale opens in London on September 15th. Meantime the English wool market is featureless, though prices remain very firm. Advices from New South Wales indicate that the drought is only partially broken, and there does not now remain in the state more than 20,000,000 sheep. The forthcoming clip is growing well; but no inconsiderable proportion of it will be dusty and otherwise faulty owing to the knocking about of many of the sheep after last shearing. That the ensuing clip will be of somewhat smaller dimension than its predecessor seems to be the general opinion. It will be minus the dead wool and fellmongered wool which assisted so materially to swell the last clip; and experienced men point out that although a great number of the flocks will yield heavier fleeces at the approaching shearing than they gave last year, the number of sheep available for shearing will this year be sensibly less than in 1902, owing to the losses suffered in many places just after last shearing. The number of lambs likely to come in for this year's shearing will not be large, and altogether the opinion now prevailing in producing circles is that the 1903 clip will be the smallest of any shorn for the past 25 years. An estimate clip in Queensland has been made at about 30,000,000 lbs., which is 1,000,000 lbs. more than last year. Experts say that while there are now only 7,000,000 sheep in Queensland, the yield of wool per head should be of a much higher average than in recent years, as a consequence of the rains and the short stocking of runs.

In Boston, prices are firm. Canadian wool is very scarce, and its scarceness is felt. The demand for wool is not, however, in large lots, though some of the larger

mills are showing a disposition to take hold. Transactions are chiefly in territories and medium fleeces.

Montreal.—Quietness has prevailed in the wool market here since last report. Although no change has taken place in prices, there seems a want of demand. We do not expect any change till after the opening of the London wool sales on the 15th. Quotations are: Cape, greasy, 17 to 18c.; Natal, 22 to 24c.; washed B. A., fine, 38 to 42c.; crossbred, 20 to 25c.; mediums, 27 to 35c.

Winnipeg.—Dealers offer 7½c. for further lots of unwashed fleece laid down. The Commercial gives the price last year at same date, 6½c.

Toronto.—Market quiet. Holders still waiting for an advance. One of the largest shipments of wool ever received at one time was recently forwarded from Owen Sound to E. T. Carter, wool merchant, Toronto. Of a total of some thirty cars from the Northwest Territories, 22 cars were shipped as one train load. His purchases of Northwest wool for this season total 500,000 lbs., and represents more than half the clip. Toronto quotations are: Combing fleece, 16½ to 17c.; clothing, 18 to 19c.; rejections, 12c.; unwashed, coarse, 9c.; unwashed, fine, 10c.

W. E. Stevenson, garment manufacturer, of Guelph, has purchased an interest in the Ideal Garment Manufacturing Co., of Ann Arbor, Mich., which sends clothing to almost every state in the Union.

The death is announced of John H. Parks, of St. John, N.B., which took place on September 7th, after an illness of about a week, though he had been in poor health for the past year. Mr. Parks was prominently connected with the cotton industry first established by his father, Wm. Parks, in St. John. He operated the Wall street and Courtenay Bay mills separately and after the amalgamation, held the position of president and manager of different companies owning the mills. He was 67 years of age.

The Cornwall Mfg. Co.'s woolen mill at Cornwall is offered for sale.

A new firm The Imperial Rubber Clothing Co., has commenced business in London, Ont.

Considerable trouble has arisen in connection with winding up the estate of Thorpe & Maddock, wholesale clothing manufacturers, Toronto. The bank has a lien, and several firms have asked for an injunction. Arrangements are under way looking for an amicable settlement at 12 cents on the dollar.

Judge Desnoyers, whom Chief Justice Sir Alexandre Lacoste appointed special commissioner to examine witnesses in the case of Backrack, Blackley, and Levy, the Toronto merchants, who will be tried for conspiring to defraud the creditors of George Margolius, has been in New York taking evidence. The trial will take place shortly in Montreal.

According to the books, I. Haltman, of the Imperial Cloak Co., Montreal, drew from the business some \$18,000 during the fortnight or three weeks previous to the assignment, and A. Cohen, his former partner, stated that the money had been lost in speculating on the Stock Exchange. A summons has been issued calling upon Haltman, who left the city, to appear.

The carding mill owned by John Carr, at Lequille, N.S., was recently destroyed by fire. There was no insurance.

The woolen mills of Cronkhite Bros., Thessalon, consumed 15,500 pounds of wool during the month of June.

A by-law to loan \$20,000 to the Empire Carpet Co. to rebuild their mill at St. Catharines, though it received a majority, failed to carry, as it did not receive the necessary number of votes. The vote was 329 for and 181 against. The number required to carry the by-law was 986.

The effect of the price of cotton on the mills of the world is startling. Canada's mills have profited by their foresight in laying in large enough stocks of the raw material to carry them into next season, and none of them have found it necessary to shut down. But it is different elsewhere. More than 2,000,000 spindles are idle in New England cotton mills, and \$3,000,000 has been lost in wages during August. In Fall River alone 755,000 spindles have stopped, throwing 7,300 employees out of work. Out of 91 prominent mills, 44 have curtailed their output, and 55 announce their intention of reducing during August, making the estimated reduction of that month over 25 per cent. In England 700 of the Lancashire cotton mills are working on short time, and 360,000 operatives are affected. In the United States several informal attempts have been made to get the manufacturers together and agree to a general shortening of hours or a shut-down for a stated time.

The outlook for worsteds for next spring's business is said to be poor.

During the past six months Great Britain's imports of raw cotton declined from 8,809,148 hundredweight to 8,660,683 hundredweight.

The value of cotton manufactures imported into the Transvaal during the five months ending with May last is returned at no less than £173,000, as against only £77,000 in the corresponding period of last year. The increase in woolen manufactures was also large, having run up from £55,000 to £141,000.

A daring scheme has come to light to defraud the United States customs by the importation of large quantities of high-class English tailors' woolens into Canada and then, by bribing a customs official at Montreal, sending them through in trunks to New York. A seizure of a large quantity of these goods has been made. It is said that indictments will be asked against a number of British woolen manufacturers and clothing dealers. The London Chamber of Commerce denies knowledge of any cases of smuggling by clothing firms, and woolen exporters also profess ignorance of the matter.

DYE TESTING.

By E. S. Graves, New Bedford, Mass.

The necessity of testing dyestuffs is being recognized more and more by all users of these products, and no large consumer can afford to let such an important matter go. Every dyer knows how essential it is that every shipment of the same color should be the same or "up to the standard." Almost without exception the dyestuffs on the market to-day are adulterated with salt, Glauber salts, dextrine or some other suitable product, and the extent to which this is done is shown by the fact that many of the old standard colors are being put on the market in extra concentrated, double, triple, and sometimes in quadruple strengths. Now that competition is growing keener these concentrated products are found to be more profitable, and in some cases a saving in transportation is effected. Much of the color is now imported

in the concentrated form and adulterated or diluted locally. I once had occasion to ask a prominent importer of dyestuffs why such products were not sold in as concentrated a form as possible, as the saving in transportation was obvious. His explanation was that in the course of manufacture they found that from the same amounts of raw materials on account of unavoidable variations in the several processes they never obtained the same yield of color twice in succession, and, therefore, they adopted as a "standard" a concentration somewhat less than the strength of the weakest yield, and brought all the different yields down to that standard. The necessity of uniformity makes a careful and accurate analysis or test against standard essential for each lot as it is manufactured. When the exact strength is known the calculated quantity of diluent is added and the resulting dyestuff thoroughly mixed in revolving drums. One large German manufacturer, after the color is standardized and thoroughly mixed, stores the dye in huge upright sheet iron cylinders, the color being shovelled in at the top and taken out as needed at the bottom. This method mixes the lots already standardized, and ensures a very uniform product. All manufacturers are not so careful, and especially where concentrated brands are imported and mixed locally wide variations in strength are frequent. In this same factory using the cylinder method of storage a great deal of trouble was caused by a discharged employee, who mixed some foreign colors in one of the cylinders, the difficulty not being discovered until consumers had made complaints and a great deal of harm had been done.

It is, therefore, necessary to test colors not alone to prevent loss from the use of colors below standard, but to guard against slight deviations in shade as well as strength, which cause the dyer endless trouble in producing "off shades." Besides testing colors comparatively for strength and shade, it is often necessary to make comparative trials or tests for fastness to washing, light, acids, cross dyeing, fulling, alkalies, etc.

Testing Dyestuffs for Strength.

The strength of a dyestuff is determined by making a series of dyeings of the sample and the standard under exactly the same conditions. The same amount of material is taken for each dyeing, either five, ten or twenty grams of cotton, wool or whatever material is used, accurately weighed. The same amounts of mordants or assistants must be used; the length of the bath must be the same, either twenty, thirty or forty times the weight of the goods; the temperature of the dyebath must in every case be the same, and it is here that the greatest difficulty lies. The only thing that can vary is the amount of dyestuff used, but in every case the amount of dyestuff used is known. The material to be dyed (if yarn) is reeled off into hanks conveniently thirty-six inches in circumference, and which are best made to weigh exactly ten grams each, in which case a dye pot of 500 c.c. capacity is used. When five gram or twenty gram skeins are more suitable, 250 c.c. and 1,000 c.c. dye pots are used respectively, which will allow a bath as much as forty-five times the weight of the goods when necessary. The dye pots are heated, and the conditions of temperature in the different dye pots maintained the same by immersing them in a hot solution. Different solutions are used for different classes of dyes required to be dyed under or at the boil. For trials not requiring over 70 degrees C. the outer bath is water. For a temperature very near the boil a concentrated solution of either salt or calcium chloride is used, and when the dyeing is carried on at the boil the best outer bath is commercial glycerine, which can be heated to 120 degrees C. and remain quiet, while the dyebath itself is at a steady boil.

Too much emphasis cannot be given to the importance of this method of heating. When accurate and trustworthy results are desired every precaution must be taken to have the comparative tests made under identical conditions, and the most careful attention must be given to all details.

APPARATUS USED FOR DYE TESTING.

Dye Vessels.

Porcelain dye pots are the best, and are made in three sizes, with capacities of 250, 500 and 1,000 c. c. An admirable type is made especially for this work with a flange two-thirds the way up and a small handle. (See Fig. 1.) The flange serves for the dye pot to rest upon when it is immersed in the heating bath, and also prevents the outside solution from creeping up and getting into the dye bath. A calcium chloride heating bath cannot be employed with beakers lacking this flange, for it has a marked tendency to crawl up and get into the dye bath, thus ruining the test.

Containers for Heating Solutions.

The glycerine, saline or water solution is contained in a rectangular tray, best made of heavy copper and furnished with a perforated lid for holding the dye vessels. (See Fig. 2.) The tray is made deep enough to allow the bottom of the dye vessels when suspended from the lid to rest about two inches above the bottom. When the outer solution is heated



by closed steam pipes the tray must be made deeper, allowing the steam coil to rest two inches below the bottom of the beakers. A tray 18 by 33 inches will accommodate twenty-eight 250 or 500 c.c., or fifteen 1,000 c.c. dye pots. The lids are interchangeable, so that different sized pots can be used at will.

Heating Arrangements

The heating is accomplished either by a closed steam coil or by gas. When gas is used the products of combustion should be carried away in some manner. The atmosphere in most laboratories is decidedly unhealthy, often unavoidably so. Everything should, however, be done to keep conditions as healthful as possible. An apparatus recently devised is now on the market, and has been adopted by a number of color testing laboratories, which possesses many practical advantages where gas is used for heating.

Dye Testing Apparatus.

In this apparatus the part surrounding the heating apparatus are lined with magnesia and asbestos, the heat and products of combustion are carried forward and through the walls of the drying oven (D) from whence they are conducted by means of a tin pipe to the outer air. In this manner a saving of fuel is effected, the atmosphere of the

laboratory is not contaminated, and it is much easier for the operator who has to turn the dye tests, there being much less heat to contend with. The framework of this particular piece of apparatus is made of sheet iron, riveted. The vessels, A and A1, are used for wetting out the ten-gram hanks of cotton or wool. The trays (B) are separate, each with a separate heating arrangement, so that they may all be used at the same time for making dye tests with different classes of dyestuffs, requiring different conditions of temperature. C is a large hot water reservoir, giving a convenient ready supply of hot water. The wetting-out vessels and hot water reservoir are lined with tin to prevent contamination of the water. The dryer has a ventilator at the bottom, and the completed dyeings are suspended in it on glass rods. The entire apparatus is conveniently fed with water by means of an overhead water pipe with a rubber hose attached. The dyeings are turned in the dye baths by means of small glass rods, rounded at the ends. When steam is used for heating, the asbestos lining is done away with and the dryer has to be heated as well as the dyeing baths.

Graduated Instruments.

The quantities of dyestuff, mordants and assistants are measured in cylinders or graduated pipettes, which should be accurately calibrated. Pipettes should always be used in measuring the amount of dye, as they are much more accurate than the cylinders. Flasks, graduated usually at 15 degrees C. to hold just one liter, are used to prepare the standard solutions.

Raw Material Used.

It is nearly always best in testing a dyestuff to test it on the material for which it is to be eventually used, or, if this presents difficulties, to test it on the material for which it is best adapted. Alizarine dyes are best tested on wool, mordanted with chrom or alumina. Acid dyes are tested on wool. Basic dyes on tannin and antimony mordanted cotton and sulphur and direct cotton colors on cotton. Sometimes it is best to test a silk, as with the alkali blues and colors especially adapted or desired for silk fibre.

Color tests are also sometimes desired on raw stock, stubbing, loose cotton, piece goods, union goods, etc. The majority of tests are, however, made on cotton or wool, reeled in ten gram hanks.

Standard Solutions.

The dyestuffs, mordants and assistants are made up into solutions of known strength by weighing out a definite amount of the chemical and dissolving it in water and then diluting it to a definite volume.

The dyestuff should be weighed out very accurately on a chemical balance, the handiest strength being one gram up to 500 c. c., with distilled water. Most flasks are graduated at 15 degrees C., so that it is necessary when hot water is used in dissolving the color to wait until the solution is cold, or 15 degrees C., before making it up to just 500 c.c. Solutions of other strengths can, of course, be used, but this is the customary strength, and will answer for most purposes.

On ten-gram goods 50 c.c. of a solution 1500 are equal to 1 per cent. of color. Dyeings are usually compared best somewhat under what is known as a full shade, which is usually between 0.5 and 2 per cent.

(To be continued.)

Situation Wanted.

OFFICE MAN and salesman, young, energetic, English-American, conversant with modern office methods, hard worker, seeks engagement in either capacity. At present compiling costs and acting as chief clerk in small cotton mill in United States. Address, "H. K.," care of Canadian Journal of Fabrics, Toronto.

THREAD BY MOUSE POWER.

Thrift is generally acknowledged to be one of the leading characteristics of the natives of Fifehire, and it never was more forcibly exemplified than in the person of David Hatton, a native of Dunfermline, who actually proved that even mice, those acknowledged pests of mankind, could be made not only to earn their own living, but also to yield a respectable income to their owners, says "The Scots man." About the year 1820 this gentleman actually erected a small mill at Dunfermline for the manufacture of thread—a mill worked entirely by mice. It was while visiting Perth prison in 1812 that Mr. Hatton first conceived this remarkable idea of utilizing mouse power. In an old pamphlet of the time, "The Curiosity Coffee Room," he gave an account of the way in which the idea dawned on him. "In the summer of 1812," he wrote, "I had occasion to be in Perth, and when inspecting the toys and trinkets that were manufactured by the French prisoners in the depot there my attention was involuntarily attracted by a little toy house with a wheel in the gable of it that was running rapidly round, impelled by the insignificant gravity of a common house mouse. For a shilling I purchased house, mouse and wheel. Inclosing it in a handkerchief, on my journey homeward I was compelled to contemplate its favorite amusement. But how to apply half-ounce power, which is the weight of a mouse, to a useful purpose was the difficulty. At length the manufacturing of thread seemed the most practicable. Mr. Hatton had one mouse that ran the amazing distance of eighteen miles a day, but he proved that an ordinary mouse could run ten and one-half miles on an average. A halfpenny's worth of oatmeal was sufficient for its support for thirty-five days, during which it ran 736 half miles. He had actually two mice constantly employed in the making of sewing thread for more than a year. The mouse threadmill was so constructed that the common house mouse was enabled to make atonement to society for past offences by twisting and reeling from 100 to 120 threads a day, Sundays not excepted. To perform this task the little pedestrian had to run ten and one-half miles, and this journey it performed with ease every day. A halfpenny's worth of oatmeal served one of these threadmill culprits for the long period of five weeks. In that time it made 3,350 threads of twenty-five inches, and as a penny was paid to women for every hank made in the ordinary way, the mouse, at that rate, earned 9 pence every six weeks, just one farthing a day, or 7 shillings and 6 pence a year. Taking 6 pence off for board and allowing 1 shilling for machinery, there was a clear yearly profit from each mouse of 6 shillings. Mr. Hatton firmly intended to apply for the loan of the old empty cathedral in Dunfermline, which would have held, he calculated, 10,000 mouse mills, sufficient room being left for keepers and some hundreds of spectators. Death, however, overtook the inventor before his marvellous project could be carried out.

COTTON GROWING IN CEYLON.

A writer in the Times of Ceylon points out that there is every reason to believe that Ceylon could successfully grow cotton for the English market. Experiments on a considerable scale have already been made by private individuals, the results proving beyond doubt that cotton can be grown luxuriantly in many districts in the northern province, while similar experiments are shortly to be made in the south. As yet, although the possibility of the actual cotton growing has been clearly demonstrated, the costliness of the experiment has prevented it from being carried

out to such an extent as to show whether a cotton industry could be established in the island on such a basis that it could compete profitably with other cotton-growing countries. The longer route, by the Suez Canal, puts Ceylon at a disadvantage compared with African countries, but at least the experiment merits a further trial in the interests not only of Ceylon, but of trade within the Empire. It is suggested that a commission should be appointed by the Government to enquire fully into the question of transport, labor, cost of machinery, and other difficulties which at present appear to bar the way to successful establishment of a new Cingalese industry.



From an ancient Egyptian Mural Painting.

WEAVING: AN ANCIENT CRAFT.

Weaving of figured cloths, one of the most intricate industries, was one of the earliest crafts to be developed by man, for mankind, having reached even a low degree of enlightenment, must have raiment to clothe his body, to protect it from the elements, to satisfy his modesty. And then later, when he builded him a home, he must have hangings to cover the bare stone or wood, for such his luxury-loving sense teaches him.

The simple technique of weaving has been known from earliest historic times, and even beyond the time of known things we have reason to believe that weaving was carried on by the more enlightened races. In the simplest form the art consisted of warp threads (haute lisse) stretched tightly in vertical rows. Then colored threads were worked in, as a housewife darns a worn stocking, and beaten tight by rod or batten. The illustration at the head of this article is drawn from an ancient Egyptian mural painting. It represents a loom, and we must believe depicts the way in which the hangings of Pharaoh's temple were woven, long centuries ago, on the banks of the Nile. The Phoenicians, a race of peaceful people who came out of Asia and settled in the land on the east coast of the Mediterranean, were among the world's first dyers. Their country was protected by a great wall of mountains, and they lived among themselves for centuries, and so had time to occupy themselves with the arts of peace. From a certain mollusk that lived in the waters along their shores a beautiful purple dye was obtained with which they dyed the fleece of their herds, then wove it into splendid, rich-hued stuffs. Moses, in the wilderness, gave careful instructions for the tapestries of the Holy of Holies.

Babylon, that grand old city of forgotten times, which modern scientists are now unearthing from beneath the debris of time, was famed in her day for the figured cloths woven by Babylonian artisans. Connoisseurs have recognized in the relief sculptures on the ancient Palace of Nineveh, which dates from about eight centuries before the Christian

Era, representations of woven tapestries. In the writings of Homer are found many allusions to hangings. By the order of Paris, the female slaves of that semi-mythical era wove beautiful tapestries to decorate his palace. Again, Agamemnon, on his return from Troy, refused to place his feet on the carpet, so dearly paid for, which Clytemnestra spread out before him. Penelope is represented on the vases of Attica, busied in her duties at the loom, and used her industry as an excuse to temporize with her suitors.

Rome, the republic, was too busy fighting to give very serious attention in any other direction. But with the spoils of the vanquished the Roman patricians bought rich fabrics from the Orient. And so the dying Roman Empire continued to import the woven things of the East. Byzantium, however, was long the refuge of the arts—of painting, of sculpture, of the weaving of carpets and tapestries. With the rise of the Western kingdoms, and the increased requirements of a more civilized age, the necessity developed of meeting this need by home manufacture. In the eleventh and twelfth centuries—a period in which all the arts received a tremendous impetus—woven specimens which came from the East, and particularly from Byzantium, were used as patterns, and the effect of these motifs is seen in all art of the time. Byzantine and Saracenic works become more rare during the Middle Ages, although they were not exhausted. Tapestries of the East became scarce. As a result of the Crusades knowledge and acquisition of the exquisite fabrics of Byzantium and the Orient became more general than hitherto through commerce. Roger, of Sicily, even went so far as to capture Greek silk-weavers of Corinth, Thebes and Athens, carrying them to Palermo, where their art was taught to others, and handed down to later times. In the famous edicts of the Paris guilds, in the thirteenth century, which gives us a glimpse into the luxuriance of the time of Ludwig the Holy, woven tapestries are mentioned.—*Carpet and Upholstery Journal*.

ANCIENT AMERICAN COTTON.

Recently new light has been thrown on the cultivation of cotton by the Indians of the United States. It has been a puzzling question as to when and where cotton was first used for the purpose of making cotton cloth. When the Spaniards explored the country from Florida to the Mississippi they found cotton growing in that region, but made no mention of its being spun or woven into fabrics. When American pioneers pushed their way into Arizona and New Mexico they found the Indians living in inaccessible villages called pueblos. The pueblos were for the most part situated on high plateaux called mesas, which were practically barren of vegetation. In order to provide food for themselves the Indians journeyed each spring to their farms, situated some distance from their villages, where the soil was fertile and the waters abundant. For this reason some of the travellers related many stories of these people, based upon this half of their life, so to speak, which subsequent investigations have proved to be erroneous. Because they failed to see a thing they declared it did not exist. By visiting these farming districts, had they known of them, they would have found cotton cultivated by some of the tribes. For instance, the Hopi (or Moqui, as it is sometimes spelled) Indians now cultivate a cotton, which they state, was given them by the Mormons, but they claim that they "always had cotton," dating back to a time before the Spaniards first visited their country.

The Zuni Indians do not grow cotton or use it for making blankets, kilts, or belts. For many years past, indeed ever since scientists have studied these people—and how

many years prior to that time is not known—the Zuni have purchased their blankets and belts from the Hopi. In fact some of the Zuni claim that it has been their practice to obtain their cotton fabrics from the Hopi, just as to-day we purchase an article from Paris because it is Parisian and therefore distinctive. The Navajos, on the other hand, used wool in the manufacture of their famous and much-prized blankets. Before the introduction among these people of the sharp practices of the white man these blankets were made wholly of wool and colored with native dye stuffs. To these materials, as much as to the cunning workmanship, are due the lasting qualities and richness in coloring of the blankets. Learning, however, the tricks of their conquerors, they have substituted an inferior grade of wool, or mixed cotton with the wool, and employed aniline dyes instead of those of their own manufacture, finding it more profitable, since the traders were unable to detect the deception.

The custom of purchasing cotton garments from the Moqui by the Zuni had its inception in a very practical reason. The task of manufacturing cotton cloth was no easy one with the facilities at their command. The fibres were picked from the seeds by hand, spread upon a stone or other flat surface and beaten with a little bundle of sticks to separate the fibres, so as to properly arrange them for spinning into thread. It can readily be seen that this must have been a long, tedious, and delicate task. The Moqui and the Zuni, however, made ceremonial blankets, belts, and other fabrics entirely of cotton, and cotton of some kind must have been known to them for centuries. From whom did they get their cotton? The Spaniards found cotton growing in this country when they first explored it, so evidently the Indians did not obtain it from them. In some recent explorations made by Dr. Walter Hough, of the National Museum, cotton and squash were found in some of the ancient pueblos near Walpi. How many years have elapsed since these seeds were placed there it is impossible to say. The various articles associated with them seem to prove the site to have been an ancient burial place. Some of the seed now used to grow cotton, which is thought to be identical with those found in the groves, have been turned over to F. V. Coville, botanist of the Agricultural Department, for identification. As there is considerable confusion still remaining as to the several species of commercial cotton, it is necessary to grow the plant before the identity of the species can be determined. These trials have not yet progressed far enough to settle the question. If the seeds found in the grave sites and those modern ones prove to be identical, then either the Moqui claim relative to the Mormon origin is wrong or else the antiquity of the pueblo as a burial site is disproved. Against these two contending views comes the statement of the Zuni that they have had cotton with them from the beginning, that it is native with them. For a long time it was supposed that the cotton used by these latter Indians was some species of gossypium, like that found in other pueblos in our Southern States. Not until last summer did there exist any known reason to suspect that the prehistoric cotton was other than that species of cotton now grown by the Moqui, or some variety closely allied to it. Mrs. Matilda Coxe Stevenson, one of the scientist corps of the Bureau of Ethnology, and the only living authority on Zuni culture, in making a collection of the native plants used by these people for medicinal, religious, culinary, and technical purposes, found a plant which the Zuni priest who brought it to her informed her was their ancient native cotton. The priest likewise claimed that this was the cotton which had been used for making their sacred ceremonial blankets and prayer plumes. An

examination of the plant proved it to be not a species of cotton proper—that is, a member of the *Gossypium* family—but a variety of milkweed—the *Asclepias Mexicana*. When the long, silky fibres have been separated from the seed and beaten into shape by the native skill, it is practically impossible to distinguish it from our modern cotton. This plant is found in abundance during the month of August in their outlying farming districts at Ojo Caliente and Picadillo, New Mexico. It grows in certain isolated spots; hence it is usually overlooked by the traveller. The prehistoric cotton was brought to Mrs Stevenson's attention by Nainichi, who is one of the rain priests, and elder brother of the Bow priesthood. He makes the cotton thread used upon the prayer plumes.

FOREIGN PRINTED GOODS.

With regard to the printed cottons called *Deutsche Blandruck*, of which so large a scale is made for the clothing of Boer women and children, Mr. Whitham says: In examining these cloths it is impossible not to notice the discernment of the foreign manufacturer in the way he makes preparations to supply an article widely used. He goes out and ascertains on the spot the requirements of the community, carefully and without haste. He studies their habits and customs, watches them in their work and in their pleasures; notes the effect of sun, rain, and dust on their dress, and its appearance after being washed a few times. In a word, he learns by observation and enquiry what these people want, and when he has gathered all the information necessary he comes home and makes the things to fit them. He asks: "What does the foreign manufacturer learn from this?" He learns, first, that the great bulk of the Boer women work either in the homestead, the field, or the dairy, and they need something strong, from which the mud stains or grease spots can be washed. He learns that neither sun nor rain must affect the color; that the pattern on the cloth must be neat and pleasing to the eye; and that this must not be liable to disappear the first time the garment is washed, in whatever kind of water. He makes a cotton cloth heavy and strong, so that it shall wear well and wash well; he dyes it with pure indigo, that it may withstand the action of the powerful sun; he prints upon it a neat and pleasing pattern in such a way that no amount of washing can remove it or spoil the effect. He then offers it for sale in qualities, widths, and prices to suit everyone—Kuhlow.

CARD WASTE.

Manufacturers are becoming more and more interested in the matter of eliminating the card waste question and adopting means whereby the fibre can be separated from the dirt and shive and the fibre restored evenly to the batch. Without question, where the fibre and dirt is allowed to accumulate beneath the cards and then gathered up and dusted and placed on the next mixing, the fibre, consisting as it does mainly of short lengths, has a tendency to vary the yarn and make the dyeing, if done in the piece, a difficult matter, for no matter how thoroughly the waste be dusted it is at best dirty and contains much shive. If the matter be looked into closely it becomes evident that some of the fibre drops time after time, becoming so dirty that it is impossible to use it. There are many manufacturers so short-sighted that they keep putting the card fly away in the store room until finally they are astonished at the quantity

on their hands. When there are systems that will overcome this difficulty, restoring the fibre so gradually that it is impossible to detect its presence in the finished product, it seems poor business policy to continue the same methods that have existed since cards were first built, and there is no doubt that before many years pass it will be just as essential in a progressive mill not to make card waste as it formerly seemed necessary. This is particularly true of card rooms where colors are run, if we have black on one card and orange on another, and so forth, it becomes necessary to dust all colors together and redye the stock, a needless expense, if the cards are properly equipped. Progressive manufacturers do not believe in making any more waste than is absolutely unavoidable, and are quick to adopt any method that will ensure as large a proportion of the stock going into yarn as possible and at the first operation. Where proper consideration is given to this subject, card fly is not allowed to become the bugbear that it is to so many mills at the present time.—R. E., in *Fibre and Fabric*.

FOUR DAYS WITH ENGLISH FACTORY GIRLS.

An article of unusual interest in a recent number of the *Contemporary Review* is *Four Days in a Factory*, by the Hon. Mrs. Bertrand Russell. The experiment which she describes, though much briefer, recalls that of Mrs. John Van Vorst and Miss Marie Van Vorst, whose book, *The Woman Who Toils*, called forth President Roosevelt's famous race-suicide letter.

Intemperance is the sum of Mrs. Russell's discoveries. Attired in "an old torn black skirt, a dirty, ill fitting cotton blouse, an old green jacket, without buttons, and a shabby sailor hat pressed down over a row of front curlers" imagine an American girl thus attired to seek work—she got employment in a rope factory. The work was simple and easy, but the hours were from 6 to 5.30 daily, with intermission for breakfast at 8 and luncheon at 1. The wages for skilled hands were \$2.50 a week. They ate for dinner bread and butter and tea, with possibly two cents' worth of dried fish. Mrs. Russell used to slip out and get a square meal unknown to the others.

Love was the theme of conversation among these poor drudges, but not very poetically expressed:

"Every girl had a bloke (sweetheart), and they wanted to know if my bloke ever 'it me,' as theirs constantly did, they said.

"'What does your bloke do?' they asked

"'He's out of a job,' I was obliged to answer.

"'Is 'e in one of them unemployed processions?'

"'No,' I answered, 'he's too grand for that.'

"'A good job 'e isn't,' they said. 'They're all boozers. They goes to the next pub and gets drunk.'

Mrs. Russell thus sums up her observations.

"The girls who belonged to clubs—and there were about ten of them out of the forty-five—were decidedly superior to the others in behavior and ideas. One of these, Ellen, who was a total abstainer, described her life to me. She boarded with a kind landlady, to whom she paid 6s. a week for a small room, food and washing. The landlady called her at 4.30 and gave her a cup of tea and a bit of toast at 5. At 5.30 Ellen started for the factory with tea, sugar, five slices of bread and butter, and 3d. for her dinner, handed to her by the landlady out of her 6s. Of this Ellen only spent 1½d. or 2d. on her dinner, adding the other penny to her 4s a week spending money. At 6 o'clock in the evening the landlady gave her tea, more bread and butter, with occasionally a rasher or a bit of fish. Three evenings a

week Ellen went out with her 'bloke' and the other even-ings to her club.

"Polly was another girl who described her life to me. She was very small and thin, with several teeth out, and an enormous bun of hair at the back. She was twenty and had been married seven months to a sober chap, who only drank beer once a week for his Saturday dinner. On Sunday her chap gave her a cup of tea in bed at 7 o'clock, and then she got up and got breakfast. She spent the morning tidying up. 'My chap says I'll die with a broom in me 'and,' she said. Then she got dinner, generally a meat stew. After dinner she had a lay down while her chap read the paper, the weather being too cold to go out.

"Lily, a tall, fine-looking girl of nineteen, confessed that one glass of beer made her light-headed, and that she was drunk very often. 'Not every night,' as her mate declared, 'but on Saturdays and Sundays and holidays.' She had not touched anything for a fortnight, and asked me to give her a pledge card to sign, which I did the last day.

"I do not believe that all or even the majority of these girls are often really drunk, but I know that they think nothing of going into a public house and of getting drunk occasionally. The reasons for this are obvious. As children, all these girls were constant habitués of public houses, fetching the drink for their parents. The public house was never a forbidden place to them, and as soon as they became wage-earners it was their first resort. Tired out with a long day's work on insufficient food, the quickest and pleasantest pick-me-up was to be found in their old haunts 'with the landlady all smiles behind the counter' as one girl said, and the lower their wages, the more reckless and impudent their manner of spending them.

"Then all their social events are celebrated with drink—weddings, birthdays, even funerals, and all holidays mean a drinking bout. For six weeks before Christmas these girls each contributed 2d. a week to a spirit club. On the day before Christmas, this money, amounting to several pounds, was spent on whiskey and port wine (with a little ginger beer for a few teetotalers), and was drunk in the factory at breakfast and dinner time. And then those girls who felt they had not had enough went out to a neighboring public house and got more drink.

"It was nothing, they told me, for a girl to spend on drink out of her small earnings a shilling or even more on Christmas Day. And yet these girls are to be the mothers and home-makers of the future. How are they being prepared for these vitally important duties? What habits and what equipment do they possess for exercising their vocation of motherhood?"

MERCERIZING COTTON CLOTH.

The mercerization of cotton cloth has not yet been brought to that state of development attained in the mercerization of yarn, in spite of the many ingeniously constructed machines for the continuous mercerization of cloth which have been brought out by leading machinery builders. In my opinion the effect produced by mercerizing the yarn can never be obtained by mercerizing the cloth. It is not sufficient merely to impregnate the macro, or similar cotton fibre, with a concentrated alkali solution, and give it that transparent, gelatine like appearance. There is no doubt that the silk-like lustre demands impregnation in a concentrated alkali solution and subjection to tension at the same time. It is well known that this lustre is still further heightened when the yarn is kept in tension until completely dry. My belief that the lustre obtained by mercerizing the piece must always be inferior to that obtained by merceriz-

ing the yarn is based upon the following views: It is unquestionable that the tension is greater upon the filling than upon the warp, while both are saturated equally with the alkali. The machine that will stretch warp and filling to the same degree has not yet been made. As the shrinkage of cloth is so great, it is necessary to stretch it out well to preserve the width; as a consequence all the machines are constructed with an endless pin chain, as clamps will not hold the slippery goods. This results in the filling threads alone being stretched. If the warp is to be subjected to the same tension as the filling, this must take place at the moment of saturation with the alkali solution in order to obtain the same effect as on the filling. This is never the case, however, and it follows that the mercerization of the filling is always more intense than that of the warp. Another important reason why cloth can never be mercerized as well as yarn or warp is this: The yarn is well singed in the raw state, and after this operation, which must be carefully performed, passes to the mercerizing proper, during which each individual thread is thoroughly impregnated with the alkali solution, and at the same time subjected to the indispensable stretching. In all cloths, particularly close-set fabrics, thorough singeing of each thread is out of the question, because the heat or flame cannot reach that part of the threads where they are pressed closely together in the cloth, no matter whether a gas or plate singer is used, consequently all places that are not reached by the singeing process retain a more or less fuzzy appearance, which in the course of subsequent handling becomes very plain and injures the general effect of the dyed goods. After the goods have been thoroughly singed the subsequent process necessary to finish them ready for the market causes a disarrangement of the position of the threads and brings in evidence the parts of the threads that were hidden and consequently not affected by the singeing process.

The lustre of mercerized goods is increased by calendering, but this calender effect is not permanent. A possible remedy for this difficulty may be found in singeing the warp and filling yarn, and then mercerizing the cloth. This might make it possible to run the mercerizing machine much faster, and thus give a greatly increased production by which the cost of the first mercerizing would be greatly reduced. I have repeatedly subjected goods to successive mercerizing processes, and found there was no danger of injuring the material if proper care was taken.—Textile Excelsior.

A LESSON IN CLOTH ANALYSIS.

By cloth analysis is meant the taking of a small sample of cloth and analyzing or dissecting the same so as to produce an exact copy of the sample in the woven goods, both as to texture and design, the counts of the yarns, and the weight of each as ascertained from the given sample. There are several methods by which the design or pattern in the sample can be obtained, but only two of these will be noticed. One method is to take out a number of threads from the left hand side of the sample and also from the top of the sample, says a writer in the Journal of Textile Industries. These threads, if carefully kept in their proper order, can be used for the obtaining of the required data by which to reproduce the cloth and the sample will not need to be further mutilated. The sample is then taken in the left hand between the thumb and the finger, the first pick is then dislodged from its position by the pickout needle, and if the warp thread is raised, then fill in one square, if raised for more than one fill in as many squares as there are threads raised. If the thread is not raised

then pass on to the next thread, leaving an empty square for every warp thread that is passed over by the filling. This is a good system where coarse yarns are used.

The second method, and where fine counts of yarns are being used, is to lay the sample flat on something of an opposite color to the piece of cloth being analyzed whenever possible. Having placed the cloth, it may be fixed by thumb tacks to prevent it from moving about. Put the pick glass on the cloth and begin at the bottom of the cloth from the left hand corner, putting a mark on the design paper for a thread raised as in previous method. Care must be taken that every pick begins from the same thread, otherwise a broken pattern will result. It is advisable for a learner to take out a few threads at the side and also at the bottom of the cloth, then it will be almost impossible to begin on the wrong thread. Practice will soon make the person proficient in the art of picking out in many patterns will not need to take out many threads, however, but will read the pattern direct.

The question will occur as to which are the warp threads and which are the filling threads. A few rules can be given which will assist in determining to which of the sets the threads belong.

1. If on the sample there is a piece of selvage the question is at once decided, as the selvage threads always run in the direction of the warp.

2. If the threads are one way 2-ply and the other single, it is safe to assume that the 2-ply are the warp yarns.

3. If the threads in one section produce a regular set effect and the other not so set but irregular, the first threads are the warp.

4. Reed marks of any kind will at once show which are the warp threads.

5. If there is any nap on the cloth it is supposed to lay in the direction of the warp.

6. If one set of threads are twisted harder than the other, the hardest twist is most invariably the warp, the warp threads are generally the smoothest and strongest and made from the best material.

This latter examination of the threads is very safe in determining to which set the threads belong. Occasionally, particular threads are intended to show prominently. This is often done by an arrangement in the weave, and particular care is required so that the thread can have its right place. The colors and their order must be specially noted, the number of threads in a pattern, and the number of patterns in the width of the cloth.

PEROXIDE VATS.

The introduction of peroxide of sodium bleaching for all kinds of textiles, more particularly, however, the mixtures, has been attended with a good deal of difficulty, due to the fact of strongly rooted prejudices on the part of bleachers and mill owners against the introduction of a new and untried process. Untried it is only in so far as the non-user has not yet tried it, because hundreds of mills could attest its valuable qualities. So as to enable others to really try and become acquainted with its improved method of bleaching, the Roessler & Hasslacher Chemical Company, of New York, have decided to place at the disposal of any large bleacher a small trial bleach vat, built exactly on the lines of the regular vat needed for practical work, for which upon its return in good condition, there will be no charge. The only expense, therefore, connected with the trials to ascertain whether the claims made for peroxide of sodium are based on solid facts, is the cost of the chemicals needed for the experiment, and, in view of the small quantity of the

latter required, this will be very slight. The result of this latest move on the part of this firm has immediately shown its wisdom, the first order for vats having had to be supplemented several times by rush orders for more.—Fibre and Fabric.

LIGHTING THE MILL.

The importance of having the textile mill well lighted is perhaps not regarded so much as it should be. Not only is it a consideration, so far as the health and comfort of the employees is concerned, but it has an important bearing on the quality of the work turned out. In the larger mills, belonging to wealthy companies, no doubt due attention has been given to this matter, but in many of the smaller mills it is treated as of minor importance. Such a condition not only causes a discontented feeling among those operatives who, through no fault of their own, are unable to turn out work as good as some of their fellow workers, but it also causes a variation in the work turned out by the mill, which has been known to result detrimentally to the mill's reputation.

In England, as far back as 1885, special attention was directed to the matter. Quite a number of mills were furnished with ground glass, by means of which, on account of its roughened surface, the light was diffused in the mill. With the ordinary window glass, the rays of light are not bent or diffused, but come in directly or practically so. In cases where the rays are not diffused, the parts of a mill or room that are situated nearest to the windows are, of course, the best lighted, and as one recedes into the interior the light becomes dimmer and dimmer, until in some cases it becomes so faint that artificial light must be employed the brightest days.

While ground glass does not diffuse the rays of light to a great extent, yet it does so more than one would believe would be the case. An examination of the interior of mills in England, using ground glass in place of ordinary window glass, showed that the interior of their rooms was much better lighted, and that the light penetrated farther. Although the difference in the lighting of mills which had these two kinds of windows was not very great, there was a difference, and one that was worth something to English manufacturers.

Noting the value of this diffusion of light, a great advance in the method of effecting it has been made of late. Glass is now made so that the rays of light can be diffused to such an extent that the interior of the largest mills can be given a uniform light. It has been noticed that mills which have availed themselves of the diffusion of light have been able to turn out a more even production, and that the operatives are much more contented with their work and conditions. Happy and contented operatives are the best workmen. Gloomy rooms affect the most sunny-tempered. When by the use of this diffusion of light the whole building can be diffused with God's sunlight, should any short sighted calculations of cost be allowed to figure in the question?

COTTON IN HAWAII.

Jared G. Smith, United States special agent in charge of the Hawaiian Experiment Station, has been successful in his experiments of growing cotton and Sumatra tobacco. He believes that both articles may become staple products of the islands.

IMITATION SILK FROM WOOD.

The American Consul, at Stettin, Germany, has a report on wood silk, that considering the present vogue for trimmings and laces made of that material, will, no doubt, be interesting to our readers. He says, "I have seen samples of imitation silk for weaving purposes manufactured from wood. The process is an English patent, granted to C. H. Stearn, 47 Victoria St., Westminster, London. The rights have been sold for the United States, Germany and France. The German plant at Sydowsane, about five miles from Stettin, is at present turning out about 50 lb. a day of skein silk, but this can be increased to a daily output of 2,000 lb. Wood silk is in great demand and the price has jumped from \$3.89 to \$9.81 per lb.

"The sample shown me was very soft and of a cream color. How this new artificial article compares with the genuine, I am unable to say, as it is impossible to get samples or information as to the processes of manufacturing, except that no particular kind of wood is required, and that the pulp undergoes a chemical process, and is pressed through a very fine tube by hydraulic pressure, forming a strand so fine that it is hardly perceptible to the naked eye, 18 of which go to make up a thread."

REGENERATING SCRAP RUBBER.

A new process has been found out for reclaiming old rubbers, by which an article is obtained which is free from all odor and possesses the entire elasticity of the former article. Ground or finely cut old rubber reduced as finely as possible is heated with about the same weight of castor oil to a temperature of 356 degrees F., to at most 410 degrees F., until dissolved. After cooling, this solution is poured with constant stirring into double the volume of 90 per cent. spirit. The rubber dissolved in the oil will then separate in the form of a tough mass, while the castor oil remains dissolved in the alcohol. The liquid is separated from the rubber and the latter is repeatedly washed, with a small quantity of fresh spirit. As the rubber still contains plenty of spirit, it is washed with warm water, to which some soda lye is added, and finally with pure water.

COTTON DOUBLING—THE TWINER.

It must be understood that doubling is one of the vital and essential principles involved in the production of a really strong, serviceable thread. It is generally recognized that doubling at various stages in an ordinary spinning mill is of vast importance in order to produce a uniform yarn, and without such uniformity it is of course impracticable to obtain a yarn of even moderate strength. At the scatcher, the draw frames, some of the fly frames, and often at the mules or ring frames, this principle is utilized and several portions of cotton put together, so that we get an average of the lots alike in counts, strength and general quality. Apart from inequalities of diameter and counts being overcome in this manner, doubling also affords a means of blending one kind of cotton with another, often with considerable commercial advantage. There have been repeated efforts made to dispense with some of the processes subsequent to spinning in order to produce strong threads, and some of these efforts have met with a moderate amount of success, although, on the whole, it can perhaps hardly be said that a very great amount of headway has been made in this direction. For example, the writer has been frequently asked

whether it would not be feasible to directly spin a coarse single yarn of very high quality, instead of spinning fine yarns and then doubling these together. While, of course there can be no doubt that we can directly spin coarse yarns of high quality, it appears utterly impracticable to produce in this way anything like as good a thread as can be obtained by doubling, no matter what expense and what trouble we may be put to. So far no method has been devised for spinning these tip-top qualities of single yarn, and if too much time, trouble and expense are expended in this direction, it becomes dearer to spin the single yarns than to produce the doubled ones. Notwithstanding all these remarks, it is a fact that improvements in methods and machinery, combined with exact knowledge of trade requirements, have enabled reductions in processes to be made in some special cases. 60's single twist is now used in many cases, where formerly twofold 120's had to be used, and about 90's reverse yarn is now often used in lieu of 180's twofold.—Cotton Factory Times.

METHODS IN MODERN MILLS.

When the term, a modern mill, is used, the average man who is interested in mill affairs thinks of a new building filled with machinery of the latest construction, which includes all the inventions to increase the production, and so arranged that the cost of handling the material as it passes from one machine to another will be reduced to the minimum. The construction of a modern mill building should be such that the greatest amount of light possible is provided for each operative and the sanitary arrangements in accord with the modern practices of plumbing and ventilation. The sanitary arrangements contribute to maintaining the health of the operatives, which ensures the uninterrupted attendance of the operatives at their work, and from that point alone the increased cost is justified on the score of economy, as frequent substitution of one operative for another generally results in a temporary falling off in production. Even in small mills, where all the processes are conducted under one roof, there is a certain amount of necessary handling of the material, as it passes from process to process, that increases the labor cost of production.

When the size of the plant is such that the various processes are conducted in two or more large buildings, the cost of handling the material becomes an important item in the total cost. The importance of economy in transporting the material from point to point within the plant does not seem to have impressed itself on the minds of mill managers with the same force as has the necessity of securing the most economical machinery. The fact that, aside from arranging each series of machines in as close proximity as possible to the next series little has been done, even in mills erected within the last half dozen years, to effect economy in handling materials inside the yard of the plant, is sufficient proof that internal transportation is one of the economic factors that has been neglected.

A very small percentage of mills in America are equipped with appliances for the economical transportation of the different bulky materials used within the yard, and those that are best equipped are not the ones that have been built in recent years, but date back a generation at least. Small mills, that were built more than a generation ago, and which have been enlarged from time to time as their business increased, cannot handle the material so economically as mills of later construction, owing to the defects inherent in piecemeal construction that prevent the best arrangement of each series of machines with relation to the others. Yet managers of some

of these mills have, by the introduction of a system of transportation, reduced the cost of handling the materials used to a minimum; in fact, notwithstanding the defects of construction, the item of cost of handling is less than in the average mill built within ten years, and no one would think of calling these mills antiquated even if they are more than forty years old. With their system of overhead tracks on which beef is run in and out of refrigerators, every dressed beef establishment in the country is an example of economy in internal transportation, a cheap method that is suggestive to people engaged in other occupations.

In both cotton and woollen mills many men are employed in handling material for transportation to different parts of the plant that could be handled and transported more expeditiously and economically by a modified form of the system in use in dressed beef establishments, and this, too, in mills that are called modern, and which are modern in everything except their methods of internal transportation. As an example the method of carrying filling from the spinning room to the weave room and warp beams from the slashing room to the drawing-in room and then to the weave room is practically the same to-day in nearly every mill as was in vogue forty years ago. In small mills a boy or young man wheels the boxes of filling on a truck from point to point, and in the case of large mills the filling is loaded on a team and drawn through the yard to the weave room by a horse. This is more economical than to wheel the filling on a truck propelled by man power, but far from economical when the time and energy wasted by the workman under that system are compared with the time and energy that are consumed in transporting an equal bulk by an overhead track system. The same may be said of handling warps, which are first sent to the drawing-in room, and after drawing-in are generally piled in tiers in the drawing-in room or on the spare floor of the weave room. Some mills employ a man to wheel the beams on a hard truck. Whether it be filling or beams that are being transported, a man using the overhead track system can handle more of them in a given time than he can by the truck system, and it is the amount of work performed in a given time that decides the value of a machine, system or laborer. In a mill having on an average a hundred or more beams to be placed in the looms every day the difference in the amount of labor performed under the two systems means a saving to the mill using the overhead track system. In the matter of transporting heavy, bulky material from point to point in the yard it can be as profitably utilized in the yard as in the mill buildings for less weighty packages.

The overhead track system is not the only way by which the cost of internal transportation may be reduced to the minimum. One mill has a trunk system through which all the cotton used is blown from the opening room to the picker room, a distance of about 800 feet. This system saves the labor of several men and a horse that would be necessary if the system of transportation in use in the majority of mills was followed. Another mill uses the trunk system to convey the wool from the scouring house to the bins in the picker room. Both of these mills were built many years ago, yet both are using a system by which a great saving in the cost of handling material is effected, and which could be profitably adopted by nearly all the large cotton and woollen mills in the country.—Wool and Cotton Reporter.

HOSIERY DYEING.

The sulphur dyes give by far the best results hitherto obtained in stocking dyeing. It is true that their use re-

quires care, but the results achieved show it is only a question of time for every stocking dyer to use the new dyes, or rather to use them in the manner which has now been worked out, and which is much newer than the dyes themselves.

Every form of cotton has a remarkable affinity for sulphur black, and when dyed with it at the bolt, with the proper adjuncts, takes a black which is very fast indeed. Bleeding and rubbing of the color will only happen if the rinsing has been badly done, and the dye properly applied will last as long as the stocking. Many sulphur blacks are substantive, but others have to be fixed, and the mordanting is almost always done in practice with bichromate or with sulphate of copper. These two oxidizing agents give not only the cheapest but the best results. Some of the sulphur dyes need especial precautions against the action of the atmosphere, so that the goods must be kept constantly immersed. Others, again, require the addition of sodium sulphide to the bath, and others do not. A few require the co-operation of caustic soda in the dyebath. Whatever the particular method of working may be in the case of individual dyes, the results are exactly the same, provided it is adhered to. The only important point with all sulphur blacks, without reference to the peculiarities of the different baths, is that they must be dyed at the boil. If this is neglected the color will be inferior in all its qualities.

Stockings dyed with sulphur blacks are left in a very suitable state for finishing, and wear quite as well as stockings dyed with aniline black, and there is no fear of the fibre being injured, whereas it is frequently damaged by aniline black. The cost of dye is also less than with aniline black, especially as the apparatus required is very much simpler. The process is also more rapid, so that more goods can be dyed with a sulphur black in a given time than with aniline black. It is advisable to dye the cotton in the yarn, as that gives better results than dyeing the finished stockings.—Textile Excelsior.

FABRIC ITEMS.

The United States now takes half the world's crop of rubber.

The 12,500,000 sheep in Montana yielded this year 37,500,000 pounds of wool, which at 16 cents a pound proved a good investment.

Colin Fraser, a northern trader, arrived recently at Edmonton with a pack of furs which is said to be the largest individual pack ever received at that point. Its value was between \$40,000 and \$50,000.

Prices of domestic cotton goods are very firm in Canada, owing to the high price of raw cotton. The mills refuse to make concessions, nor have they any occasion to, as they have no surplus stocks on hand.

Andrew Carnegie has offered to give \$2,500,000 in United States Steel Corporation bonds to Dunfermline, Scotland, his birthplace, to encourage horticulture among the working classes, and the advancement of technical education in the district, which is the centre of the linen industry.

Spring goods are showing a strong tendency towards plain lines. The colors that are most popular are shades of blue, greens, browns, drab and greys. The worsted open weaves, such as etamines, burlaps, honeycombs and hop sack weaves, promise to be much in evidence during the next twelve months in the costume trade.

The rubber crop of Brazil, for the season 1901-02, was the largest ever produced—29,908 tons—and that of 1902-03 is only 108 tons less. Of last season's crop, Europe took 15,201 tons, and the United States 14,566 tons, an increase in shipments to the United States over the previous year of 510 tons, while the shipments to Europe fell off correspondingly.

The Indian Textile Journal reports that a movement is on foot for extensive manufacture of aloë fibre. A Madras syndicate has approached the railways for leasing the aloë hedges along their lines for this purpose, and about 3,000 acres of land are said to have been acquired not far from Madras. In view of the extensive cultivation of plants, the venture is expected to prove a thriving industry in Southern India.

A process claiming to make materials waterproof, without interfering with their permeability to air or perspiration, is the subject of a German patent. The goods are first impregnated with a solution of acetate of alumina, and after drying are brought into another solution containing wool fat, wool sweat, or lanolin, in a suitable fluid solvent. Part combines with the alumina, and the excess is squeezed out.

Among the many interesting machines which the Crompton-Knowles Loom Works turn out is one for weaving cloth from wood fibre. This cloth while in process possesses all the lustre and brilliancy of silk, and one is amazed when told that the yarn is spun from wood. This wood cloth is adaptable for certain kinds of dress in the tropics and to the upholsterer man it suggests many applications in the field of drapery and decoration.

From a communication sent to the German press by representatives of the jute industry, it appears that the limitation of the output is quite as great in Austria as in Germany. Further, it is stated that several of the large German jute spinners are about to take up the manufacture, on a large scale, of cellulose yarns. Cellulose yarns, compared with jute yarns, are at a disadvantage in respect of durability and power to resist damp, but on the other hand, they are smooth, do not teaze, they are odorless, and have the advantage of being cheaper than jute yarns.

All kinds of cotton cordage, including clothes line, wrapping twine, mops, etc., is very firm and somewhat scarce in United States markets. Some of the factories have shut down, owing to the fact that they cannot make cordage at the price which they are getting, and cannot force the price upon the present market. Owing, perhaps, to the letting up of the demand for binder twine and the fact that there will be a surplus left over, the prices on sisal cordage have declined. Some of the mills that have been making twine have gone back to rope and other kinds of cordage.

Parker's laundry, at Peterboro, has installed a machine by which anything from a handkerchief to a tablecloth or bed sheet can be washed and ironed at low cost, and without damaging the goods, as the rubbing of the iron is dispensed with. The cloth is passed on to a large roller, on which four other rollers revolve. The four rollers, which are about eight inches in diameter, are well padded, and do not injure the cloth in the slightest. The large roller is made of steel. It is hollow, and when working, steam is passed into it, thus heating it to any required temperature. The operation is rapid, and a beautiful finish given to the goods.

According to a French paper, there is a man in London who possesses a remarkable straw hat. For years past he has followed the King about at foreign water-places, and wherever he saw the Prince of Wales, as the King was then, drinking anything through a straw, he pounced down upon the straws and added them to his collection. Last year this strange collector had gathered such a bundle of straws that he had a hat made of them, and is now the proud possessor of a head-covering which he claims, and probably with justice, is absolutely unique.

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.

Issherwood & Sons are starting a woolen mill at Fort Frances, Ont.

The Empire Carpet Co., of St. Catharines, has rebuilt the part of their factory recently burned, and is fitting it up with improved machinery.

T. Berry, superintendent of the Canada Woolen Mills at Hespeler, has resigned and is succeeded by Mr. Gledhill of Huddersfield, Yorkshire, England.

The York and Cornwall cotton mills at St. John, N.B., had to shut down for a few days on account of shafting in the dyehouse being broken. A new roof was put on the building and other repairs made during the shut-down.

It is announced that the capacity of the Minnesota prison twine plant at Stillwater is to be increased again. This year the plant produced 7,000,000 pounds and present plans are to increase the output to 9,000,000 for next harvest.

The Slingsby Mfg. Co., of Brantford, has installed five new sets of 60-inch cards and a 384-spindle mule. The factory has been enlarged since the fire of December 9th last, and is now running night and day. Bed and horse blankets are the chief lines manufactured. Titus Berry is superintendent.

The International Harvester Company intends opening a binder twine factory in connection with its works at Hamilton. Building operations will be begun at once. About 500 hands, largely women, will be employed at first, but the company expects to increase the number to 1,000 within a year.

The new building which the Toronto Carpet Mfg. Co. is erecting is expected to be ready for the machinery in January. It will be devoted to the carding and spinning of wool and worsted yarns, and the manufacture of Wilton and Brussels carpet. The making of Axminster has been dropped, and the old factory will be occupied by the ingrain and Smyrna plants.

The Dominion Belting Co., Hamilton, is turning out about 6,000 feet a day of its cotton duck belting. Its plant occupies a two-story brick building adjoining the Hamilton Cotton Mills Co. The belting is made from cotton duck manufactured by the Hamilton Cotton Mills Co. It is what is known as stitched oiled cotton duck belting, the duck being treated by a special preparation perfected by the superintendent of the company, the use of which improves its tensile strength, pliability and weight, and prevents it from stretching. The company is strictly Canadian, having been organized last January by John J. McGill, of Montreal; C. T. Grantham, J. M. Young and David Bell, of Hamilton.

The mills of the Montreal Cotton Co., at Valleyfield, are closed for a week. There was a big stock of raw material on hand at this mill when the market was cornered. The company is now putting up an \$80,000 building.

The shipping clerk of the Gibson Cotton Mill, at Marysville, N.B., informs the Fredericton Gleaner that the mill's output of manufactured cotton for the months of June and July has been a record breaker, having amounted to the sum of three hundred and fifty thousand dollars. The goods have been shipped to all parts of Canada, from Halifax to Vancouver. There is not a mill in Canada with a better record than the Gibson cotton mill.

The Canadian Cordage & Manufacturing Company's factory at Peterboro resumed operations August 31st, after having been closed two weeks for the purpose of cleaning up and making necessary repairs to the machinery after the year's run. The entire output has been disposed of, and none carried over to next season. The company is considerably behind in filling its orders for rope. Thomas F. Connor, of the Boston Rope and Twine Company, Boston, Mass., has succeeded C. F. Holmes as superintendent. It is proposed to enlarge the plant to meet the demand.

The T. Eaton Co.'s new manufactory at Oshawa was formally opened on September 7th. The building is a handsome three-story structure, built entirely of pressed brick, lighted throughout by electricity, and heated by steam. The floors are all hardwood, and the ceilings fancy metal. It contains a waterworks system of its own, and affords bright, cheery and healthful workshops for its occupants. The firm will manufacture whitewear exclusively, and the factory is supplied with the newest and best machinery, operated by electric motors. As yet only part of the machines are installed, and only about twenty women have commenced work, but more will be taken on as fast as machines can be installed. Fifty hands will be employed this winter, and next spring one hundred more.

Voting will take place at Orillia on September 21st, on the by-law to aid in the establishment of a linen factory in that town. The principal items in the agreement are: 1. The town agrees to guarantee the company's bonds for a third of the amount expended on the plant, provided that no guarantee is to be given until \$100,000 has been spent, and that the total guarantee is not to exceed \$50,000. 2. The town gives a free site of five acres. 3. The town gives a fixed assessment of \$10,000 for ten years, dating from Jan. 1st, 1904. 4. The town to supply electric energy at \$16 a horse-power, guaranteeing the price for five years. 5. The company to have the privilege of using water from the lake. 6. The company agrees to expend at least \$100,000 on plant and machinery, to employ not fewer than a hundred hands, and to begin work within six months of the time the by-law is passed. The Dominion Linen Mills Co., of which E. J. Pauley, who has been carrying on the negotiations, is president, is composed of Nova Scotia capitalists, who are coming to Ontario to manufacture because it is more central. They believe there is an opening in Canada for manufacturing linen, of which all that is used in this country is now imported. They will manufacture from the raw flax to the finished article, and will bring the flax from the west if necessary, though it is expected that the establishment of the mill will result in considerable being grown round Orillia. While they bind themselves to expend only \$100,000 and to employ only a hundred hands, the company anticipates a much larger outlay, and a staff of five or six hundred when in full working order. The factory, for which plans have been made, will have a frontage of three hundred and eighty feet.

BUSINESS NOTES.

The Star Mantle Manufacturing Co. has commenced the making of mantles, cloaks, etc., in Montreal. A. Loeb is manager.

The Excelsior Clothing Co., is the name of a new clothing manufacturing firm in Montreal. S. Fels is head of the concern.

The ratepayers of Cayuga, Ont., have agreed by a vote of 118 to 12 to give a loan of \$8,000 to a tannery, glove and suspender factory.

Richard Jones Dawson, carrying on business under the name of the Capital Laundry, at Ottawa, has assigned to E. A. Larmonth.

The Montreal Cotton Company has declared a quarterly dividend of 2¼ per cent., being at the rate of 9 per cent. per annum, to be paid September 15th.

J. F. Munnis, a large wholesale clothing dealer, of Halifax, has assigned. Several Toronto houses are interested. The liabilities are placed at \$30,000.

A syndicate has been formed in Boston, Mass., under the name of the United States Cotton Co., with a capital of \$40,000,000, for the purpose of manufacturing cotton goods.

The statement of the liquidator in the matter of the Strathcona Rubber Co., of Montreal, shows the merchandise liabilities to be about \$29,300, and privileged claims \$2,400. Apparent assets are shown to the amount of \$36,147.

It has been decided to liquidate the Northrop Iron Works, of Valleyfield, Que. The company was incorporated as the Northrop Loom Co., in May, 1898, with a capital of \$100,000, but the capital was afterwards increased to \$200,000 and the style changed as above. The intention was first to manufacture looms and textile machinery.

The Standard Last Co. is the name of the new company which takes up the business of the Granby Last Co. The principals are J. R. Libby and J. T. Hart. The former learned the business in one of the leading United States factories, and for a number of years was designer and last maker for the Canadian Rubber Company in Montreal. The new company has secured the work of the Granby Rubber Company and the Canadian Rubber Company, and is negotiating with other factories.

The Brantford Cordage Company has been authorized to increase its capital from \$100,000 to \$250,000, and will install new machinery for the manufacture of binder twine. It makes the following brands: Gilt Edge, 650 feet; Gold Leaf, 600 feet; Silver Leaf, 550 feet; Maple Leaf, 500 feet. The present officers of the company are: S. G. Kitchen, president; Fred. Chalcraft, vice-president and general manager; C. E. Birkett, secretary-treasurer; C. L. Messecar, general sales agent. The Brandon Binder Twine Co. will also increase its capital from \$100,000 to \$200,000.

At a meeting of the shareholders of the Dominion Carpet Company, held at their head office in London, on the 14th of August, the following resolutions were passed: 1. That it has been proved to the satisfaction of the Company that it cannot, by reason of its liabilities, continue its business, and that it is advisable to wind up the same, and that the Company be wound up accordingly. 2. That Mr. Hugh C. Rabbidge, Chartered Accountant, of 32 Poultry, London, E.C., be appointed to carry out the winding up. A meeting of the creditors, contributories and shareholders has been ordered to be held at Sherbrooke, September 15th, for the purpose of appointing a liquidator.

The following new textile companies have been incorporated: The H. H. Crosby Co., \$20,000, Hebron, N.S.; to carry on a leather and rubber manufacturing business, B. H. Redding, K. E. Crosby, G. M. Crosby, and others. The Stratford Knitting Company, \$40,000, Stratford, Ont.; R. M. Ballantyne, Carlotta L. Ballantyne, K. C. Turnbull, W. W. Gray, and Belle Turnbull. Revillon Canada Far North Co., \$250,000, Montreal; to trade in furs, etc.; E. A. Revillon, T. L. Revillon, of Paris, France, and others. McKenna, Chas. A. Thomson, and others, to manufacture clothing.

The J. Stevens Arms and Wool Company, Chicopee Falls, Mass., has issued a supplementary list of new goods, illustrating the drop forged frame and sliding breech-block action on the new No. 44½ Ideal rifle. This new action is now put on all Ideal rifles, No. 44½ to No. 54 inclusive. The new single trigger action single guns, with drop forged frame, are proving very popular, and the demand has been much greater than the company anticipated, hence they have been obliged to "back order" these goods all the season. On the back page of the cover the Stevens-Pope Re and De capper, also Stevens' Anti-rust gun grease and the No. 505 bristle-end cleaning rod are shown. The company will mail this supplementary catalogue together with the complete catalogue upon application.

Personal

James Alexander, trades chemist, of Pittsburg, Penn., is making a business tour in Canada.

W. C. Caldwell, M.P.P., who is engaged in the woolen business at Lanark, has been seriously ill, but is now on the way to recovery.

W. J. McMurtry, who for twelve years has been in the hardware business in St. Thomas and Galt, is engaging in the manufacture of Arctic robes at Berlin, Ont., where he has a factory in operation.

Mr. Saulnier, head of the firm of Saulnier, DeCelles & Altman, proprietors of the Union Hat Works, at Brockville, had a narrow escape recently from drowning. He went into the St. Lawrence for a bathe and took a chill and cramp and sank in eight feet of water. A. DeCelles made two dives, but was unable to bring him to the surface. He was finally rescued in an exhausted condition and revived by the methods employed in such cases.

William Doyle, manager of the Maple Leaf Woolen Mills at Markham, and his wife, were struck by a C.P.R. train at Reesor's crossing, on August 19th, while driving to Oshawa. The buggy was smashed to pieces and the horse instantly killed. Mr. and Mrs. Doyle were thrown some distance. Mr. Doyle was only slightly bruised, but Mrs. Doyle was considerably cut and rendered unconscious. Their escape from being killed was a narrow one.

The death is announced of Adam Murray Queen, who was born at Guelph, and commenced his career in a woolen mill in Canada. His father removed to Hyde Park, Mass., and the son went with him, going into a mill there as piecer with his father. He rapidly rose, serving in the office and the pattern room, but he preferred sailing, and it was while filling the position of second officer on a steamer between Boston and Baltimore that death came suddenly, at the early age of 25 years and 5 months.

Samuel Finley, one of the best known figures in the business life of Montreal, died on September 1st, of pneumonia, contracted while on a visit to England. He was a native of Ireland, and commenced his business career in Londonderry, afterwards residing in London and Melbourne, Australia, where he established the wholesale dry goods house of Samuel Finley & Co. In 1865 he came to Montreal, and became a partner in the wholesale dry goods business of Gault Bros. & Co., from which he retired in 1885, after a most successful business career. He was a brother-in-law of the late A. F. Gault, of the same firm.

FLAX IN CANADA.

E. A. Wismer, secretary of the Essex Board of Trade, writes to the Monetary Times to say that in the counties of Essex, Kent and Lambton there are about three thousand acres of flax grown this year for the fibre. Within the last year or two a couple of flax mills have been established in the county of Essex. The flax fibre produced there is of first-class quality, and not excelled anywhere in Canada. A. J. Raymond, the owner of the flax mills at Essex, has 1,200 acres this season of excellent flax.

John Curran, of Orillia, has two letters in the Globe, of August 15th and 22nd, in which he refers to enquiries by Mr. Morton, secretary of the Flax Growers' Association of Belfast, Ireland, as to the possibility of obtaining flax fibre in Canada. Mr. Curran states that there are thousands of acres around Lake Simcoe suitable for growing flax, where flax holes or open drains for steeping could be made, the soil being eminently suitable for that purpose. The township of Rama is also well adapted for growing flax. He asserts that good seed is the first requisite, the quality having been allowed to deteriorate because flax is grown in Canada principally for the seed. Dutch or Riga seed should, he says, be procured, the former being the best for lowlands, the latter for uplands. It is well to see interest being aroused in this matter. It cannot fail to be productive of good results.

NEW METHOD OF TREATING CLOTH AND YARN.

A new process of treating fabrics and yarns, says the Textile Manufacturer, has been recently patented by a Paris manufacturer, which cuts down the operations of dyeing, finishing and loading to one process. The method is based on the use of neutral or acid solutions of casein without it being necessary to introduce ultimate physical or chemical actions (formaldehyde vaporization) or chemicals (such as alum, tannin, or forma) for ensuring the fixing of the loading or dyeing substances. This fixing is obtained in a single operation by the reactions of the components of the weighting or dyeing bath. The process is chiefly intended for silk and may be carried out by the use of casein solutions by oiling for spinning, (for raw textiles which are oiled), or by use of the solution of casein in the course of the industrial working: the result may be obtained by steeping in the case of spun or woven goods, or even by way of sizing for finished goods. The following are examples of bath preparation:

1. Ten kilos of dry casein are soaked in 500 litres of cold water, and then 2 kilos neutral soap (without free alkali) are added, and a further 100 litres of water. It is then heated to 50 degrees with stirring, and then the weighting or loading substances (silicate of alumina, kaolin, china clay, paste, and the like) are introduced, and are thoroughly mixed into the bath, it being evident that the proportion of the weighting

substances will vary according to the result to be obtained, and that the proportion of casein must be at least 6 per cent. of the charge; then the bath is thoroughly tempered or diluted, and finally the coloring matter is added either in soluble or pulverulent form, and the bath is made up with 100 litres of water.

2. For colors and silk finishes—for instance, for colors adapted to be developed in acid baths—the operation is carried on in the following manner: The casein in powder (in the same proportion as previously mentioned) is put to soak or swell in water containing two per cent. of glycerine (the glycerine having for its object to ensure the swelling), 2 to 5 per cent. of lactic acid is added, then the weighting or loading substances in proportion to the results to be obtained, and finally the coloring matters, which vary according to the shade of dyeing to be obtained.

3. In order to work in an aqueous bath without the addition of soap or acid, it is necessary to operate on fresh casein, the weight of water representing four times the weight of the substance under maceration, this substance under maceration containing 30 to 40 per cent. of pure undried casein; or to directly extract the casein of leguminosae or cereals which contain it. In this case the fresh casein or the leguminosae cereals containing casein are macerated in lukewarm water containing 3 to 4 per cent. of glycerine; then the solution is filtered or strained in order to separate the dissolved casein from the insoluble residue. To this solution of casein are then added the weighting and tinctorial substances in variable proportions, according to the object which it is desired to attain.

A REMARKABLE CARPET.

A Persian carpet, in all senses remarkable, was recently exhibited at the Ethnographical Museum in Rotterdam. The carpet is a gift from the Shah to Queen Wilhelmina, as a souvenir of his visits to Holland. The carpet measures about 68 square yards, and contains a quarter of a million points to the square yard. The total number of points is 16,500,000. It has taken three years of continuous labor to make this splendid specimen of Persian work. There is worked into it, in the Persian character, the following inscription: "Souvenir of H. M. Mozaffer-ed-dir-Shah, Emperor of Persia, to H. M., Wilhelmina, Queen of Holland. In the year of the Hesirra, 1320; year of the miraculous birth, 1912."

CLAY DIAGONALS.

Not so much is heard of clay diagonals as in former years. Tinte was when the clay diagonal was the prominent factor of the market, the dominating fabric, when it was looked upon as the barometer of the trade. To-day it has no such hold, for while its sales are large and while it has a business of huge proportions, it has lost some of its prestige, and can be no longer regarded as the one controlling factor in the men's wear market. The thibet has had an appreciable effect upon the sales of clay diagonals, and more recently the demand for fancy goods has also been a factor of some potency. But whatever the causes, the clay is no longer the factor that it was. At the same time one cannot ignore the potency of this fabric, as a market factor, and when prices are made the trade looks to them with interest; it matters not whether the clothier may handle the goods, he still regards the price as of peculiar interest

to him. So, too, the men's wear agent, who may never sell a yard of piece dyes, waxes with peculiar interest the naming of prices. All of this, too, when the prices of the dyes are not regarded as having any material or appreciable effect upon the prices of fancy goods. Sympathy, however, extends from one fabric to another, and even though the commission merchant may deny that there is any relation between the price of a fancy and the price of a piece dye, he may prefer to see prices stable than to see them change.

In a way the market has been somewhat thrown back by the American's new prices on the piece dyes, but no one today takes these prices as foreshadowing any serious disturbance to the fancy goods market. In point of fact, the price the American has placed upon its goods is really the price of the spring season of a year ago, the season which is necessarily brought into comparison when prices are considered with the present season. A line of spring goods is opened, and invariably the comparison is made with the previous spring season. The American has simply restored the prices of the spring season of a year ago. But whether or not there is any sophistry in this method of arguing, the fact remains that the American has probably made prices according to his judgment.—Textile Manufacturing Journal.

IMPROVED METHOD OF MERCERIZING COTTON ROVINGS AND YARNS.

Difficulty has been experienced in obtaining a good lustre by mercerizing cotton rovings owing to the inability to cause resistance of individual fibres to shrinkage. This has been partly overcome by giving the rovings extra twist, a process which causes extra expense, and is not found to give satisfactory results. An English invention is designed to obviate these difficulties by using perforated drums, say 2 ft. in diameter and 3 ft. 6 in. long, and cross winding the normally twisted roving on to them. If the whole be now put through the mercerizing process, the inner layers of roving grip the drum, while the outer ones grip the inner, the result being that shrinkage is prevented. After drying, the roving may then pass into the spinning operation in the ordinary way. The same process applied to yarn does away with the reeling into hanks and spooling, which is at present necessary in yarn mercerizing.

PRICE TAGS ON CLOTHES.

A peculiar custom of the peasantry in remote parts of Italy is the wearing of price tags on new dresses and suits of clothes. While in most countries the custom obtains of promptly removing such indication of the purchase price the moment a garment is bought, rural folk in Italy take pains to sew them on the more securely, in order that they may not drop off accidentally. This practice is indulged in by the more prosperous peasantry, corresponding to the well-to-do farmer class of this country. The observer of social conditions may well ask why this custom of wearing price marks on clothes has not found favor in the United States, where ostentation on the part of our new rich runs riot, writes Robert Webster Jones, in the Housekeeper. Many a woman of wealth is heard to complain that her maid-servant, on a much smaller outlay, by wearing cheap, but almost perfect imitations of the original, can present as fashionable an appearance as herself. The plush garment of modish design often looks as well as the seal-skin, costing ten times as much; paste ornaments cannot be told from diamonds except

by the expert. Complaint of the same character is made by the man who patronizes an expensive tailor. The great improvements effected by the manufacturers of ready-made clothing have made it possible for the \$10-a-week clerk to appear as well dressed as his \$1,000-a-week employer. All this, of course, is most distressing to the person who wishes to get the worth of his or her money. What is the use of wearing expensive clothes if one's neighbors do not appreciate them? The universal wearing of price tags would remove this difficulty, and the woman with a new \$100 gown, or \$50 hat would derive thrice the satisfaction from wearing them than she does at present; that is, provided her neighbors were wearing nothing better. One danger, to be sure, would be the incentive to prevarication; it would be so easy to change the figures. But anything would be better than last year's make-over.

AUTOMATIC MEASURING MOTION FOR LOOMS.

Inventors, at present, says the Textile Journal, are seriously concerned in the perfecting of mechanical devices for lessening the cost of weaving, and this is of such vital importance that the evolution of the automatic loom is being watched with the greatest possible interest. The advent of the Northrop loom has been primarily responsible for the anxiety that is felt amongst our manufacturers for there being placed on the market a machine that will produce a perfect piece on the minimum-of-cost and maximum-of-output principle; but they have not been as progressive in the introduction of the automatic loom—whether of the cop-changing or shuttle-changing character—as have been our American competitors; the Northrop has taken a prominent place in the cop-changing category, but English manufacturers have not, as yet, resolved to any appreciable extent on its installation. They have expected, doubtless, that an invention would be brought out which would out-Northrop the Northrop, and their hesitancy has certainly tended to encourage men of an inventive turn to devise some automatic arrangement which would meet the conditions of our manufacturers. Economy seems to have been the watchword of our inventors of automatic devices, and we find, in a large number of instances, that the invention aimed at has been chiefly in the form of a loom attachment. The great difficulty, in most cases, has been the prevention of what are known to weavers as traps. Where the automatic loom having a number of shuttles is concerned great trouble has arisen, in case the picking-traps have broken at the end opposite the changing end while the shuttle is in the box, the risk being that every shuttle in the magazine is fed into the shed unless the weaver happens to notice the accident. This has been the stumbling-block in the experience of several of the inventors of automatic weaving mechanisms, who have now passed out of notice. Of these inventions, the recently marketed automatic attachment of James Cowburn is taking its place among the practically tested systems, and several prominent loom makers are now licensed to make and apply the system, and are doing so for several manufacturers at home and abroad; but the majority of the other inventions which have been brought before the trade may be said to be still in their experimental stage.

An appliance which has just been invented by Harry C. Howarth, a member of the firm who own Meadow Mills, at Failsworth, is being very highly spoken of in textile circles in Lancashire, and manufacturers who have been wanting an automatic shuttle-changing loom which would cheapen the cost of production and make perfect textile

goods, will be inclined to acknowledge—in many instances they have already done so—that whilst machinists have been devoting their efforts towards cheapening the production of cloth regardless of improving the quality of that production, Mr. Howarth's invention is calculated to complete their work, having regard, as he says, to the absolute necessity that more perfect goods must be the outcome of the automatic looms, as well as the cheapening of the production. Mr. Howarth claims that his appliance can be easily attached at a reasonable cost to existing one-shuttle looms, and to existing automatic shuttle-changing looms.

"Where the inventors of automatic looms have left off," said Mr. Howarth, when demonstrating the mechanism of his appliance, "I have commenced, or, rather, I have started before coming to this point." Mr. Howarth, as a practical manufacturer, has recognized and has aimed at surmounting the obstacle presented in all automatic looms, whereby broken picks and thick and thin places in the weave have been general; hitherto, the mechanism has not come into operation until the weft fork has sprung out; and if the weft fork has not been depended upon, a kind of feeler arrangement has been introduced, which, so far, has not proved a success, the feelers having been, in Mr. Howarth's opinion, far too intricate and sensitive in construction.

The principle of the appliance under notice is based on the measurement of yarn on the cop and the automatic mechanism has been applied to operate in accordance with this. This measuring of the yarn is in itself a unique idea, and, withal, a very important one. Of course, it means that the manufacturer must be able to procure his yarn spun to a given length; but this is simply a matter of arrangement; in the spinning room a minder, big piecer and little piecer, looking after, say, about 2,000 spindles, cannot have a great number of breakages, and it follows that where 1,000 or 2,000 spindles are running for the same draw—63 or 64 inches in a draw—the cops are bound to be of one length. This leads us then to the point that it is feasible for the manufacturer to order from the spinner cops bearing a certain number of yards of yarn.

"Length of yarn on a cop," Mr. Howarth remarked, "leads to another very important circumstance to my mind, and that is this; if you have a standard to work to, you can calculate in this way—in the case of 12's cop you multiply 12 by 40; of 16's cop, you multiply 16 by 40, giving in one case 480 yards, and in the other 640 yards; in both these cases you will have 21 cops to the pound; and the same rule will bear out, if you have a standard to go by—from 1's to 26's you will always have 21 cops to the pound. From 26's to 60's you will multiply the counts by 30, which will give 28 cops to the pound. That is, working by calculation, and we do work by calculation in all mills."

So, on the basis that it is possible to obtain the supplies of yarn on the cop in accordance with a given measurement. Mr. Howarth has invented his automatic motion, the general foundation of which is as follows: Divide the width of the cloth into the number of inches of yarn, which gives the picks. Having determined the number of picks that will come off the cop, all that is necessary is to count the picks. This counting is done by means of a cam on the second motion shaft, which actuates a lever. This works a latch and catch principle on the ratchet wheel, which drives a pinion geared into a carrier wheel. This operates what is termed the scroll wheel, the scroll having its effect on a spring handle timed with the weft fork. It is by this means that the picks are counted. The shuttle is turned out at a suitable cop bottom with a minimum amount of waste. Mr

Howarth has permitted us to see his attachment at work on a Blackburn automatic loom, and we observed for ourselves that the cop waste was very much reduced from the ordinary loom waste. The whole contrivance appeared to be as positive in its action as it was simple in its mechanism, and it seems as if this invention has carried the incomplete automatic loom an important step forward to the point where it may become effectual and satisfactory. Mr. Howarth is confident that he has successfully surmounted the difficulties which have apparently perplexed other inventors, and many experts who have already examined his appliance universally credit him with a great achievement.

The advantages claimed for the attachment by Mr. Howarth are: (1) Cop waste is used as hitherto, avoiding ring welt and special spools; (2) no special shuttle is required; (3) no welt feeler is required; therefore, the welt coming off the cop is not impeded; (4) no thick or thin places or broken picks are made in the cloth at the changing of the shuttle; (5) no pick finding is required in making of twill, stitch, or dobby cloths; (6) welt is used up to a scientific maximum, and waste reduced to the same minimum; (7) the delicate management in the matter of excessive waste (especially where coarse counts of welt are used), to avoid having it carried away or destroyed, is overcome—the exact quantity must perforce come into the warehouse; (8) instead of being compelled to admit that your goods are not so perfect, consequent upon being manufactured by automatic shuttle-changing looms, the difficulty will be to make imperfect goods.

Mr. Howarth further maintains that his appliance will last as long as the loom is a loom, and it cannot get out of order, all delicate mechanism being done away with. The appliance is about to be attached at once to all the existing ordinary looms in Messrs. Howarth's factory—a circumstance which proves their confidence in its adaptability to ordinary one-shuttle looms as well as to automatic shuttle-changing looms.

HOW DYESTUFFS ARE NAMED.

Owing to the complicated chemical formulæ, and correspondingly long names of the chemical compounds representing the so-called aniline dyes, short, suggestive, or catchy names were given them from the outset. The practice was in imitation of the alchemists, who sought to shroud in mystery every new compound they brought forth, and gave fanciful names to what are now common articles of trade. Not that the dye makers intended to deceive, for they had no occasion to, being protected by patents, which likewise revealed their secret, but for convenience. It is easier for a dyer to order ten pounds of Malachite Green than to ask for the double oxalate of zinc and tetramethyldiamidodiphenylmethane, which is the true name of the substance.

In some instances the commercial names are an indication of the chemical nature of the dye; in others, are suggestive of its shade or properties, Greek and Latin words being compounded to make the name; and in other cases the names are pure fancy, gotten up to catch the ear, which is accustomed to hearing some popular proper name, and thus lends its popularity to the dye for the time being, although later the significance is lost and the dye stands alone on its own merits. Such a case is found in Magenta, which was named after the battle, but now seems to be a part of our language, although the origin of the name is forgotten. Its other name is interesting, and has two explanations; the first and simplest is, that it resembled in color the flower called Fuchsia, hence

Fuchsine. The second story is, that the Germans objected to it being named after Renard Bros., the silk dyers of Paris, who were the first to use it. Now renard is the French name for fox, and the German equivalent is fuchs, hence instead of calling the color Renardine they called it Fuchsine.

Bismarck Brown was named in honor of the great chancellor.

Malachite Green dyes a shade resembling the color of the mineral Malachite.

Names like Hoffman's Violet and Meloda's Blue are given in honor of their discoverers.

Victoria Blue after the late English Queen.

Congo Red was named when African affairs occupied the attention of Europe. Soudan was a popular name at this time; likewise Guinea, Nubia, Zambesi, Nyanza, advantage being taken of the allusion, dark continent, to give such names to blacks.

Columbia, Chicago, Eric, were given about the time of the World's Fair, to cater to American trade.

Lehigh Blacks allude to the coal for which Lehigh County is famous.

The Titan colors are named after the Titans of Greek mythology. They were beings of great strength. A very good name for a series of colors, but the one who christened them should have looked up the family history of the Titans, and he would have seen that they went to Tartarus (Hades). I mean no reflection on the colors themselves, for if they ever went to that locality they would be found to stand hot pressing quite well.

The name Bengal Blue refers more to Bengal indigo than to the town.

Bordeaux in a like manner does not take its name from the city, but from the color of the wine of that name.

Names having a deeper significance are such as Primuline, from primula, a primrose.

Mimosa, after the flower of the same name and color.

Rhodamine, from rhodos, the Greek name of a rose. Rosophenine, from the Latin rosa. In both cases the endings, -amine and -phenine, are of chemical origin, but mean nothing. Such name endings are selected for their sound only; if they help form an attractive name, their real meaning counts little. Induline, for instance, has ind, from indigo, which in turn is distantly related to India, but the -uline, aside from the -ine, meaning like, is only added for its sound.

Safranine is a misnomer, and would have been a good name for a yellow like saffron, instead of a red.

Curcume is from curcuma, meaning turmeric.

Chrysamine, and others beginning with chrys, like chrysoidine, chrysofene, etc., are from the Greek word meaning gold. The Latin word aurum (gold) gives us such names as Auramine, which is exactly similar to the Greek Chrysamine.

Citronine is from citrus, a lemon.

Chromotrope, Polychromine, Chromium, and such names, are from chromos, color, and usually refer to substances which are capable of giving a variety of colors.

Cyanol Cyanine, and others containing cyan, are derived from a Greek word, kyanos (blue).

Eosine, Eosamine, from eos, the blush of dawn, probably the most poetically named dye.

Flavine, and others having flav in the word, are derived from the Latin word meaning yellow.

Gallocyanine, Galleine, and others similar, come from Gallic acid, which in turn takes its name from the common nut-gall.

Most names commencing ind refer to indigo, which, as before stated, has a connection with India

Irisamine, from iris, the rainbow.

Nigrosine, from niger, black.

Pyramine, Pyronine, from the Greek for fire.

Thio is the Greek root meaning sulphur, and sulpho the Latin.

Uramine is not named from the planet, but from the element, Uranium, whose compounds show fluorescence (now said to be really due to radium contained in them).

Lanacyl, Lanafuchsine, etc., from lana, wool.

The chemical names are as a rule only partly suggestive of the composition of the colors, and have usually been adopted from regular names to meet conditions. Thus, Benzo refers to benzidine, which is the same as diphenyl, while diamine refers more particularly to such products as phenylenediamines, tolylenediamines, yet it is applied to the colors derived from benzidine.

Chlor in a word may either be used in its chemical sense or in its original meaning—green—as in chlorophyll, eriochlorine.

The roots methyl, methylene, nitro, azo, and the like, need no explanation.

As a general thing, the names of a new color are chosen so as to be a guide either for their manufacturers or for the consumer, usually the latter, and should always aim to have a meaning, and refer to some feature of the color.—Vidi, in Dyers' Bulletin.

THE MAKING OF HATS.

The Brockville Recorder gives an interesting account of the Union Hat Works, recently bonused by that town, and put in successful operation by Saulnier, DeCelles & Altman.

The business was founded by J. C. Saulnier, the senior member of the company, who for many years held prominent and responsible positions with some of the largest hat manufacturers on the continent. About ten years ago he started business on his own account at Truro, N.S. For four years he successfully managed the business, and it gradually grew until necessity compelled him to move further west. He located at St. John's, P.Q., forming a partnership with the other two members of the present company, under the name of the Union Hat Works. The business continued to grow, the demand, especially from the west, increasing rapidly, and it was deemed advisable to move in that direction. Brockville offered a bonus, and eventually the works were removed there. There are now 138 hands employed, of whom 22 are girls.

The process of making hats, says the Recorder, to a novice, is most interesting. The raw material is the fur of rabbits, which is imported mostly from England, but they also get small quantities from France and Australia. This is first put into an immense machine called a blower, about fifteen feet long and twelve feet high, the fine fur coming out at one end and the rough at the other. The rough fur being of no use, is burned. The machine is divided into six sections, and upon reaching the last section, no impurities whatever remain in the fur. The fine article is next taken to the forming machine, where, after being soaked with certain acids, and separated into lots each sufficient to make a hat, each is put on a hat cylinder, and thus the shape is obtained. The hats are next taken into a one-story structure in the rear of the building, where are the sizing room and dyeing room. In this room are twenty machines, eight of which are double—that is, two men can work at each. These machines are triumphs of mechanical ingenuity, and of remarkable speed, dyeing and making the hats in different sizes in less time than it takes to tell it. Leaving this room

they are taken to the pouncing department, where the coarse fur is taken off. On the second floor of the building is the flanging department, where the hats are formed into different shapes, and the sewing department, in which girls are employed in making and stitching on bands. The box department is also on this floor, the firm making their own paper boxes. On the top and third floor are the pressing and finishing departments. Here the hats are put on large brushes and polished to a high gloss. On this floor is the pattern shop, and here also the hats are finished, and when taken out, are ready for shipment. The firm makes the hats, boxes, patterns, etc., complete, the only importation into the factory being the raw fur. A new forraing machine has been ordered; when in use the output will be doubled, as every hat manufactured has to go through this machine. The boiler of 80 horse-power, now in use, has been found insufficient to run the machinery, which is being added to daily, and another of the same capacity is being placed in position, which will double the power.

The factory commenced operations in Brockville last November, and the output is now fifty-five dozen hats daily, which is about the present capacity. The firm brought a number of employees from St. John's, but others have been trained at Brockville. The day of the Recorder representative's visit, there were rush orders on the books for 2,700 dozen, which is somewhat remarkable, as this is the dull season in the hat business. The firm do not sell their goods to retailers, but to the wholesale houses in the large cities. No travellers are employed, but Mr. DeCelles, who manages the office part of the business, takes a trip each year with samples, and is about to start on a visit to Vancouver and Winnipeg.

The company is about to erect another large building to accommodate their growing business. The wages paid to their hands are liberal, some of them making from \$15 to \$18 weekly.

SUBSTITUTE FOR NATIVE SILK.

About 220 miles from Hong Kong, on the West river, lies the city of Wuchow, which forms the natural distributing centre for the trade between Hong Kong and Canton, and the provinces of Kuangsi, Kueichow, and Eastern Yunnan, the West river and its branches reaching all the most important trading centres in those regions. Into this district no new lines of piece goods were introduced last year, but Japanese cotton cloths, flannels, and crapes. Cotton velvets, flannels, cashmeres, Italian cloth and crepes, etc. find a ready sale and are gradually being substituted for the native silk and cotton stuffs formerly worn, as they offer greater variety of texture and color, combined with cheapness.

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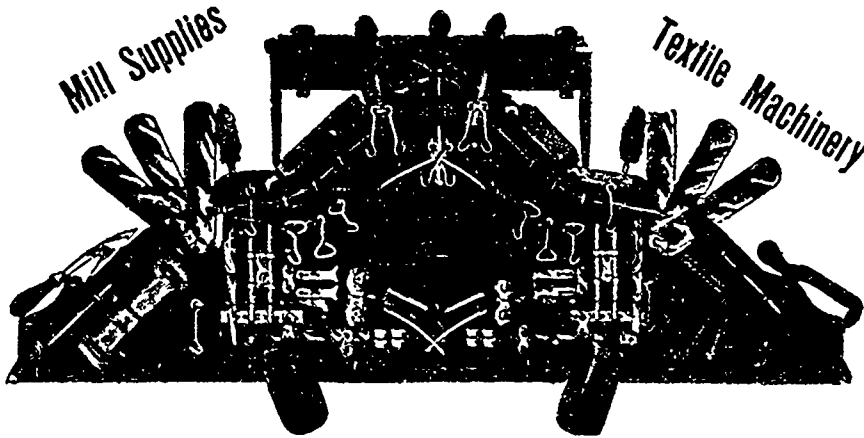
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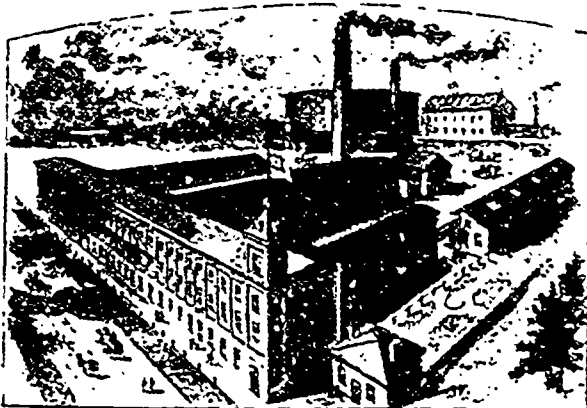
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M. A. N. Dubois, of Philadelphia, Pa., has patented a plan to give a finish to completed fabrics, such as stockings, by carbonizing them and thus removing all loose and projecting fibres or filamental fuzz, as the patentee calls them. The carbonization is carried out by the usual chemical processes, followed by a rubbing to remove the loosened and carbonized hairs. Dyeing and bleaching should both come after the finishing process. Sulphuric and hydrochloric acid, or solution of alum, is recommended as a carbonizing agent.

IMPROVEMENT IN SPINNING MULES.

A Frenchman has recently received a patent on an improvement in spinning mules. In order that the tin roller may be immediately stopped at the end of the outward run and automatically released for backing off, a brake is mounted at each end thereof, which engages with a loose pulley connected with the tin roller shaft by a ratchet and pawl. The brake is normally held out of engagement with

the pulley by a spring, and during the outward run the pulley is driven by the tin roller shaft through the ratchet and pawl. At the end of the stretch, the brake is applied to the pulley, by reason of the end of a rod engaging with an adjustable stop, the rod being connected with the brake by levers. The ratchet pawl is pressed into engagement with its ratchet wheel by a very light spring, so that there is little obstruction to the motion of the cylinder during backing off, during which operation the brake is automatically released.

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Chlorate of potash	0 09 to 0 10
Alum	1 30 to 1 50
Copperas	0 65 to 0 75
Sulphur flour	1 50 to 1 70
Sulphur rock	1 60 to 1 80
Sulphate of copper	0 06 to 06½
White sugar of lead	0 07 to 0 08
Bich. potash	0 07 to 0 08
Sumac, Sicily, per ton	57 50 to 58 00
Soda ash, 487° to 587°	1 15 to 1 25
Chip logwood	1 50 to 1 75
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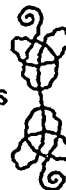
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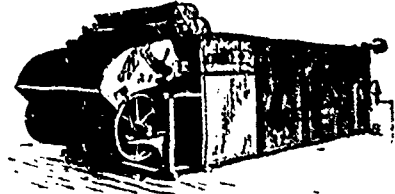
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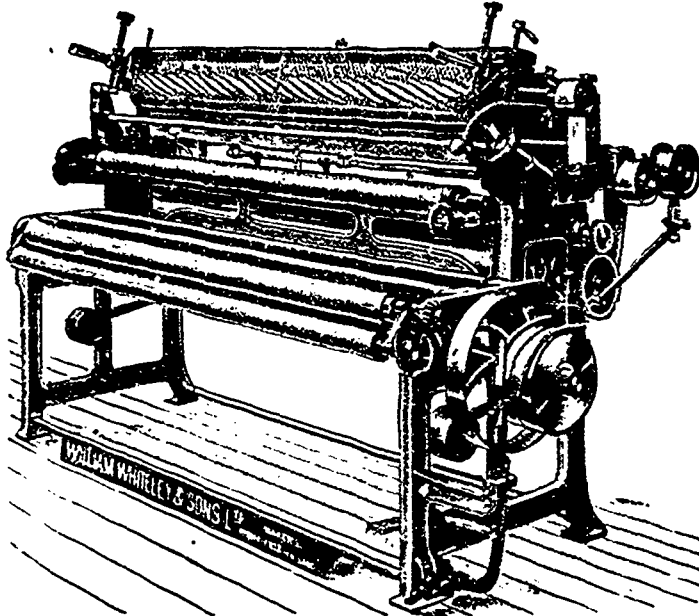
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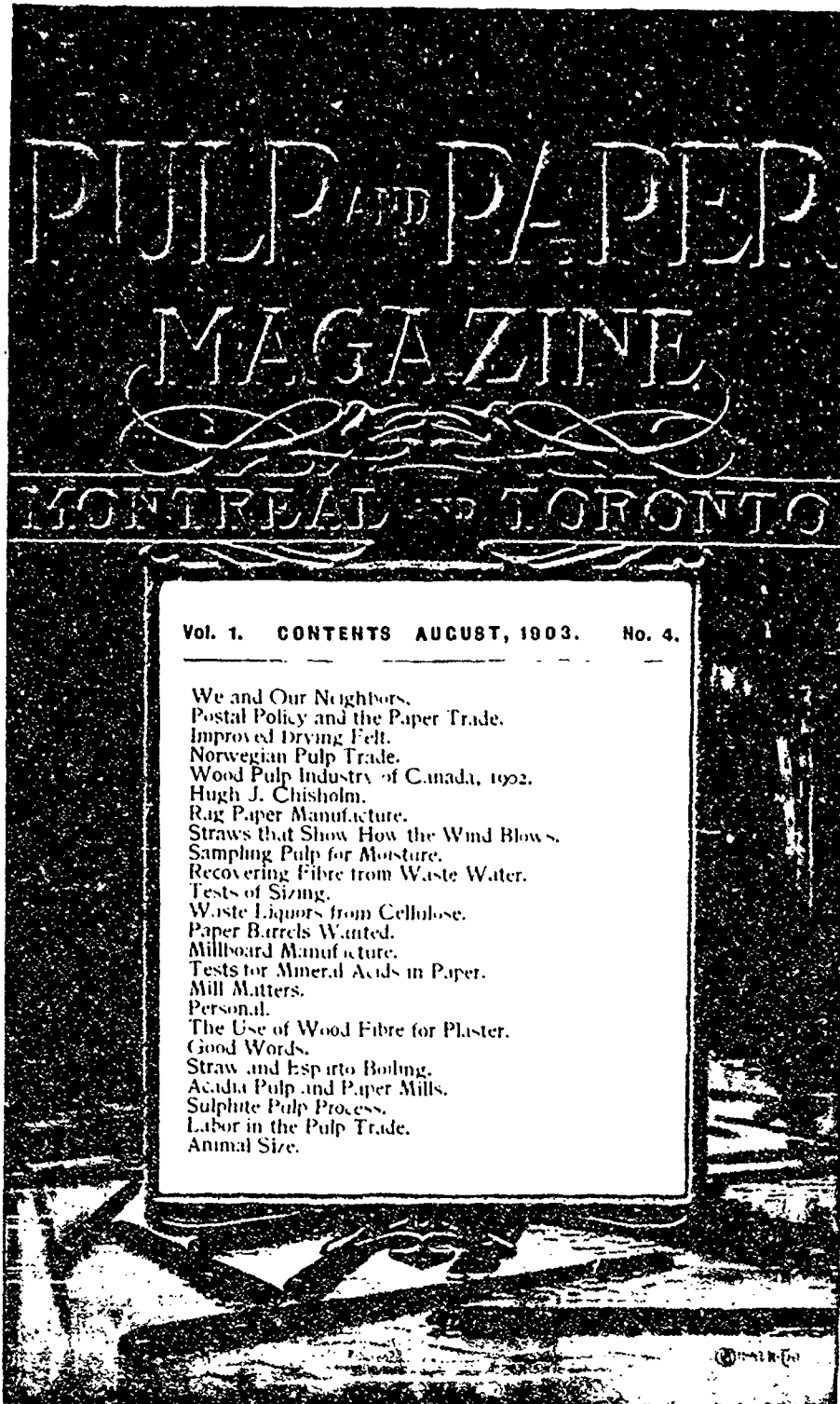
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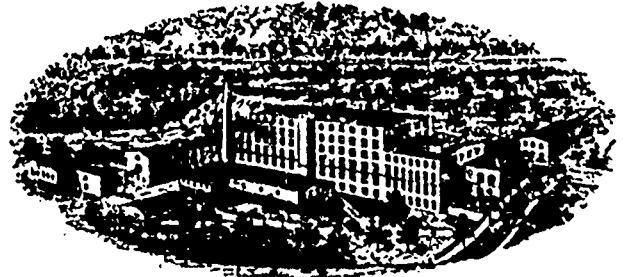
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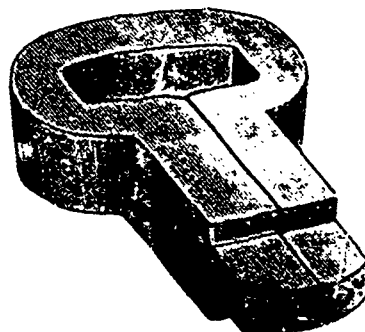
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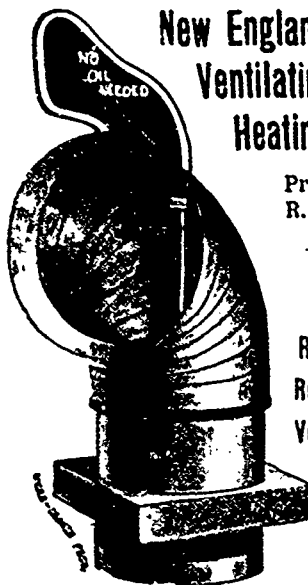
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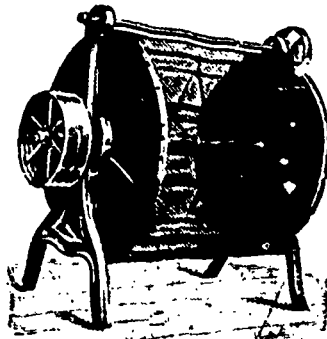
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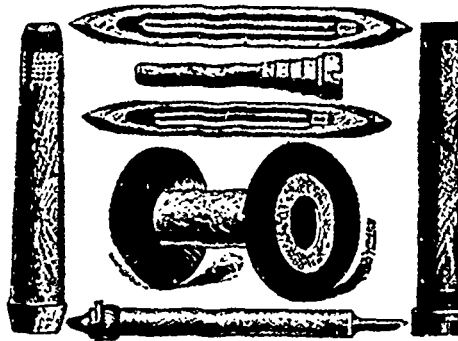
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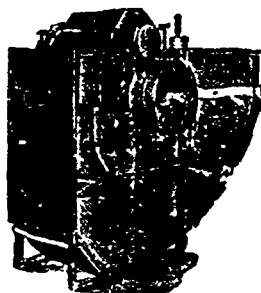
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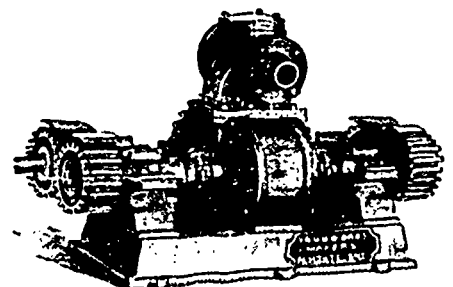
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Awnings, tickings, plain and Oxford shirtings, apron gingham, plain Saxmics, dimities and shakers have all been advanced $\frac{1}{2}$ to $\frac{1}{4}$ per yard by Canadian manufacturers.

The Dominion Cotton Mills and the Cornwall and York Mills recently issued new quotations showing a rise of two cents per pound in cotton warp. Some time previous they had withdrawn the discount of five per cent.

A steam yacht that had become disabled near the mouth of the Delaware River was blown out to sea about fifteen miles. The crew and passengers reached port safely by improvising sails of Brussels carpets and rugs taken from the cabin floors.

The latest statistics of the export carpet trade of Great Britain show for the first six months of the year a total of 4,444,600 yards as compared with 4,002,200 in 1902, and 3,973,600, in 1901. The United States received 30,400 yards in June, against 26,000 last year, and 8,400 in 1901.

In reply to an enquirer from a town in the Western States, we may say that a considerable number of cotton flannel lined gloves and mitts are sold in Canada, and two or three factories make such goods in this country. The duty on this class of goods is 35 per cent, when coming from the United States.

Silk says that an unexpected vogue of silk wraps and coats during the remainder of this season and throughout the early part of the fall is predicted. Peau de soie, taffeta or pongee are likely to give way for heavier materials, and the next favorite is likely to be a weave either in the nature of crystal or bengaline. Cotele is the name these goods are likely to bear.

Sir William Holland, of Manchester, who was one of the delegates to the Trades Congress at Montreal, is one of those who believe that the West Indies have a great future before them for the cultivation of cotton. There is no doubt that both soil and climate conduce to the raising of a very superior quality of the fibre.

John Miller, managing director of the British Millerain Co., Halifax, England, recently spent some weeks in Canada. The Millerain process, which the firm controls, is said to render perfectly rainproof and dust and dirt proof the most delicate fabric without in any way affecting the porosity, wear, elasticity or color. By the process the fibres are so treated that they will not take up any moisture. They are absolutely rainproof, and the effect of a shower upon garments is to wash all dust and dirt off the cloth, instead of into the garments, as is usually the case. Cloth treated by this process is what is used so largely by the British Government in tents, blankets, khaki uniforms, etc.

The Philadelphia textile strike, like its predecessor at Lowell, has ended in a dismal failure for the strikers. After ten weeks of idleness and loss of wages to over 60,000 workmen, they have for the most part submitted, without any concessions being granted. Some thousands are still out, but their loss does not impede to any great extent the work of the mills. Their principal demands were a 55-hour week with a 60-hour pay, and in many cases an increase in the pay.

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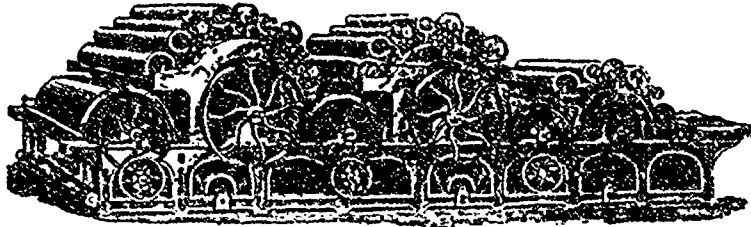
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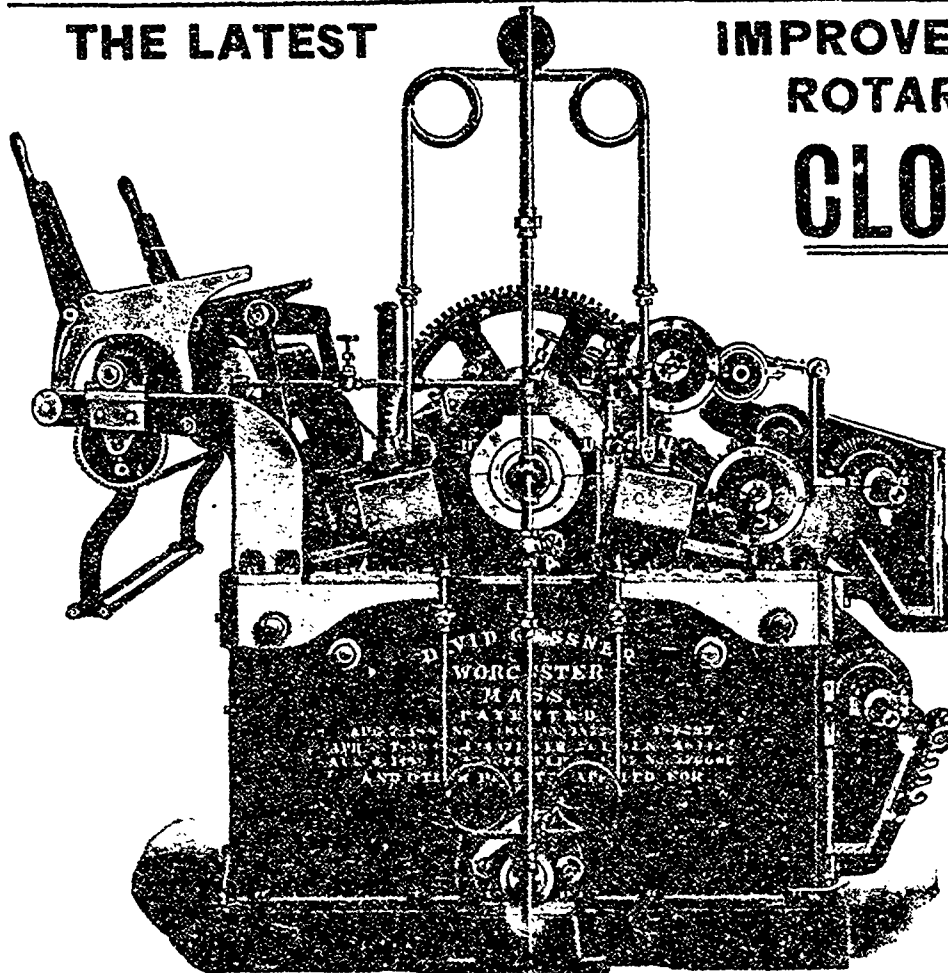
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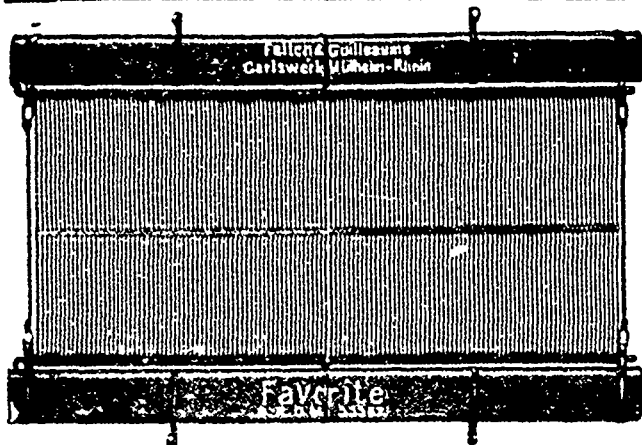
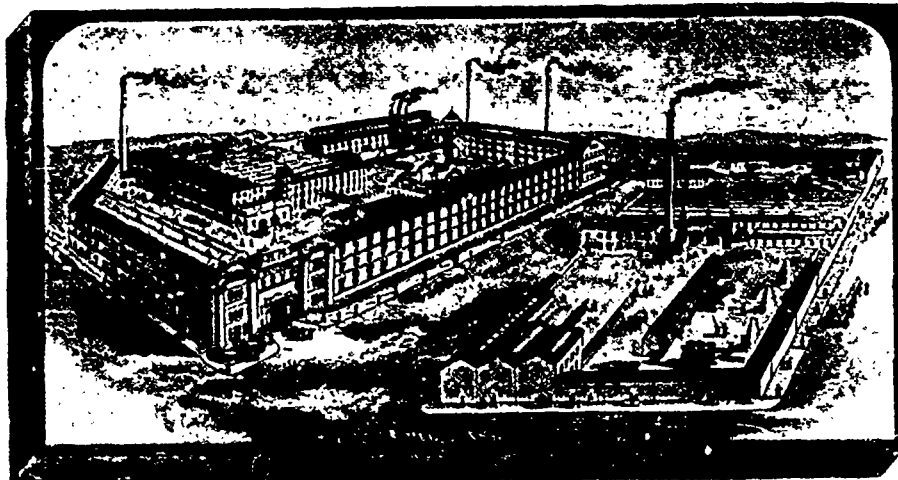
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