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CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XX I. TORONTO AND MONTREAL, SEPTEMBER, 1904. No. 9.

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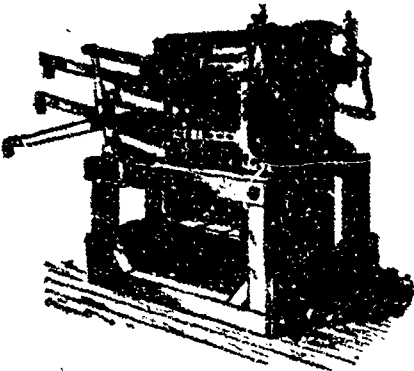
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Textile Trades of Canada.

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No. 9.

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EQUIPMENT OF CANADIAN WOOLEN MILLS.

The temporary closing of the Excelsior Woolen Mills, of Montreal, through an accident last month, was made the occasion for comments, more or less relevant, on the situation of the Canadian woolen manufacturers. Among other commentators, Jonathan Hodgson, of the wholesale dry goods firm of Hodgson, Sumner & Co., is reported to have said that if Canadian woolen mills put in up-to-date machinery instead of relying on an increase of the tariff there would be fewer reports of the closing down of mills. It is a pity that plain questions of right and wrong, affecting the very existence of so important an industry cannot be discussed without an eye to the effect one's opinion will have on the standing of a political party. In his personal and private relations

Mr. Hodgson is one of the most amiable, considerate and charitable of men, but it brings to mind the universal frailty of mankind when we find that a man so just in his private life can do such wrong to his fellow-citizens, the Canadian woolen manufacturers, who happen to be suffering from one of the political mistakes of his own party. If Mr. Hodgson is correctly reported, his statement does injustice both to the case under notice and to the woolen manufacturers in general. During the past few years the Excelsior mill has spent several thousand dollars on new machinery and improvements, and it is to-day equipped with modern machinery bought from the same makers that supply the best English mills. It may be said to be as well equipped as the better class of mills in Yorkshire. The statement made by others than Mr. Hodgson that Canadian woolen mills in general are equipped with out of date machinery is equally unjust and untrue, when a comparison is made with British mills.

We do not say that there is not a large amount of machinery now in Canadian mills which ought to be relegated to the scrap-heap. We have made this complaint ourselves more than once. So our trade contemporaries in the Old Country are lecturing the British woolen manufacturers on the same subject, and one of those lectures was reproduced in this journal not long ago. For real antiquities England takes the first place in the woolen mill branch as she does in primitive railway locomotives and ships. One of our trade exchanges mentions some mills having machinery still in operation that was put in seventy-five to one hundred years ago, and the investigator wonders how the products of such a mill can find a market. No mill in Canada can boast of such curious antiquities. The oldest woolen mill in Canada is less than eighty years old, and there is not a single item of the original machinery to be found in the mill as it exists to-day.

The last conversation the writer had with the late Mr. Paton, of the Paton Manufacturing Co., of Sherbrooke, was on his return from a trip to the Old Country, made specially to investigate new processes and new machinery. Mr. Paton said that

nowhere in Great Britain had he found any new process or machine that was essentially an improvement upon those in use in his own mill. Other large manufacturers in Canada have said the same thing.

What are the causes, then, of the difference in the cost of producing woolen goods here and in Great Britain?

1. Higher rate of interest on capital invested in Canada.

2. Increased cost of equipping a mill in Canada, this difference being estimated at 30 to 40 per cent. The Canadian manufacturer pays a duty on all his machinery, though by this duty on spinning, weaving and finishing machinery no home industry is protected, since none of that class of machinery is made in Canada. If the Government really desired to give a "preference" to British goods without injuring any established Canadian industry it would make such machinery free.

3. Higher rate of wages in Canadian mills. The wages of skilled operatives are estimated to be, on the average, 50 per cent. more than those paid for corresponding work in Great Britain, and in every branch, skilled or unskilled, the cost of labor is higher in Canadian mills. The Canadian mill hand lives in greater comfort than his British contemporary, and it is a question whether our politicians or manufacturers would have it otherwise if they could.

In these considerations we are excluding from view the custom mills of this country, many of which have carding and other machines of a kind unsuited to cope successfully with trade orders under present day conditions. But it ought to be known to those having only a moderate acquaintance with the textile trades that as a rule these mills were never designed to live upon orders from the trade as all mills in the Old Country are. Their very name of "custom mill" implies that. When the country was younger, and every farmer raised sheep, while every farmer's wife and daughter could spin, weave and knit, the custom mill thrived; but, regrettable as it may appear to many who have watched the change in our domestic conditions, the custom woolen mill along with the hand-loom and the spinning-wheel is doomed to extinction, no matter what the duties on imported goods or what the preference to British goods.

We do not wish to minimize the great importance of keeping the machinery of Canadian woolen mills up-to-date all along the line. Indeed, the best way to offset the disability the Canadian manufacturer labors under by paying so much higher wages is by having better machinery, if possible, than his British rival. But this is a pretty big demand to make upon the Canadian manufacturer, considering that the woolen industry is the most per-

fectly developed of all British industries, and that the British manufacturer has the whole world for his market, so that in consequence of the magnitude of his business he has hundreds of inventors constantly catering to his wants by new appliances and machinery.

ACETYLENE LIGHTING.

The Canadian Engineer for September comments editorially on the progress of acetylene lighting in Canada as recorded in a letter quoted elsewhere in this issue. Acetylene lighting is of specific interest to the textile trades, both manufacturers and dealers, because of all artificial lights in commercial use that from acetylene gas is the nearest approach in its chemical elements to sunlight, and consequently it is better suited for the display and examination of colored fabrics. Gas light is a poor light, and the electric incandescent light is not much better for examining or testing shades, especially those containing yellow, so that the extension of acetylene lighting will be a distinct advantage to the textile trades. Our contemporary says:

In another part of this issue will be found the results of an investigation by a representative of this journal into the progress of acetylene gas lighting in Canada, instancing more particularly the case of North Bay, Ont. There appears to have been more progress in the wide-awake west than in eastern Canada in this field of enterprise. There is a prevailing opinion among those interested as operators of lighting plants that many more towns would be using acetylene if the price of calcium carbide were reduced. Theoretically, a pound of pure carbide makes five feet of gas, but in practice only about four feet is got from the average quality furnished, and adding freight to the cost of carbide the price will average \$72 to \$75 a ton. This makes the cost rather high to offer a very attractive field for investment in those towns in which acetylene would have to meet an established rival like coal gas or electricity. In a growing young village or town where no other public lighting has been introduced the advantages of acetylene over coal-gas or water-gas in several respects appear to be pretty clearly shown in our report. For cooking purposes coal-gas is cheaper, though strong claims are made for one or two new types of acetylene gas stoves now being put on the market. If these claims can be proved in practice, then the day is not far distant when acetylene will largely supersede coal-gas for lighting, and be a competitor also in cooking, provided that the price of carbide is reduced. In this development there will still be a keen competition between the two gases, for

it will be admitted, in view of the value of the by-products of a coal or water-gas plant that those establishments could still stand a considerable cut in the profits on the gas department of their output. Evidence of these possibilities is furnished in the case of Australia, whose imports of carbide this year are expected to be over 1,100 tons, according to the Canadian commercial agent there, owing to the fact that the German carbide combine has been broken. German carbide is selling on that market lower than has ever been known, and it is said that some of it is now coming into Canada in spite of the surtax on German goods. The acetylene light, it may be added, has had its difficulties to overcome apart from the high cost of carbide. Accidents have happened, because most of the experimental lighting done throughout Canada, as well as in other countries, in the past few years, is by isolated plants, whereas practically no coal-gas lighting is done except on a large scale and for public lighting, in which case, unlike the isolated acetylene plant, there is always some one whose sole work is to run the plant and guard against accidents. We can imagine what would happen if the coal-gas business was carried on by the same number of isolated plants, left to casual attendance, or in some cases to run themselves, as is the case with private acetylene generators. But the record of town lighting plants of the acetylene class already compares favorably with coal-gas ones, both in Canada and in Europe, and time will improve this record. Considerable progress has been made in Canada in train lighting by acetylene gas. This gas was introduced several years ago on the Canada Atlantic, and the Canadian Pacific Railway Co. is adopting it extensively on its system, as is also the Canadian Northern. Over sixty trains, comprising about 360 cars, on the C.P.R. are now regularly lighted by acetylene, and the light is as satisfactory to the train hands as it is to the patrons of the railway. Another successful field for acetylene is in the lighting of buoys along our rivers and lakes. The lighting of the St. Lawrence buoys during the past year by this gas has been found most satisfactory, and navigators state that the light penetrates a greater distance, especially in misty weather, than any other light yet used. In consequence of this favorable report a factory has been established by the Dominion Government at Prescott for the manufacture of acetylene gas buoys for the whole system of inland and sea coast navigation.

RECOVERY OF WOOL FAT.

A reader enquires whether there is any method by which animal grease may be recovered from unwashed wool. Such a method does exist, and has been in operation for nine years in the Arlington

Mills, of Lawrence, Mass., the plant there being the first of its kind in the world commercially and technically successful.

The process consists of treating the wool with volatile solvents in close digesters. Compressed gas is used to force the solvent through the wool, the gas proving useful in many other ways. It carries heat to the wool and carries off solvent vapors. It also is used as an atmosphere in which the operation is conducted, preventing the ignition of solvent vapors; and since the gas is always moved in a closed circuit, it prevents the loss of solvent vapors, and may be used repeatedly. The gas used is an inert gas, which does not form an explosive compound with the vapor of the solvent in use, or with atmospheric air.

Scientists who have studied wool fibre are agreed that it should be cleaned by the solvent process rather than by the use of soapy and alkaline solutions, and, indeed, the superior softness and appearance of wool treated by this method was demonstrated some time before the process was reduced to a commercial system.

Among other advantages of the system are: The greater yield of wool fibre, since none of it is dissolved by soap and alkali; the larger proportion of top to noil, because the wool, being free from any felting, cards and combs freely without breaking off the fibres or the making of nibs; a larger production on cards, combs, drawing and spinning machinery; the wool fat and the potash recovered. The cost of the operation, including labor, solvent, power, interest, etc., is, it is claimed, more than covered by the cost of the soap saved.

Another method has recently been announced as patented by a German company. This method is a dry process in which infusorial earth is used as an absorbent, and is applied to the wool with great force by a current of air by specially constructed but inexpensive machinery, the wool being cleaned and degreased evenly throughout.

It is estimated that the amount of fat taken out of such wools as are worked in the United States is 15 per cent., and that from two to three million dollars' worth of wool fat and potash are wasted every year in that country. In view of such a percentage of waste under present conditions, surely a degreasing works should make a success in Canada, if located at the right place.

—The Associated Press is usually well informed, but the following despatch from Orange, N.J., now going the rounds of the lay press is a rather bad lapse: "It is claimed by a resident of this place that he has invented a perfect process to convert asbestos rock into a beautiful fibre capable of being spun into

a cloth similar to silk. He alleges the process is adapted specially to the manufacture of fine dress goods. Besides being moth-proof it is said the new material is entirely fire-proof." Asbestos is made into fire-proof boards and into curtains for theatres and other fire-proof fabrics; and the fibre of asbestos rock is very silky in appearance. This silkiness is largely lost in the manufacture, and the fibre itself is both weak and brittle compared with the weakest of the common vegetable and animal fibres known to the textile trades. To anyone who knows the character of asbestos rock and the fibre made from it the claims made in this despatch will appear rather wild.

—The historical review of the Victoria Jubilee Technical Institute recently published in the Indian Textile Journal, which was reprinted in the Canadian Journal of Fabrics, has called forth a great deal of comment and correspondence in India. The Institute is a disappointment on every side, and it is the general opinion that it should be mended or ended. Explanations of the failure are various. Some blame the Institute and the curricula offered; some claim that only inferior students enter the school; and others hold that it is practically impossible to make a college training for industrial work anything like as effective as a shop training. The Institute was founded as a model technical school to take a leading part in the industrial regeneration of India, and its conspicuous failure is keenly felt by all concerned. It is to be hoped that a thorough and searching investigation may be held and the cause of the trouble discovered and removed.

—A special correspondent of this journal writes of a trip to Winnipeg, and is enthusiastic as to the prospects of the Canadian West. Winnipeg will probably be more to the trade of the Canadian West than Chicago has been to the trade of the American West, and if the evolution of the Canadian Chicago is unfolded on analogous lines, the industrial history of Winnipeg should now begin to develop. The commercial expansion of Winnipeg in common with most towns of Manitoba and the North-West is proceeding with great rapidity, and if manufacturers of eastern Canada wish to acquire and hold their due share of this trade they should get into closer touch with the West than some of them seem to do. A great deal of business that might be done with eastern Canadian firms is being grasped by manufacturers in the mid-western States. The industrial east should be linked with the commercial west, and if this is not accomplished it is because many firms in the older Provinces are not aware of what is transpiring in the great western plains of their

own country. Every manufacturer of Ontario and the Provinces to the east who aims at doing a trade beyond the confines of his own Province should take a trip to the West and see for himself how substantial is the progress that has been made there in the last ten years.

—The new woolen duties came into effect on the 1st September, and there was a hardening of prices in some lines in consequence. In other lines, however, and notably in cheap tweeds no advance was made. The buyers of foreign goods, representing the clothing manufacturers and wholesale dry goods houses, have gone over to make purchases just as if the duty had not been changed; and it is the opinion of many of our manufacturers that it will take two years of time, added to a specific duty, before the ground lost by the Canadian mills can be recovered. Had the Government listened to the earnest representations of the woolen manufacturers two years ago the harm that has since been inflicted on the industry might have been averted. An ounce of prevention is worth a pound of cure. But the Government which laughed at the distress of the manufacturers two years ago now offer the ounce as their measure of cure.

CONDITIONS IN CORNWALL.

A correspondent of the Toronto News has this to say about the textile and other industries at Cornwall, Ont.:

Neither the Federal nor the Provincial Government have much to expect from this county, as things stand now. Although the Davis contract is enough to make an impression where a high standard of public morals prevails, it does not touch the pockets so immediately as the closing of the woolen mill. That is a more evident source of weakness for the Laurier Government than anything that happened with Mr. M. P. Davis.

The town has shrunk three thousand in population in the past few years—since the last general election. The men who are in business naturally try to be loyal to the place, but it is an effort with many of them, while others openly express their feeling of despondency. It is not difficult to understand that the process now going on, which may be expressed in Darwin's phrase, "The survival of the fittest," is rather painful.

It is reflected in the spirits of men whose living is not apparently affected. A street car conductor, for instance, caught in a pleasantry, spoke softly and sadly when questioned regarding the former glory of the town. His statistics may not have been accurate, but the townspeople generally accept a loss of three thousand.

It is attributed solely to the closing down of the woolen mill, although there were causes for the abnormal growth of population that were not such as to assure its permanence. The woolen mill employed at its best 300 hands. It was well-paid labor. If every operative had been a married man, with a family of five, it would account for 1,500

of the lost population. Eight or nine hundred is a more probable figure.

The prosperous era for Cornwall was between 1888 and 1895, when the canal was in process of construction, the bridge for the Ottawa and New York Railway was built, and all the mills running full time, and a little over. After these works had been completed the departure of a good many workmen was inevitable. That did not appear to the residents, however. The one thing that did bulk in their view was the closing of the mill. By some it is contended that the plant was obsolete, and the closing could not have been avoided by any tariff. That is denied by those who are interested in it.

Whether the fault lies at the door of the Government or not, that is where it is placed by the majority of the townspeople, just as the farmers attribute, and the politicians claim, the good times as the result of the present Government's efforts. The Conservative leanings of the people make them susceptible to that argument.



STATISTICS OF AUSTRALIAN WOOL TRADE.

We are indebted to Eug. Troost & Co., of Melbourne, for the following statistics of Australian wool exports and sales, compiled from Dalgety & Co.'s annual table:

Wool Exports from Australasia, 30th June, 1903, to 30th June, 1904.

	1903-4. Bales.	1902-3. Bales.	1901-2. Bales.
Australian States	994,796	1,014,768	1,167,936
New Zealand	372,146	425,954	396,949
Australasia	1,366,942	1,440,722	1,564,885

Sales of Wool held in Australasia, 30th June, 1903, to 30th June, 1904.

	Bales.
Sydney	375,322
Melbourne	169,600
Geelong	79,738
Adelaide	58,509
Brisbane	22,309
Tasmania	14,943
New Zealand	117,976
Total	837,197

Total, 837,497 bales out of a production of 1,367,000 bales have been sold in the colonies, equal to 61 per cent. of the total exports. This shows the expansion of the Australian wool sales and the increasing tendency of bringing the European consumer in direct touch with the grower. If New Zealand is taken separately, then the proportion of wool sold in the Australian States is even 72 per cent. of their total production.

The destination of the Australian purchases is as follows (New Zealand excluded):

	Bales.
France and Belgium	277,019
Germany, Austria, Italy and Switzerland...	178,185
England and Scotland	170,400
Russia and Sweden	1,730
United States and Canada.....	29,420

Japan, China and India.....	12,410
Australian manufacturers, local growers, etc.	51,251
Total	720,421

Owing to a more favorable season, after years of severe drought, there is a slight increase in the number of sheep. The figures given by Dalgety & Co., Limited, are as follows:

New South Wales	28,003,983
Victoria	10,500,000
Queensland	8,392,844
South Australia	5,000,000
West Australia	2,554,920
Tasmania	1,700,000
New Zealand	18,954,853
Total	75,765,500

Against:	Dec. 31st.
73,706,194	1902
92,358,824	1901
88,404,263	1900
92,410,156	1899
And against:	
120,836,244 in	1894



A NEW NARROW GOODS LOOM.

A recently patented loom for narrow fabrics is described by the American Wool and Cotton Reporter as follows: In the ordinary narrow weave loom used in the production of ribbons, tapes, etc., the shuttles move back and forth in front of the reed, and the filling thread is laid in the shed in front of the reed. The objects of the new invention are to economize space and to avoid the difficulty in locating the shuttle race and shuttle driving mechanism in front of the reed. The dents of the reed are arranged in an upper and lower section. The ends of the dents in the sections overlap each other. The dents are secured to upper and lower cross rails, which are rigidly secured together at a proper distance by end plates. On the rear face of the lower cross or reed rail is secured a plate, to which is secured the reed supports, which correspond to swords on the ordinary loom, except that they are not one-third as long as the ordinary swords, and instead of being pivoted at the extreme end, as is the ordinary sword, the support is pivoted on a shaft or spindle about one-third of its length below the lower reed rail. On the same spindle are also journaled the arms of a forked crank, which are also secured to a rock shaft, which is rocked periodically in the arc of a circle. The rocking motion is communicated by a cam groove in the end face of a disk. The cam acts on a roller carried by a lever, one end of the lever being fulcrumed to the loom frame and the other end connected by a rod to the wrist pin of a crank on the rocking shaft. On the lower face of the reed support is a slot in which is secured a pin on which is pivoted a rod which has its rear free end bent at right angles. This bent end passes through a slot in a fixed stop plate and serves to limit the swing of the reed support on its spindle.

When the shuttle is about to pick, the lower section of dents is in contact with the fell of the ribbon and the upper section is a little to the rear of the lower section. As the shuttle moves to traverse the shed the cam actuates the

rocking shaft from left to right, thereby moving the reed support downward through the action of the crank arms journaled on the rocking shaft and the spindle of the reed support, and a traction spring tilts the said support on the spindle so that the reed will swing back towards the weft thread. The downward movement of the support causes the weft thread to pass through the opening between the overlapping ends of the upper and lower sections of the reed. When it has passed through the opening it will be in front of the dents in the upper section of the reed. The downward movement also brings the warp threads between the dents of the upper section. When this is accomplished the shuttle has traversed the shed and draws the filling thread tight. Then the rocking shaft is rocked from right to left and brings a tilting plate in contact with the reed support which is swung back to its normal position to beat up the filling thread. The swing of the reed away from the fell of the ribbon is limited by the rod in the lower face of the reed support acting on the fixed stopping plate.

In automatic filling replenishing looms, in which the running shuttle is filled with fresh weft from a reserve supply contained in a filling feeder the ends of the filling threads are made fast to a suitable holder at the outer end of the feeder so that the end thread of a bobbin freshly transferred to the shuttle will be held when the shuttle is first picked across the lay. In practice, when the full bobbin or cop is being transferred from the feeder to the shuttle and during the first pick, it has been desirable to have some slackness in the filling end in order to avoid breakage of the filling thread under the sudden shock or strain. Various devices have been constructed for the purpose of producing the desired slackness of the filling thread at the desired time. One of the latest devices recently assigned to the Draper Company has for its main object the production of novel means for effecting the slackening of the filling thread leading from the bobbin or cop next to be transferred, the other filling ends remaining taut until slackened in their turn. It also provides means for holding with equal facility either bobbins or cop on skewers and in such a manner that the slackening of the filling end can be readily and automatically effected.

The magazine is of the usual circular type mounted on the breast beam and actuated in the usual way. The plate on one end of the magazine is provided with peripheral pockets to receive the heads of the bobbins or cop skewers. On the other end plate of the magazine a series of radial openings are located opposite the pockets. These openings extend inward from the periphery of the end plate, and on the outside face of the end plate, adjacent to the inner ends of the openings, an annular lip or rib is cast. On the outer face of the plate, and integral with it, is a spring seat which spans the radial opening. A circular socket is formed in the inner face of the spring seat to receive one end of a spiral spring, the other end of the spring co-operating with a tip holder, which is movably mounted in each opening and arranged to hold either the blunt tip of a bobbin or the sharper tip of a cop skewer. The holder is an elongated casting, which moves freely, when required, in the radial opening. The inner end of the holder flares outwardly, and has a transverse groove near its end to receive and rock on the lip or rib at the end of the radial opening. The lip serves as a fulcrum for the holder. The outer end of the holder is curved outwardly in the direction of its length, and is provided with lateral ears of unequal length, the longer one having a notch or groove formed in it. When the holder is in position in the radial opening the ears extend across the outer face of the end plate of the magazine at each side of the radial opening and limit the inward

movement of the holder. The holder is inserted in the radial opening, and the end of the spiral spring in the spring seat enters a recess in the back of the holder, and by the pressure of the spring the ears are maintained pressed against the outer face of the end plate, while the groove on the inner end of the holder permits the holder to rock slightly on the lip or rib. Thus the holder is held in position in the radial opening without screws or bolts. The inner face of the holder is thickened from the centre outward, and an elongated U-shaped recess formed to receive the blunt tip of the bobbin. The open end of the seat or recess is turned towards the outer end of the holder. In the bottom of the bobbin seat or recess a longitudinal groove is made for the reception of the sharp pointed tip of the cop skewer. This groove is provided with two pits or seats for the point of the skewer. The first is at the inner end of the groove and the second one is near the outer end of the groove.

When the bobbin is placed in the feeder or magazine, the head of the bobbin is first seated in a pocket of the end plate and the tip of the bobbin is pushed into the U-shaped seat. This forces the holder outward and compresses the spring sufficiently to cause it to hold the bobbin in position. The bobbin is not held parallel to the axis of the magazine, but inclined thereto, as the tip of the bobbin is nearer the axis. The filling thread is led diagonally from the tip of the bobbin into the notch in the long ear of the holder, and from there over the periphery of the thread disk to the thread stud, around which it is wound taut to prevent interference with its fellow threads. When a cop skewer is used, the magazine is loaded in the same manner. In order to slacken the filling thread next to the transferer so that the thread shall not break under the strain when the shuttle is picked immediately following the transfer the tip of the bobbin or cop skewer is brought nearer the periphery of the end plate of the magazine. This movement yields a sufficient length of filling yarn to produce the required slackness. The mechanism employed to move the tip of the bobbin or cop skewer away from the axis of the magazine consists of an arm fixedly mounted on a stud near the inner face of the end plate of the magazine. This arm is provided with an extension which has a downwardly turned end on which is a lateral stud or roll. The arm and roll are so adjusted that the roll engages the tip of the bobbin or cop skewer as it is moved forward by the intermittent motion of the magazine into position to be transferred from the magazine to the shuttle.



THE TORONTO EXHIBITION.

The Toronto Exhibition, now called the Canadian National Exhibition, closed on the 10th inst., and in point of attendance was the best in its long history. In the "Process Building," showing manufacturing processes in actual working, textiles held a prominent position. The Merchants Cotton Co., of St. Henri, Montreal, had a fine cotton loom and a cheesecloth loom running at high speed; the Toronto Carpet Manufacturing Co. had a brussels carpet and a smyrna rug loom in operation, while the Canadian Silk Co. had a ribbon loom weaving silk souvenirs of the Exhibition, the loom having a capacity of eighteen ribbons. In the Agricultural Implement Building the Canadian Cordage Co., of Peterboro', had a varied exhibit of cordage, cables and binder twine, and the Brantford Cordage Co. a good display of binder twine. In the Manu-

lactuurers' Building textile fabrics were not so well represented as last year, but there were good displays of carpets and rugs by the Toronto Carpet Manufacturing Co., and of woolen piece goods by John Dick, Limited, Cobourg and Seaforth, while the Japanese nation, so tasteful in art as well as courageous in war, was well represented by Ishikawa & Co., of Toronto and Montreal, who had a case full of handsome samples of silk goods and Japanese matings. In another part of the Exhibition the domestic textile industries of the past generation were called to mind by women and girls weaving carpets and ribbons on hand-looms and spinning yarn with the old spinning-wheel, which took up so much of the life and labor of our grandmothers.



BRITISH COMPETITION—A SUGGESTION FROM ENGLAND.

The London correspondent of the Montreal Star cables a summary of an editorial appearing in the Textile Mercury, of Manchester, with reference to relations between Canada and the Mother Land in textile trades. The Mercury frankly accepts the Canadian Manufacturers' Association's claim that the Canadian mill owners have a right to live, on the ground that a prosperous factory in Canada is worth to the Empire just as much as a British factory of the same magnitude and prosperity. Canadians and Britons alike should make it a point to practise mutually the rule to live and let live. The Textile Mercury, therefore, proposes the arrangement of a *modus vivendi* between British and Canadian industrial interests in order to reconcile the antagonism of the rural industrial interests in each country.

The Textile Mercury says that the British manufacturers quite realize that the unchecked competition of Yorkshire and Scottish woolen mills have driven Canadian enterprise almost to extinction.

It argues that a tariff should be framed not to out-balance the advantages Britain possesses, but to provide a handicap that gives both parties an equal opportunity. Great Britain is able to make ample tariff equivalents to Canada. Unquestionably, the discussion of a *modus vivendi* between authoritative spokesmen of the Canadian Manufacturers' Association and such British bodies as the Bradford Chamber of Commerce would be the greatest possible service to the Imperial reciprocity movement.



MR. ROSAMOND AND PREFERENTIAL TRADE.

Bennett Rosamond, of the Rosamond Woolen Co., Almonte, was asked by a Toronto News correspondent how he viewed the Chamberlain tariff proposals. Mr. Rosamond replied:—

"I am not sure that I quite understand the Chamberlain fiscal proposals. If they mean absolute free trade between the Mother Country and the colonies with a tariff against all outside, it is my opinion that such a policy would be ruinous for Canada. If they mean, as I believe they do, that Canada, a tariff of some kind being necessary for revenue, shall so arrange it that her industries, agricultural and manufacturing, shall be fully protected, and that beyond that shall give the rest of the Empire such preference as may be considered necessary, then in my opinion such a proposition should meet with approval. It is idle to suppose that a new country like Canada, far from monetary and industrial centres (speaking from the standpoint of a

woolen manufacturer), with a scarcity of skilled labor, with raw material to be brought from the four quarters of the globe, can compete with England, where skilled labor is cheap and plenty, where raw material can at all times be purchased as needed, and where purchasers, from the world over, are congregating to buy the manufactured product. If the London Chronicle is possessed of the idea that Canada with its immense possibilities, with a great future in prospect, should be merely a field for producing raw material for English manufacturers and the sale of their goods, and that the Chamberlain proposals are something that will bring this about, the sooner it is disabused the better."



PERSONAL.

Alfred Hawksworth has resigned as manager of the Merchants Cotton Co., Montreal, Que.

W. A. McDonald has been appointed assistant superintendent of the Milltown, N.B., mill, of the Canadian Colored Cotton Mills Co.

William F. Lowe, formerly boss carder for the Concord Mfg. Co., Penacook, N.H., has returned to his old position with the Rosamond Woolen Co., Almonte, Ont.

W. G. Bates, mechanical superintendent at the Clyde Woolen Mills, Lanark, had portions of several fingers severed from his left hand while engaged at his work.

David Gibson, boss dyer at the Canadian Colored Cotton Mills Co.'s Hamilton mill, died on September 6th after a short illness. Deceased was forty-four years of age.

Thomas C. Scott is the new carder at the Concord Manufacturing Co., Penacook, N.H. He has been in charge of the carding department of the Paton Mill, Sherbrooke, Que., for the past four years.

The Cassella Color Co., of New York and Montreal, announce the appointment of E. L. E. Drake as manager of the company's Providence office, vice John C. Hebden, resigned. With Mr. Drake will be associated Homer Winslow and E. T. Harrall, both of whom have been connected with the Providence district a number of years.

Donald Smith has given up his position as spinner in the Glendyer woolen mills, Glendyer, N.S., and is going West. John Hannah, formerly of South Hampton, takes his place. The mills are very busy on blankets and tweeds.

Lewis Dexter has resigned his position as manager of the Canadian Colored Cotton Co.'s mill at Milltown, N.B., after a service of twenty years. He is succeeded by J. W. Graham, superintendent, who has been connected with the mill ever since its erection. Mr. Dexter will remove to Baton Rouge, La.

Geo. A. Gatehouse, Montreal, has resigned the selling agency of the Montmorency Cotton Co., to take the secretary-treasurership of the Drummond Cotton & Bleaching Co., referred to elsewhere. Mr. Gatehouse began his career in the textile trades in the office of the Montmorency mill, and afterwards went with C. R. Whitehead to the Dominion Cotton Mills Co., for which he acted as manager of the sales department for four years. He returned with Mr. Whitehead to the Montmorency mill and was selling agent for it for the past three years. S. J. Milligan has been promoted from the office of the Montmorency mill to be selling agent in succession to Mr. Gatehouse.

A. J. de B. Corriveau, who founded the first Canadian silk factory about 25 years ago, was killed by a trolley car in Montreal last month. The Corriveau factory was situated at Papineau Road and Ontario Street in Montreal.

Louis Molleur, ex-M.P.P., of St. Johns, Que., died last month. Mr. Molleur was born at Lacadie in 1828, and was a successful merchant, manufacturer and contractor. He established a knitting mill and woollen mill, as well as the straw hat works of the town, and was a man of much energy and public spirit. He represented the county of Iberville in the Local Legislature of Quebec for many years.



DATA REGARDING TWIST AND YARNS.

One of the factors that help to make up the character and quality of a finish that is of considerable importance is the twist that is given to the yarn. It might not seem at first sight that it would matter much whether a yarn was single, two, three, or four-ply, so far as the appearance and finish of the fabric was concerned. But every mill man knows that where a good, clean, clear finish is desired, that shall be perfectly free from all leardiness or fuzziness of pile, it is absolutely essential that the right kind of attention be given to the character of the yarn which is put into the make-up of the goods.

Single-yarn goods are not so easy to handle, and it is almost impossible to make them so that they will be free from harshness and roughness. The fibres of the yarn that project here and there all over the surface will leave their effect upon the fulling process, and clean and handsome work is almost out of the question.

Most of the fancy cloths, both woollen and worsted, are made up of the twisted yarns, two-plics being most ordinarily used. Color effects can be so much more satisfactorily brought out with the use of the two-ply yarns that they are the kinds that enter into the fancy worsteds. It is possible, by twisting two or more colors together in the same yarn, to either heighten or decrease the color and its brilliance, and hence for novelties and novel effects of one sort and another it is the two-ply yarns that are to be favored above the singles.

Single yarns are used in the filling of some of the finest worsteds, such as are used for evening wear for men's garments. Piece-dyeing, or dyeing in the yarn, is the method here employed—and great care and caution is essential in the finishing to bring out the right results. But it will be found that the use of the single yarns in the fancy worsteds is exceedingly limited, and it always means a large amount of time and care in the manipulation, especially in the finishing processes, as good results cannot be produced by short or limited methods. If we have to handle the plain cloth only in woollens or worsteds, such as blacks and browns, it is possible to have good results with the single yarns, if care and skill are brought to bear in the finishing processes. But when we come to the fancy cloths, tweeds, overcoatings, or suitings, we must resort to the twists of one sort or another if the very best and highest kind of results are to be obtained. All novelties, wherever they appear in the fabrics, are really dependent for beauty and value upon the twists. Twists may be made in two ways. The two single yarns that make up the twist may be spun separately and then twisted on the ordinary twisting frame, or they may be twisted on the mule. The former method is the less desirable of the two, as it entails an extra and unnecessary expenditure of time and labor. If one opera-

tion can be made to furnish the same result in the end as two, it is always in the direction of economy and simplicity to use the one rather than the two.

If the two-ply is made on the mule, it is customary to add an extra drum to the mule. It is placed on the frame above the original drum, and must be of the same size, so it will run at exactly the same surface speed, and thus be able to deliver roping at the same speed as it is delivered from the lower one. This upper drum is driven from the drum shaft by a wooden pulley at the end of the drum shaft, and this pulley must be of the same size as the pulley that runs the loom shaft, or difference in delivery speed would obtain and be fatal to good work on the yarn. Guide wires must be placed so as to keep the roping from the upper drum always in right position. Since all the upper drums are on the same shaft, just as all the lower ones are, it is plain that the action of the whole mule will be uniform and regular, and there ought to be no trouble in turning out a yarn that will be all right as to twist and regularity. If it is desired to avoid the use of the extra drums on the mules in the making of a two-ply twist, it can be done by re-winding the roving from which the twist is made. That is, the roving that comes from the cards is taken and wound onto the same spool on the mule.

A simple frame work supporting three drums with pulleys all of the same size will accomplish the desired purpose. Two of these drums are for the spools from the cards, and one is to be used for winding the roving from the other two. The three drums want to be so placed and located in the frame that spools can be placed and removed without interfering with each other, and so that the roving from the spools will not come in contact. Guide wires must be used to insure the correct and uniform position of the roving on the spool that is at last to go to the mule. A sliding bar operated by a worm should be used for this purpose as the guide wires must be so handled that the roving will be evenly and uniformly distributed over the spool. This frame can be easily made or procured, and will require but little power and no difficulty at all in operating. It will be found to work more satisfactorily than either of the plans above described for the twisting of the yarn.

There is hardly any question that it is vastly better to twist the two-ply on the mule rather than on the twister. The yarn can be spun and twisted at the same time, thus saving in expense and labor. The bobbins are longer on the mule than on the twister, and the twist is more even and uniform, and the amount of production is larger on the mule than in the use of the twisting machine.

In the mere question of amount of production, it will be found that the twisting on the mule is away ahead of the machine, as an operative can do so much more work and look after so much more stock on the mule; besides, he would have to watch the mule anyway in the spinning of the yarn, and if the same labor and attention will accomplish the twisting of the two-ply, the whole operation is practically done at the labor expense of the one. The twisting on the twisting machines means another hand and another outlay in wages. A hand at a twisting frame will take care of one side, while a hand at a mule will look after three times as many spindles at a faster work, and, after all is said and done, turn out better work.

The secret of a clean, handsome fabric is often found to lie in the yarn production, and in the right kind of work in choice of colors and character of twist, so that a closer connection exists between these two features and the success of the concern than might at first sight appear.—*Journal of Textile Industries.*

THE COTTON BOLL WEEVIL.

The Texas State Boll Weevil Commission was appointed to investigate the various plans for fighting the boll weevil, and to award the prize of \$50,000 offered by the Texas Legislature for the discovery of an effective cure for the pest. The Commission has examined 150 remedies, and is about to make its final report that no remedy has been found effective, and consequently the prize cannot be awarded. The introduction of the Guatemalan ant is said to be of no avail. It does its work, but is not likely to become plentiful enough. Texas cotton is so much larger than that in their native country that the ants could find sufficient nectar on half a dozen stalks without attacking the weevil. Cultural methods are said to be the only hope for the Texas planters. Reports from Louisiana show that these methods are accomplishing a great deal there in the fight with the weevil. The introduction of the Guatemalan ant is looked upon with disfavor in the South. Besides the probability of the ant biting the pickers, it is pointed out that the ant may multiply so as to become an even greater nuisance than the weevil. In the past this has happened many times. The English sparrow is cited; also the mougeese, water hyacinths, Bermuda grass, Johnson grass, Japanese bamboo, and other supposed remedies that now are the cause of great trouble and expense to Southern farmers.

Another report is rather at variance with that to be presented by the Texas Commission. This is the report from Dr. Cook at Victoria, Texas, to the Agricultural Department at Washington, which says that the ant is showing itself to be very efficient in destroying the boll weevil and the boll worm. A point in its favor brought out by Dr. Cook is that it burrows into the ground to such a depth that its nests will not be destroyed by plowing. The Department is very much encouraged, and Secretary Wilson believes that if the ant will survive the winter in the latitude of Texas it will prove of great benefit to the cotton planters of the State. The Secretary, however, does not advise the cotton planters of Texas and neighboring States to place too much reliance on the ant. He says that they should be as diligent in devising other methods to combat the weevil as if the ant had never been brought into this country.



NOTES ON TOPMAKING.

The art of topmaking would seem to have reached the limit of its excellence; it is difficult to see how any new developments are to be forthcoming to cheapen production. Nevertheless, it is the constant study of scores of topmakers how to produce tops at $\frac{1}{4}$ d. per lb. cheaper. From 1875 to 1889 the trade was fairly profitable, but since then the work has got considerably worse, until to-day it is a very keen struggle to make ends tie. The greatest "plunder" in the game is when a man has a fair amount of raw material and there comes a rise; but, given ordinary conditions, the difficulty is very pronounced, and not a few have lost their all in the business. If it were possible simply to buy, say, Australian wool, comb it straight away just as it is, and thereupon be able to command a reasonable profit, topmaking would be a veritable Eldorado. As it is, however, the topmaker's way is strewn with difficulties and pit-falls. These are days in which topmakers strive to produce a "cheap" top; and, no matter what it is like, if it can be produced and sold at a profit they are satisfied. As already said, a great deal to-day hinges around the price of the

article, and in the clamor for something cheap, quality and character are being relegated to a secondary position. This may serve the purpose at the time, but it is questionable if in the long run it is good policy. There is no gainsaying the fact that Bradford topmakers this last two years have resorted more than ever before to the art of "mixing"—for the sole purpose of producing a top at a given price; and Australian wool-growers, and brokers in particular, may well express surprise at the price of super 60's tops frequently being 1d. to 2d. per lb. below the estimated price made out of wool bought in either London or Australia. The reason is not far to seek: the makers have tried to produce a top at a price to serve the purpose of the "pure" article, and the secret entirely lies in the extensive mixing of different countries' wools to produce a cheap and saleable top. The thing has worked to some extent; but it remains to be seen if it will permanently answer.—Textile Mercury.



THE MANUFACTURE OF FLAX.

The several steps in the manufacture of flax from the plant are as follows:

(1.) Pulling the plant; (2.) rippling, which is separating the bolls from the stems; (3.) retting, steeping, or watering, which is decomposing the gummy substance which binds together the outer membrane (containing the valuable fibres) and the inner stalk which is useless wood; (4.) scutching, by which the woody stalk is broken and thrashed out, the long fibres, called line flax, separated, and in this process there is always more or less of the short fibre removed along with the unworkable matter, which short fibres are called tow; (5.) hackling, a process devoted to the line flax by which the fibre is split to the finest possible condition without detriment, and in the course of which some of the fibres are eliminated and are also called tow; (6.) sorting, spreading, stretching, dressing, by which processes the "sliver" is produced, or the long line-flax fibres united and drawn out, and in which process other fibres are eliminated, also called tow. The "sliver" is now ready for spinning.

"Sliver" is also produced from tow of flax, which consists of short fibres and impurities that come from flax and flax line during scutching, hacking, and dressing—the first step of which processes for the treatment of tow of flax is carding, then combing.

The "sliver" called "ton sliver" thus produced is ready for the spinning machine the same as line flax. That which is combed out of tow slivers by the combing machine is called "flax noils." Flax waste is the rejections of the carding machine. Flax noils are the rejections of the combing machine. Flax waste has not been carded and is full of short bits of wood called "shives." Flax noils have been carded and are free from such impurities and are of a softer and necessarily longer fibre. The flax waste, some times called "card waste," is sold to board paper concerns and used to make heavy board paper and book bindings. It is worth fifty to seventy-five cents per hundred pounds. Flax noils are worth from \$75 to \$95 per ton.

Flax noils are used without further manufacture to be spun directly into yarns and also as a mixture and adulterant in the making of yarns for the manufacture of crash toweling, carpets, damask, towels, etc.

An epitome of the results of these processes shows four classes of products of flax manufacture:

1. Line flax, used for spinning into twines, thread, and hard yarns.

2. Tow of flax, differing not at all from the first material or use except in quality of the goods as affected by the shorter length of staple of the tow, spun sometimes directly and sometimes having mixed with it line flax.

3. Noils of flax, the same in material and substance as the tow of flax also used for spinning into yarns, sometimes directly and sometimes mixed with other materials, its ultimate use differing from line flax and tow of flax solely in the quality of materials produced, as affected by the staple or relative amount of noils employed.

4. Waste of flax, or "card waste," technically and synonymously so called, used in the manufacture of certain kinds of board paper, and in use differing entirely from the ordinary use of line flax, tow of flax, and flax noils, which are used for spinning into yarns to be made into woven fabrics. Textile American.



HEMP AND COTTON FROM SOUTH AUSTRALIA.

Samples, consisting of Sisal hemp, bowstring hemp, Mauritius hemp and cotton were forwarded by the South Australia Chamber of Manufactures (incorporated) to the Commercial Intelligence Branch of the Board of Trade, and were transmitted to the Imperial Institute for examination and valuation.

The samples have been examined in the Scientific and Technical Department of the Imperial Institute, and have also been submitted to leading firms of brokers for commercial valuation. The samples of hemp were too small to admit of a complete chemical examination being carried out.

Sisal Hemp (*Agave rigida* var. *sisalana*).

This sample consisted of white, strong fibre with a staple of average length, 40 inches. On chemical examination it furnished the following results: Moisture, 88 per cent.; ash, 0.7 per cent.; cellulose, 79.1 per cent. A comparison of these results with those yielded by specimens of Sisal hemp cultivated in other colonies and already examined in the Scientific and Technical Department is given in the following table:

Source.	Moisture, per cent.	Ash, per cent.	Cellulose, per cent.
South Australia	8.8	0.7	79.1
Bahamas	12.8	4.4	75.9
Trinidad	11.6	1.0	77.2
New South Wales.....	9.8	1.6	77.7
India (Saharanpur)...	9.1	0.8	82.4

From these figures it is seen that the present specimen furnished a low proportion of ash and a high proportion of cellulose; it is, therefore, of good quality and likely to be durable.

The brokers reported that the fibre was of good length and color, fairly strong, and worth from £35 to £38 per ton on the London market.

Bowstring Hemp (*Sansevieria zeylanica*).

This specimen was clean, of good color, and had an average length of 38 inches. It yielded the following results on chemical analysis: Moisture, 8.1 per cent.; ash, 0.4 per cent.; cellulose, 80.9 per cent. In the following table these results are compared with those furnished by specimens of this fibre grown in other colonies which have been examined at the Imperial Institute:

Source.	Moisture, per cent.	Ash, per cent.	Cellulose, per cent.
South Australia	8.1	0.4	80.9
Assam	9.4	0.7	75.6
Grenada	9.5	1.4	72.7
Straits Settlements	9.9	0.7	75.9

These numbers show that the present sample yields a very low percentage of ash, and contains an unusually large proportion of cellulose, and on these grounds is to be regarded as of good quality.

The brokers reported that it was a soft, fine fibre, but somewhat deficient in strength, and of the value of £33 to £35 per ton.

Mauritius Hemp (*Furcraea gigantea*).

This sample was of fair color, but had not been so carefully prepared as the two preceding samples; its staple was about five feet in length. The results obtained on chemical examination were as follows: Moisture, 8.5 per cent.; ash, 1.4 per cent.; cellulose, 74.5 per cent. In the following table these figures are compared with those yielded by specimens of Mauritius hemp from other countries which have been examined in the Scientific and Technical Department of the Imperial Institute.

Source.	Moisture, per cent.	Ash, per cent.	Cellulose, per cent.
South Australia	8.5	1.4	74.5
Southern India	9.9	..	77.7
Grenada	10.2	2.4	77.8
Victoria	11.6	2.3	72.2
British Central Africa.	8.7	1.1	75.8

In this case the cellulose is somewhat below the average, and, on this account, the fibre is probably of a less durable character. The brokers reported that the fibre is very long, but of poor color, roughly prepared and weak. Its value on the London market is from £28 to £30 per ton.

Cotton (*Gossypium barbadense*).

It is stated that this specimen is probably of the "Sea Island" variety, but that its quality is inferior since the plants from which it was gathered were several years old and their cultivation had been neglected. The sample was clean and white, and the length of staple 1-2 to 1-5 inches.

The brokers reported that the cotton was silky, but irregular, and that it was inferior to American "Sea Island" cotton. It was regarded as worth about 7½d. per pound at the present time.—Bulletin of the Imperial Institute.



JAPANESE GIRL OPERATIVES.

Osaka, Japan, is a great centre for cotton factories, while in Tokyo something over 20,000 hands are employed. A large proportion of these factory workers are country girls, who are contracted for by agents, the contracts lasting from three to five years. Two per cent. of the girls' wages go to the agent for the whole time of the contract, which brings him a neat little income without much labor. There are no Sundays in the life of the Japanese factory girl. She toils seven days in the week, with about half a dozen holidays during the year, and a week at New Year's. Working hours are from nine to twelve hours a day for small pay. Children are taken as apprentices, to whom no wage is allowed, but

a small amount of pocket money is given each month, or, if they live at home with their parents, a certain amount is allowed for their board. It is estimated that there are over 4,000 children under fourteen years of age in the cotton mills of Japan. A doctor, appointed for the position, looks after the mill employees, and if they are ill one-half of the lowest wage is taken as remuneration. The girls look very picturesque at their work, dressed in their white kimonos, with their heads swathed in the long piece of cloth which the Jap woman knows how to adjust so gracefully. The factory boarding houses are near at hand, where the girls also lodge, the long dormitories being furnished with the regulation Japanese mats and hard pillows, and the bath is always ready, for the Jap factory girl, like the rest of her people, never neglects personal cleanliness.

TOWN LIGHTING BY ACETYLENE.

Although the discoverer of the commercial production of acetylene gas from calcium carbide is a native of Canada, and this country figures largely in the manufacture of carbide, progress in the lighting of towns by acetylene gas has been more marked in other countries, notably in Europe, than here. Acetylene lighting has made more headway in Western Canada than in the eastern Provinces. Birtle, Carberry, Virden and Moosomin are lighted by acetylene and Souris, Deloraine and Gladstone are either equipped or are being equipped with acetylene plants. The tanks, or gas-holders, have in each case, we understand, a capacity of 3,000 cubic feet, and supply from one or two hundred up to several hundred lights. In each of these towns the system appears to give satisfaction, and the number of consumers is being steadily increased. Among Ontario towns that have adopted acetylene are North Bay, Bradford, Rodney, Aurora, Oshawa, Bolton and Milverton.

The largest, as well as one of the most successful, acetylene plants in Canada is that at North Bay, a town of between 4,000 and 5,000 inhabitants, at the junction of the Canadian Pacific Railway main line with the branch of the Grand Trunk connecting with Toronto. This plant is operated by the North Bay Gas Co., of which A. F. Leggatt is president and manager, A. G. Browning vice-president, and John Ferguson, Wm. Martin and S. and D. Purvis, the other directors. Construction on the plant was started in the autumn of 1902, but it was not put into operation till April, 1903, when it began with 180 lights. There was then in operation an electric lighting system, owned by another company, which had been in existence about twelve years, generating its electricity by steam. At the time the acetylene plant started, the electric system had about 1,500 lights, and is reported to have about 1,800 now. In the same time the acetylene plant has increased its services from 180 to 1,200, and is extending at the present time at the rate of 100 services a month. The gross income of the acetylene plant is now \$4,000 a year, and it is claimed that the net profits of the plant are greater than that of the electric plant, which has a gross income of about \$9,000. In the case of the acetylene plant the manager and one assistant do the entire work, and the supply of gas and of connections can be considerably enlarged without any increase of the staff. In fact, the same staff operates the plant now that was required when there were only one-fifth as many lights. The company expects to pay a dividend of 7 per cent. this year.

The gas tank holds 4,000 feet of gas, and at each fresh charge carbide is put in to make 1,000 feet. An interior

view of the generating station is here shown, and this equipment is sufficient for 8,000 lights. The company paid \$60 a ton for carbide till last year, when the price was increased to \$65. To this freight has to be added, making it about \$70 a ton. The company charges its customers \$1.75 per 100 feet (equivalent to 1,000 feet coal gas), with a discount of 12½ per cent., making the net price \$1.53, with no charge for meter, against a charge of 15 cents per 1,000 watts, with 25 cents per month for meter charged by the



A. F. Leggatt, President and Manager, North Bay Gas Co.

electric company. This makes the net price slightly in favor of acetylene for the same candle power of light. In practice, the advantage is still more in favor of acetylene for the lighting of stores, it is claimed, because there being no electric current on during the day, the consumer cannot use the electric light on dark days or in cellars. A half foot burner gives a 24-candle power light, which, with a simple installation, yields a good, strong illumination, the character of the light being a nearer approach to daylight. This appears to be a consideration with many merchants, especially dry goods dealers, and consequently most of the shop lighting in North Bay is now done by the acetylene plant. The C.P.R. station is also lighted with it.



Interior of Generating Station, North Bay Gas Co.'s Acetylene Plant

As against coal gas, acetylene lighting in Canada for towns and villages would appear to have some substantial advantages.

The first of these is that acetylene gas mains and service pipes need not be laid below the frost line. The troubles of last winter will be remembered by coal gas people as well as waterworks people; but in North Bay, where the mains are laid only six inches below the surface, and in some cases actually exposed above ground, or placed immediately under the sidewalk, there was not a single case of freezing, though the thermometer registered 50 degrees below zero on one or two occasions. The mains were opened three times last winter to lay new connections, but the pipes were found to be "dry as punk," to use the words of the manager. This, of course, means a considerable saving in the cost of laying pipes, as well as in the convenience of taking them up or laying new connections. In laying the mains here a sheet iron "drip box," about 12 inches long and 6 or 8 inches deep, is, however, put in wherever there is a depression in the level of the main, which is led through the box near its top and provided with a cock to let off any condensation that may develop.

The second advantage for a small town is the smaller cost of installation. An acetylene plant for a town the size of North Bay will cost about \$12,000, whereas the cost of a coal gas plant would be about \$60,000.

The third advantage of acetylene is the small cost of maintenance, as before shown, and the relatively small cost of extensions, this difference applying not only to extensions at the generating stations, but extensions of main and service pipes.

The fourth advantage of acetylene over coal or water gas—and it is an important one—is that it is infinitely less poisonous. In 10 hours not more than about 5 feet of acetylene would pass through an ordinary burner, and if the peculiar smell of acetylene did not disclose itself to the occupant of a room it would at least fall short of fatal effects, whereas fifty feet of coal or water gas would pass through a burner in the same time, and the frequent items in the daily papers tell with what effect.

Fifth, naked acetylene lights do not flicker as coal gas lights do, and are therefore not so trying to the eyes.

Sixth, acetylene lights of corresponding power do not vitiate the air to the same degree as coal gas lights.

For the operator of the acetylene plant, as well as for the operator of the coal gas plant, there are by-products, as the refuse carbide affords a serviceable quality of slack-lime for plasterers' use and for fertilizing purposes, being sold for these purposes at \$5 a ton.



THE ANTI-DUMPING CLAUSE EXPLAINED.

The Customs Department has promulgated regulations explaining the new departure in the tariff popularly known as the anti-dumping clause, in effect September 1st.

Briefly, the new clause demands that where imported dutiable goods of a kind not made in Canada are sold to Canada at a price below the fair market value of such goods in the country of export, there shall be levied thereon, in addition to the regular duty, a special duty equal to the difference between the fair market value and the special price in Canada.

Thus, suppose a piece of machinery which is usually sold in the country of export for \$100 is sold to Canada for \$50. It will pay the regular 25 per cent. duty on the home

price, that is, \$25, plus the difference between the home and the export prices, or \$10, making the whole duty \$35.

A provision, however, states that where the difference between the fair market value and the special export price is greater than one-half the ordinary duty, the special duty shall not exceed that amount. For example, take bar steel, sold abroad at, say, \$27 a ton, sold to Canada at \$23. The ordinary duty in this case is \$7. Now, the difference between the home price and the special export price is \$4, which is more than half the ordinary duty; hence, the special duty will be only \$3.50, or half the ordinary duty, making the total duty \$10.50.

Where the difference between the fair market value and the special export price does not exceed five per cent. of the fair market value, there shall be no special duty, but when the difference exceeds five per cent. this whole difference shall be taken into account for calculating the special duty.

Exemption from special duty is provided for articles which regularly pay an ad valorem duty of 50 per cent. or more, or a specific duty equivalent to 50 per cent. or more, based on the fair market value in country of export; that is, an article paying five cents duty would be exempt from special duty if the regular home price is ten cents or less.

The special duty clause does not apply to articles subject to excise duty in Canada.

When the value of goods for customs purposes is determined by the Minister of Customs, as authorized by the Customs Act in the case of goods being exported under unusual circumstances, this value shall be held to be the fair market value for duty purposes.

The new regulations require invoices to be filed at the custom house in duplicate, one copy of which will be sent to a special checking branch in Ottawa in order to secure a perfectly uniform collection of revenue.

A change has been made in the form of certification of invoices, the following being the new form:

I, the undersigned, do hereby certify as follows:

(1) That I am the (a) (insert the words partner, manager, chief clerk or principal official, giving rank as the case may be)..... exporter of the goods in the within invoice mentioned or described;

(2) That the said invoice is in all respects correct and true;

(3) That the said invoice contains a true and full statement showing the price actually paid or to be paid for the said goods, the actual quantity thereof, and all charges thereon;

(4) That the said invoice also exhibits the fair market value of the said goods at the time and place of their direct exportation to Canada, and as when sold at the same time and place in like quantity and condition for home consumption, in the principal markets of the country whence exported directly to Canada without any discount or deduction for cash, or on account of any drawback or bounty, or on account of any royalty actually payable thereon or payable when exported, or on account of the exportation thereof, or for any special consideration whatever;

(5) That no different invoice of the goods mentioned in said invoice has been or will be furnished to any one, and

(6) That no arrangement or understanding affecting the purchase price of the said goods has been, or will be, made or entered into between the said exporter and purchaser, or by anyone on behalf of either of them, either by way of discount, rebate, salary, compensation, or in any other

manner whatsoever, other than as shown in the said invoice.

Signature.....

Dated at.....this.....day of.....19..

Changes have been necessitated also in the form of oath to be taken by importers when making entry of goods, and the declaration required from foreign shippers. The principal addition in the oath is a clause as to arrangements or understandings affecting the purchase price, much the same as the above certificate.

The new regulations go into force on October 1st, but collectors may for a temporary period, not later than December 31st, accept entries on invoices bearing the old certificate instead of the new form. Duplicate invoices, however, will be required after October 1st in all cases.

The department has matured plans for securing full information as to foreign market values, and officers are being assigned to make investigations in other countries in this connection.

COTTON IN THE WEST INDIES.

The London Times recently contained the following report on cotton-growing in the West Indies: It is satisfactory to report that the experimental cultivation of cotton in the West Indies has proved a success, and that the industry is now established on a commercial basis. Plantations exist in Barbadoes, St. Lucia, St. Vincent, Montserrat, Antigua, St. Kitts, Trinidad, and the smaller islands, while plots have also been started in Jamaica and British Guiana. The total area estimated to be under cultivation is 4,000 acres. During the season just ended, Barbadoes alone shipped, up to March 31st, 2,444 bales and two bags of cotton, weighing 61,000 lbs., and the gins have been busy since. The Imperial Department of Agriculture, which has the work in hand, has orders from planters for Sea Island seed sufficient to plant 7,000 acres, and, as this quantity has been paid for, the presumption is that it will be used. In Jamaica, where the pioneer work is being carried out by the Board of Agriculture, enough seed has been disposed of to plant 500 acres. A number of Syrians who were acquainted with cotton-growing in Egypt are engaged in the cultivation there. Central factories for ginning and pressing the cotton have been erected in the various islands, and a cotton gin expert from the Sea Islands has just completed four months' work on the machines, all of which are now in perfect working order. He states that the factory in St. Vincent is the best-arranged and best-equipped that he has ever seen.

WINNIPEG.

(Correspondence of Canadian Journal of Fabrics.)

Winnipeg has of late often been called the Chicago of Canada. It is, or will be, more to Canada than Chicago is to the United States. Chicago has had to divide its trade and manufactures with other cities of the Western and Central States, but Winnipeg is at present the sole entrepot for the commerce of the vast western Canadian plains, which are now being peopled with a rapidity that is remarkable when compared with any period of our past history. Winnipeg has only to keep its reason and self-control, and avoid being led away by real estate boomsters in order to become a great city. The prediction is confidently made

by some of its recent visitors that in ten years from now its population will equal that of the Toronto of to-day. This opinion will not be shared by many who remember the Winnipeg estate boom of 1831-2 and its collapse, and who have no personal knowledge of what has happened in the meantime. But even should the boomsters get control of Winnipeg now the situation will still be different to that of 1831. In 1871, when Manitoba was erected into a Province and the reign of the Hudson's Bay Co. ceased, Winnipeg (the Lower Fort Garry, so named after Nicholas Garry, one of the directors of the old company) had a population of 240 souls. By 1881 a railway had entered the town from the States, and the talk of the advent of the Canadian Pacific Railway, with its line to the Pacific coast, brought a tide of eager speculators along with some settlers from the States, and at one time there was said to be 40,000 people in and about Winnipeg. But the C.P.R. was not completed till four years later, and trade across the customs barrier of the States to the south did not develop. It was like the seed which, planted in thin soil, sprang up, but had not depth enough to take root. It was not based upon sufficient settlement, and markets for the produce of the farm, and so it withered, and by the time the transcontinental did reach it the spirit of Winnipeg was broken, and settlement of the country to the west of it developed but slowly. It seemed that the day of destiny had not arrived. The Western States had not yet been filled up, and plagues of grasshoppers and early frosts combined with prejudiced reports regarding the climate kept the country back.

But since those days a marvellous change has come over the Canadian West. Cultivation of the land has steadily reduced the risks of injurious frosts, the plague of grasshoppers proved to be a very exceptional and not a common misfortune, and it is now realized abroad that the climate of Manitoba and the whole North-West is at least as tolerable, and certainly quite as healthful as that of eastern Canada; and in the course of my journey I met not a few who stated that they preferred the winter of Manitoba to that of the lake regions of Ontario. The wonderfully rich soil of the country and its heavy yields of grain have made thousands prosperous beyond their first expectations, and to-day the vast plains are being peopled with settlers who have complete confidence in its future, and who know that a failure of harvest now and then will not affect their ultimate success. Railway building has gone on with the extension of farming, and often ahead of it, till now the map of Manitoba is crossed with lines like the old settled Provinces of the east. Two great transcontinental systems besides the C.P.R. are working west through the Province, and the trunk lines of the northern States of the American Union are keenly seeking a slice of the growing traffic. The fact that these all converge upon Winnipeg would make this city a great centre of trade, but its re-awakening is based rather upon the growth of the provincial and territorial towns to the west of it, and the growth of these in turn is based upon the actual wealth produced by the farmers and ranchers in grain and stock-raising. I have no doubt that in course of time the great plain stretching from the eastern borders of Manitoba to the foot-hills of the Rocky Mountains—say, 1,000 miles east and west by 500 to 800 miles north and south—will maintain 100,000,000 people in comfort. It is such conditions and such prospects that are swelling the population and trade of Winnipeg at a very rapid rate. In 1891 the population was 25,639, in 1901 it was 44,778, but at the present time its inhabitants, excluding the floating population, are conservatively estimated from the assessments returns

at 67,000. In the last ten years the assessed value of city property increased from \$22,001,330 to \$48,214,950, while the bank clearings have increased from \$50,540,648 in 1894 to \$246,108,606 in 1903. The Winnipeg Board of Trade reports the wheat exports to have increased from 15,000,000 bushels in 1894 to 50,000,000 in 1903, so that, taking this staple as an index of business, the growth of Winnipeg has not out-pared but rather lagged behind the growth of the agricultural interests, upon which the city's trade is based.

The city of Winnipeg is now an anhill of transformation and reconstruction. Everywhere in the central portions of the city old warehouses are giving place to newer and greater ones, banks and insurance companies are reorganizing their business and putting up more solid and expensive headquarters, and the era of the sky-scraper has begun. The Canadian Pacific Railway Co., with unabated faith in the country with which its own vast growth is so intimately bound up, is building a great terminus with an eight-story hotel, 236 feet long, and having 315 guest chambers. These will cost about \$1,500,000, and will include a subway for city traffic along Main Street, which the railway will cross. This subway will cost between \$80,000 and \$100,000, is 100 feet wide, having two arches for sidewalks and street traffic and one arch for the street railway. Eight railway tracks will cross this subway. The company has also purchased land in the western part of the city, where it is building railway shops, roundhouses and freight sheds. The sheds will be 1,800 feet long, the roundhouse will contain forty locomotive stalls, and the shops and yards eighty-four miles of track. The shops will be extensive, and will be used for building both passenger and freight cars as well as for repairs. The Canadian Northern Railway and the Grand Trunk Pacific also have plans for extensive terminals and works, though these plans may be modified if the railway commission's recommendation for a Union Station is carried out. It is expected that the new subway will be finished in October, and the new C.P.R. station ready for occupation about February next. The Winnipeg Street Railway Co. is also building a subway in Portage Avenue, and has started work on new car and repair shops, having a main building 250 x 100 feet, with boiler and engine-room and heating plant, to be finished by October, 1905. These are a few of the semi-public features of an industrial development that has now begun. As to the progress of building in residential quarters, I may cite an instance that came under my own knowledge. The hotels being overcrowded during the Exhibition, I obtained lodgings in Langside Street. In the portion of this street running south from Notre Dame there were over 700 numbers on the houses, and yet the oldest house in the street was less than two years old. My hosts informed me that last year they sat at their back door in the summer evenings and watched the boys playing baseball in the field adjoining, but now there is no adjoining field, for it is all laid out in streets and partially built up. It is at once evidence of the almost reckless progress of building and of the tolerable character of the winters here to add that many of the houses going up are of a frailty that would seldom be found in eastern cities. The excuse for this is that the high rents and great demand for houses force even poor people to buy and build on the instalment plan in order to have a house at all. The building permits taken out in Winnipeg for the first six months of 1904 made a total of over \$6,000,000. Astonishing as it may seem, none of the big cities of the United States reached this record in building this year, and only one exceeded it—the city of New York. It is worth while to notice, by the way, that alert Yankees are taking a more

prominent hand in investment in Winnipeg—and even in investments in farm lands in some districts to the west—than eastern Canadians. One cannot be surprised at this, for where the remembrance of the boom of 1881-2 lingers in the minds of the many Ontario and Quebec people who invested to their loss there is apt to be severe skepticism about the reality of rising values in the same field. I had the same prejudice, but, having seen the city and its recent Exhibition, that prejudice is gone, and hence I would advise eastern Canadians to come and see for themselves, and then judge what the development of this western country will mean a few years hence to them as manufacturers, capitalists and colonists.

The Winnipeg Exhibition, this year called the Dominion Exhibition, was a revelation of the potentialities of the West. The show of horses, cattle, and sheep has never been excelled, if equalled, on the continent, while the array of agricultural machinery, covering in all a space of ten acres or more, was a striking exhibit of the revolution in mechanics as applied to agriculture. The manufacturers of the East are evidently waking up to the march of events here, as they had four buildings nearly filled with machinery and goods "made in Canada," these being shown under the auspices of the Canadian Manufacturers' Association, under the supervision of C. B. McNaught, of Toronto, whose services were recognized by the presentation of a purse of \$300 in gold, along with a shower of compliments. Mr. Heubach and his active staff, who managed the show, have proved able exhibition men, and have rendered a service to the whole Dominion in presenting to the East a spectacle of what the Canadian West is capable of.

The exhibits of textiles were good in quality if not large in number. The Midnapore Woolen Mills exhibited blankets and flannels; the Guelph Carpet Mills Co., ingrain, tapestry and velvet carpets (the latter comprising the first piece of velvet carpet made in Canada); the Toronto Carpet Manufacturing Co., Smyrna rugs, art squares and two-ply and three-ply ingrain carpets, the Rosamond Woolen Co., of Almonte, worsteds and fine tweeds; John Dick, Limited, of Cobourg and Seaforth, Ont., woolens, cocoa mattings, jute rugs, jute bags, etc.; the Corticelli Silk Co., sewing silk; A. R. Clarke & Co., Toronto, leather gloves and mitts; the Canadian Rubber Co. and the Winnipeg Rubber Co. (Gutta Percha and Rubber Manufacturing Co.), fire hose, rubber fabrics and rubber boots and shoes; the Independent Cordage Co., of Toronto, and the Canadian Cordage Co., of Peterboro', binder twine and rope; the W. E. Sanford Manufacturing Co., of Hamilton and Winnipeg, ready-made clothing; the Alaska Feather and Down Co., of Montreal, down quilts; the T. Eaton Co. and the Robt. Simpson Co., of Toronto, dry goods and ladies' wear. Furs were exhibited by the following firms: J. Arthur Paquet, Quebec; W. J. Hammond, Winnipeg; Dunlap, Cooke & Co., Amherst, N.S.; M. N. Levitt and W. E. Orr & Co., Toronto.

KAPOK AND ITS USES.

Every year that busy centre of commerce, Amsterdam, receives nearly 1,000 boulds' weight of a curious and interesting vegetable substance known in Java and in the trade as kapok, which is found very useful for stuffing cheap mattresses and pillows, among other purposes. It is a sort of yellow wadding which nature uses as a covering for the seeds of certain trees in the Malacca. Its fibres being very non-resisting, it has been found impossible to spin or weave it, but it gives excellent results for bedding, making a mat-

truss delightfully soft if it is exposed to the sun before being used. It is exceedingly light and buoyant, in this respect greatly surpassing cork, as it will support in the water thirty-five times its own weight. The tree whence it is derived (*Eriodendron*) grows rapidly, and in the second year is twelve to fifteen feet high, but it does not fruit abundantly until the fourth year. Like the cotton plant, it bestows two gifts on man, the special wadding mentioned, which lines the husk, and the oil extracted from the seeds, which is used especially in the Chinese markets. The threads of the soft fibre taken from the pods are light yellow, rather silky, and only about an inch in length. They are made into thin rings. Kapok, it is said, never decays. Among the ever-increasing uses to which this curious vegetable product is put—causing the culture of the *Eriodendron* to make great strides in the Dutch Indies, while efforts are being made to cultivate it in similar climates it has been suggested that excellent life-saving apparatus might be made from it, which should be in the form of mattresses and cushions, easily obtained in moments of danger. Three hundred grams of kapok (10½ ounces) will support a man of ten stone five pounds (145 pounds) in the water; and experiments by a French society with articles made of this wadding, which had previously been soaked in water for eighteen hours, gave excellent results. One small mattress supported several men. It is probable that soon all ships' berths will be made of kapok.—Chambers' Journal.



BRITISH WOOL AND TEXTILE MARKETS.

(Correspondence of Canadian Journal of Fabrics.)

Bradford, Eng., 24th August, 1904.

Prices here to-day are practically unchanged from what they were at the time of our last report, although in the meantime things have been a trifle easier. Probably the lull was only due to the holidays at the beginning of the month, for during the last few days the market has perceptibly strengthened again, so that prices all round to-day are just about on a level with a month ago.

Spinners who are running short of raw material are finding that they have to pay full prices for all they buy, and especially for all low and medium grades. Manufacturers all over this part of the country are complaining loudly of the inadequate prices they are getting for their productions, and only such of them as have not yet exhausted stocks of raw material, bought long ago, are able to take orders with any show of profit.

The hosiery trade is usually very quiet at this time of the year, but just now, with the exception of a few manufacturers who are running on specialties, business in that branch is extra dull.

Dewsbury and Huddersfield join in the general grumble as to the scarcity of orders, though there are a few mills in those districts running briskly on Jap army orders.

If the reports we have of the heavy shortages in the New Zealand and South Australia clips are right, there will be no decline in values for some time, and most likely there will be a big cry for wool all over Europe before the next clip is available. Up to the present the arrivals in London are very small, not amounting to much over 60,000 bales.

On the 12th inst. Mr. Justice Eady gave his decision in the Bradford Wool-combers' case, his verdict being in favor of the plaintiffs on all points, except that the charge of fraud against one of the directors (Speight) was not proved, though on the other charges he shares responsi-

bility with the rest. The defendants, said the judge, had really no defence to show, whilst the evidence clearly showed that they had issued a prospectus, which to their own knowledge was false and calculated to mislead shareholders. Whether there will be any appeal against this decision is not yet known, but we hear that steps are being taken by the whole of the original shareholders collectively against all directors named in the prospectus.



TEMPERATURE AND HUMIDITY IN WORSTED MILLS.

The time has long gone by when the atmospheric conditions of a textile mill are necessarily subject to outside conditions, as they occur from season to season, or even from day to day. In mills where the best results are demanded, and where the stock is required to be worked to its fullest capacity, artificial means, under exact control, have to be resorted to, in order to effect an absolute uniformity of temperature and humidity, especially during the processes of drawing the delicate strands of roving and spinning them into yarn with the least waste. Geographical locations and natural atmospheric conditions are now no longer absolutely required; in fact, they are quite secondary.

It is well known that means for regulating the temperature and moisture of a mill for cotton, have now been brought to a state of comparative perfection, and the same means are becoming more and more introduced into mills that are working wool, for the same purposes as are applied to cotton. Wool, however, is a fibre that has to be treated, in some respects, differently from cotton, due to the difference in their structures. In both instances, high temperature and a large amount of moisture make the fibre more plastic, and yielding to any process of manufacture. Wool, however, has the peculiar property of absorbing from 30 to 40 per cent. of water without feeling wet, thus showing that this fibre has a great affinity for moisture, which it is slow to part with, even at a high temperature. This hygroscopic nature of the wool fibre is little understood by a large majority of manufacturers, though they are, nevertheless, becoming more appreciative of its meaning and importance in its manipulation into yarns and goods.

The amount of moisture that wool fibre can hold, under natural conditions, varies with those prevailing at different localities. For instance, wool naturally has a larger percentage of moisture in Yorkshire, England, as about Bradford, than in Northern France, as about Roubaix, or in the New England and Eastern coast States of our own country, all of which, in a measure, makes the Yorkshire district of England the best section in the manufacturing world for the spinning of wool to its highest degree of perfection, taken in connection with the prevailing temperature.

For example, it has been established by the conditioning houses of Bradford and Roubaix that the natural regain of moisture from absolutely dry weight of wool in these places, can be calculated as follows: In Bradford, the regain of moisture in wool is reckoned at 16 per cent.; tops with oil, 19 per cent.; tops without oil, 18¼ per cent.; and worsted yarn 18¼ per cent.; while in Roubaix, the regain is 14¼ per cent. for wool; 18¼ per cent. for tops, and 17 per cent. for yarn. In the United States, the regain is placed by practical manufacturers at about 15 per cent.

for tops and yarns. These regains in weight are indicative of the natural humidity existing in these several localities, exhibiting a comparatively wet climate in England, a drier one in France, and a still drier one in the United States. Hence, the climate of New England is not so good as that of England for fine spinning of either cotton or wool, but this is now largely, if not completely, made secondary by the aid of practical science, in the furnishing of mechanical methods for the manufacture of atmospheric conditions to suit circumstances.

Natural climatic conditions are now practically of little or no consequence, and the best spinning of wool is no longer dependent upon location, or affected by weather fluctuations, from day to day, or from morning to night, so as to interfere with manufacturing being conducted to the highest possible degree of perfection. Hence, no matter where the mill may be situated, scientific methods can be adopted in order to insure the best results.

It is in the mule-spinning room of a worsted mill where the greatest attention should be given to the exactness and uniformity of temperature and relative humidity. If it is desired to draw the roving to the ultimate fineness to which the stock is capable, both relative humidity and temperature must be high. Practical experience is the only safe guide as to what the temperature and degree of humidity should be. Theorizing by itself is of but little value, as experience has taught. We might say that for 60's to 70's, an ideal atmospheric condition would be 90 degrees temperature, and 70 degrees relative humidity. These degrees, however, are given as simply those that can be used as a starter or as a basis, for it should be, at all times, borne in mind that temperature and humidity for spinning must be regulated according to the requirements put upon the wool, whether it is to be spun to its ultimate capacity of fineness or whether a good amount of margin is to be allowed between the fineness to which it is spun and that to which it can be spun. If only 40's are to be spun from stock capable of going to 60's, then this regulation of temperature and humidity is not necessary to be kept up to an exact standard without the slightest variation. There are worsted mills that keep their spinning rooms at 85 to 90 degrees, both in temperature and relative humidity, and call this their ideal.

The reason why mule-spun yarns should be spun under these conditions is, that the wool is back-washed and freed from oil of all kinds, and the moisture is necessary as an oil substitute. The reason why oil cannot be used in this method of spinning is, that the fibres of the roving would be licked up by the draft rolls, and bad yarn be the result. Should the yarn be spun on the cap frame, with the oil in the wool, a high temperature and degree of relative humidity is not desired, except, possibly, to guard against electricity.

Coarse yarn will stand or require more moisture, or a higher degree of relative humidity than fine wool, when spun according to the same system and under like conditions as the spinning of fine wool. This is because coarse wool has a less pliability and elasticity than fine wool.

Everything considered, it must be apparent that the mule-spinning loom for worsted yarn should have an atmosphere of its own, uninfluenced by external conditions, and this atmosphere should be maintained at an almost absolute uniformity of temperature and humidity. The windows and doors should be closed, and protection furnished against all outside atmospheric influences.

Worsted yarn that is spun for the trade is necessarily back-washed, and, therefore, must be spun under high temperature and moist surroundings so that it can be dyed, bleached, or otherwise manipulated, free from oil. If the worsted yarn is to be woven and dyed in the piece at the place of its manufacture, it can be spun on the cap frame in oil and the latter washed out in the piece.

All that may be said about the proper temperature and relative humidity that should prevail in a worsted spinning mill, is that the conditions must invariably depend upon the experiment and experience.—Textile American.



MAKING COTTON GOODS NON-INFLAMMABLE.

A number of processes have, during the last few years, been proposed for permanently reducing the inflammability of cotton flannelettes, the underlying principle throughout being a thorough permeation of the fibre with metallic oxides or inter-insoluble inorganic salts.

One of the best methods, according to E. C. Kayser, consists in impregnating the fabric with stannate of soda, drying and padding in acetate of alumina or zinc, or in sulphate of copper or nickel. Great efficiency is also claimed for titanate acid, either fixed by itself or in conjunction with silica or with other suitable oxides, particularly as regards the resistance to repeated washing.

In any case, the process is somewhat laborious, and must add considerably to the cost of materials, in the production whereof, otherwise the greatest economy prevails. This, no doubt, explains to a great extent the limited application. Moreover, whether the impregnation with the fireproofing oxides or salts be effected before or after dyeing and printing, for physical and chemical reasons it is bound to bring about undesirable complications. Equally so it must interfere with the feel, the permeability, the non-conductivity for heat, and the absorptive capacity.

Perhaps the solution of this important problem lies in directions not hitherto attempted, and when one considers the very inferior inflammability of wool and other animal fibre, one might also hope that some process of superficial "animalisation" of the cotton fibre (such as have formerly been attempted for the purpose of mordanting) might here find a fresh field.—Textile American.



CELLULOSE AND ARTIFICIAL SILK.

Besides chloride as a solvent for cellulose, another important solvent is ammoniacal copper oxide. From its solution in this solvent, which plays an important part in science, the cellulose can be reprecipitated by means of caustic alkalis or acids, e.g., hydrochloric acid. Various manufactories now make artificial silk from cellulose dissolved in ammoniacal copper oxide, the copper and ammonium compounds being recovered. A class of solvents almost as valuable as the one above mentioned are the acetates. Cellulose dissolves in the various compounds of acetic acid, without undergoing any change, and forms ethereal salts of acetic acid, recent researches showing also that it is present in the form of hydro- and oxy-cellulose, which can be reprecipitated from the solution. This process is also employed for the manufacture of artificial silk, which is likewise made from cellulose dissolved in zinc chloride, these three methods being said to be not too expensive and much less dangerous than the old method

of manufacture from the nitro derivatives. Finally cellulose is readily soluble in caustic alkalies such as caustic potash or soda, and can be reprecipitated by means of hydrochloric acid. On a large scale, the cellulose dissolved in caustic soda is employed in the manufacture of viscose, and this new process has of late years attained considerable prominence owing to its extensive possibilities of application. The cellulose is mixed with accurately calculated quantities of caustic soda and water till the whole mass is completely dissolved. This solution of cellulose in caustic soda is then mixed with the calculated quantity of carbon bisulphide and the mass further treated, thereby forming the sodium salt of xanthogenic acid, or in the present case an aqueous solution of sodium cellulose xanthogenate. As carbon bisulphide is exceedingly inflammable, the operations involving the use of this body must be carried out with the greatest care, particularly towards the end of the process, as the superfluous carbon bisulphide is evaporated off at this stage. The viscose solution which remains behind is of a yellow color, and decomposes very rapidly under the action of light, decomposition being complete in about ten days. It decomposes still more rapidly on heating, hydrocellulose being produced. The best method of preserving this compound is in the form of a 10 per cent. solution kept in tightly closed tubs, which should be stored in as cool a place as possible, and the solution used up immediately, or in about two days. The compound is widely used as a dressing for cotton and textiles, as a waterproof covering or varnish, and as a size for paper, pasteboard, and the like. Viscose papers are very good, are watertight, exceedingly tough and hard, but are too expensive, and, owing to their yellow color and rapid decomposition, do not admit of extensive use. The solution is best precipitated in the beater by means of zinc or magnesium sulphate. Various firms also manufacture artificial silk from viscose, and the product is quite equal in quality to the other varieties of artificial silk manufactured. When the viscose solution is heated for about an hour, what is known as "viscride" is produced, and which body is a hydrocellulose insoluble in water. This body is quite solid, is hard like horn, and can be readily dyed. Viscride is now made in enormous quantities on a commercial scale for the manufacture of plates, tubes, sheets, tool handles, buttons, and similar articles. The last, and it may be said the most important, solvent for cellulose is nitric acid, all the nitro derivatives of cellulose playing the most important part in science. In fact, this class of compounds provides an extensive and profitable source of revenue for a whole series of trades. When cellulose is treated with nitric acid, what is known as nitrocellulose is obtained; this term is, however, a misnomer, the compounds produced being ethereal salts of nitric acid, and not true nitro compounds, for if they are treated with caustic alkalies they split up, cellulose and nitric acid being reformed. Dilute nitric acid when heated with cellulose converts it into oxalic acid, thus completely decomposing it. When treated with concentrated nitric acid, cellulose forms higher nitro derivatives, such as di- and tri-nitro or tetra- and hexa-nitro cellulose, two different nitro products being obtained, one soluble and the other insoluble. Both kinds have of late years attained considerable importance in commerce, and are manufactured in very large quantities. Formerly cotton was exclusively used for the various technical products, but now the cheaper kinds of cellulose can be advantageously employed, a fact which contributes largely to the prosperity of the cellulose factories, especially as the demand for cellulose compounds is increasing. When concentrated nitric acid, or, better still,

a mixture of one part concentrated nitric acid and two parts of concentrated sulphuric acid, is brought together with cellulose in the cold, an insoluble nitrocellulose is produced which does not dissolve in water, alcohol, ether, or a mixture of both. This higher nitrated cellulose is exceedingly explosive, and is employed in the manufacture of gun cotton, blasting gelatine, dynamite, and the so-called smokeless gunpowders.

The manufacture of this substance is carried out in large earthenware vessels provided with taps for the admission of the acids. About one hundred pounds of cellulose are closely packed into the vessel, the vessel tightly closed, and the air exhausted from the interior thereof and the pores of the cellulose by means of a vacuum apparatus. The cold mixture of acids is then run in by all the taps simultaneously. The proportions employed are one part of cellulose to about 20 to 25 parts of the acid mixture, and the time of treatment is about 3 to 10 minutes. When the reaction is judged to be complete, the acid mixture is allowed to flow away, the mass thoroughly washed with water, and a weak solution of soda passed through the whole to remove all traces of acid. The nitrocellulose thus obtained is again washed for a considerable time, beaten in a hollander, and afterwards worked up into powder. If cellulose be treated with hot concentrated nitric acid, or, better, with a hot mixture of 20 parts of concentrated nitric acid and 30 parts of concentrated sulphuric acid, a nitrocellulose is obtained which readily dissolves in alcohol, ether, or a mixture of both. This variety is the well-known collodion, widely used in medicine as a coating for wounds, etc., and for a number of other purposes, one of the principal of these being the preparation of photographic plates, which are coated with a thin film of the substance. Collodion wool is generally used for this purpose dissolved in acetic acid, gelatine, and alcohol, the collodion, after the evaporation of the solvent, being deposited in a thin film on the glass. Another useful compound much used for impregnating various materials, and as a weatherproof coating is prepared from nitrocellulose dissolved in amyl acetate, hydrocellulose remaining behind after the evaporation of the solvent. When collodion is mixed with oil what is known as pergamoid is obtained, a substance widely used as a weatherproof coating for paper, pasteboard, textiles, etc. Of late years also an important derivative of cellulose has appeared on the market, i.e., celluloid, widely used as a substitute for ivory, and much cheaper than the latter. This compound is prepared by dissolving nitrocellulose in camphor, the resulting product being similar to vulcanite, and having the advantage of being readily dyed, turned, and otherwise treated; but has also the disadvantage of being very inflammable, and is soluble in alcohol, ether, acetic acid and caustic soda. Of all technical products for which cellulose forms the raw material, nitrocellulose and collodion are perhaps the most important, being used, in addition to those purposes already described, for the manufacture of artificial silk in enormous quantities. This so-called artificial silk is a remarkable product, and without accurate knowledge and investigation cannot be distinguished from the natural product. One of the first processes for making artificial silk from collodion was the now well-known Chardonnet process. This process, which was the first really successful one, has now attained considerable importance. Briefly stated, the method is carried out as follows:—The soluble nitrocellulose, obtained as above described, is dissolved in a mixture of equal parts of alcohol and ether. Recently, however, calcium chloride has been used in order to minimize risk from fire. The

purified clear solution is passed through filters, and then run into a vessel fitted with a number of fine glass tubes. The vessel is closed, and the collodion solution forced out through the capillary tubes under a high pressure, the tubes through which the solution flows being surrounded by wider tubes, and cold water kept circulating through the annular space between them. The collodion filament is by this means immediately solidified, and after being denitrated can be spun or otherwise manipulated. This process of denitration, i.e., the removal of the nitro group from the cellulose, is highly important, in that, firstly, it renders the product insoluble; and, secondly, it renders it incombustible and non-explosive. The denitration is effected by passing the filaments, before they are spun and reeled, through lukewarm water which has been faintly acidified, and subsequently through a dilute solution of ammonium phosphate, or other ammonium or magnesium salt, to still further decrease their inflammability. The finished product is yellow, soft, smooth, and resembles gelatine; it can be readily bleached and dyed, and has a fine, silky lustre. In strength and elasticity it is inferior to natural silk, and its specific gravity is higher, about 10 per cent. Soda or caustic alkalies attack it, water diminishes its elasticity, which it regains on dyeing. Artificial silk is manufactured from a variety of cellulose compounds, but the most important, perhaps, is that made from the nitro derivatives, and known as collodion silk. Other varieties are that made from cellulose dissolved in zinc chloride, much used for various textiles and incandescent bodies, and those made from solutions of cellulose in ammoniacal copper oxide and acetates. Lastly may be mentioned that made from viscose, much prized for textiles on account of its toughness. There are thus five chief methods of making artificial silk on a manufacturing scale, and each has its advantages and disadvantages. The most important and useful variety, however, is that made from nitrocellulose. In all these compounds the cellulose is present as dissolved cellulose, or as ethereal salts of cellulose, and not as any compound thereof. A proof of this is that the original cellulose can be recovered unchanged by means of precipitants, being thrown down as an amorphous powder or as hydro- or oxy-cellulose in a gelatinous or solid form. Finally, it will be seen that cellulose is an extremely important substance, and capable of being utilized in a number of ways, and that there is a wide field of research open for the discovery of methods of dealing with it to adapt it to numerous uses in a safe, cheap, and useful manner.—Dr. B., in *Holzstoff Zeitung*.



THE THREE-COLOR SYSTEM IN DYEING.

When we read the price-lists of the dye-making firms we cannot fail to be astonished by the vast number of artificial dyes now upon the market. In spite of this, however, new processes and new dyes come out daily. A dyer who wished to test everything offered would have to erect a chemical laboratory bigger than many of the smaller dye works. How then is he to make his choice quickly and safely? The question appears almost unanswerable at the first blush, but the following remarks, it is hoped, will contribute to its solution.

If we pass a long line of dyes in review before our mental vision, the first thing that strikes us is that a few have won a place which they keep in the teeth of the constant stream of freshly-discovered competitors. On enquiry we find that these well-established coloring matters are not only old, but very old, although the methods of using them

may have changed more than once. Indigo, for example, has been used and has been unreplaceable for 2,000 years. Its merits were tacitly admitted, and the enormous amount of money spent in attempting to produce it artificially is a convincing proof of them. That this has been now done every one is aware, as of a fact that a keen struggle is in progress between the natural and the artificial dye. This struggle has now reached a very interesting phase, as dealers in both have come down to the very lowest prices, so that the victory will remain with whichever side is able to make the most reduction by lessening the cost of production. Another dye which has held its place for centuries is Turkish red, in spite of several changes in the method of using it. Now it can hardly be a question of chance, or even of fashion, that decides that these dyes should hold the field so well. Let us consider their properties a little more in detail. Indigo is not completely fast to light. Cotton or linen dyed with it gradually pales on exposure. It is not even completely fast to washing, but neither alkalies nor acid affect the shade of dyeings made with it, and this is the secret of its success. Turkey red is fast to acids or light, and, like indigo, the color is full and soothing to the eye.

A third dye, quite a novelty by comparison with the two we have just mentioned, but one which can already look back upon a victorious career, is aniline black. Its fastness to light, acids, and washing, ensured the vast use now made of it. It is true that it is not fast to acids in the chemical sense of the word, but the change in its shade which they produce is so small that it cannot be seen unless looked for. If, for example, we wash a piece of cotton dyed with aniline black in somewhat diluted hydrochloric acid, dry without rinsing, and compare in a good light with an unsoured piece, we shall see a green shade on the soured piece, which, however, disappears on rinsing with soda.

The first requisite of a good dye is, then, that it should be fast to acids. This is easily tried. The second requisite is that it should be fast to light i. e., must not pale perceptibly with a fortnight's exposure to the direct rays of the sun. The third is that the dye should be fast to washing. In addition an ideal dye should be substantive, and be capable of being mixed for shading with any other dyes without any chemical reactions ensuing.

A new process, which is slowly but surely making its way, is the three-color system in calico printing. If new dyes are to succeed they must not only have the three properties above mentioned but must have shades occurring in the solar spectrum, so that a small number of them will suffice to produce any color desired. The dyer of the future ought not to have to buy more than three dyes, one of each of the simple colors, and be able to make all others for himself by mixtures among the three.

As a blue, indigo would do, but the yellow and the red may be difficult to get, but there is no reason to despair of success. It will also be required that the new dyes should answer equally well for all textiles, be substantive, and dye level. It is too often forgotten that if organic dyes are dissolved in a solution of shellac in borax, the dye is fixed when the dyed fabric is dried. This process is much used for making liquid pigments.

The discovery of three such dyes as we have indicated, one a pure spectral yellow, the others pure red and pure blue, fast to acids light, and washing, substantive, and level-dyeing, and dyeing all kinds of textiles, is a problem well worthy of the attention of all concerned.—By Dr. Losner in the *Deutsche Farber Zeitung*.

USES OF THE "OVERLOCK" MACHINE IN GARMENT MANUFACTURE.

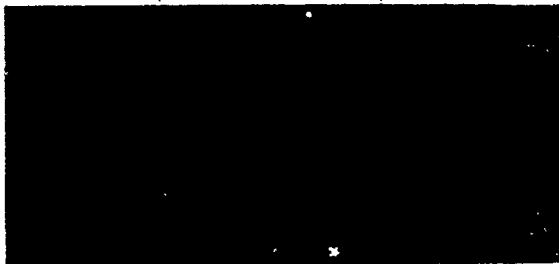
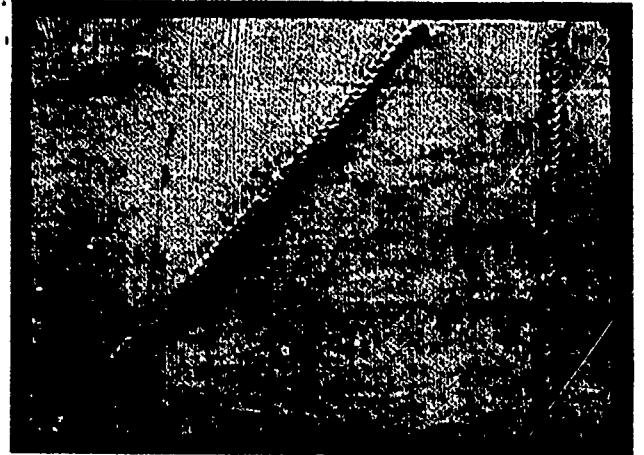
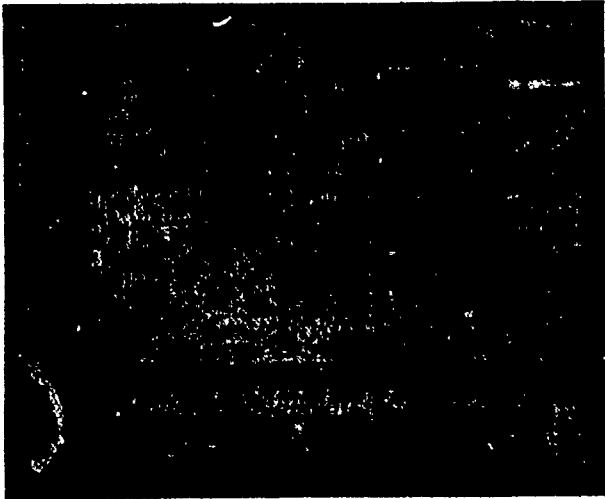
The "Overlock" Machine of the Willeox & Gibbs Sewing Machine Company was originally designed for the hosiery and underwear trade, and its quick adoption both here and abroad was unprecedented in the history of American machinery. Its special features and advantages may be briefly summarized as follows:

1. High speed—3,000 stitches per minute (50 per second).
2. Elasticity of stitch (equal to full strength of fabric).

the public, and being produced economically, the domestic output could successfully compete with foreign goods.

The leading mills in the United States and Canada at once adopted the "Overlock" system, and the public, quick to appreciate the advantage of a smooth, strong, elastic seam, hem and overedge on underwear, soon began to clamor for it.

The immense increase in domestic knit goods business during the last decade is largely the result of the close attention given by manufacturers to the demands of the trade for a superior finish of garments. By improved methods of finishing underwear, including particularly the "Overlock"



The stitch is strong, durable and slightly.

3. Double-thread overseam, whose successive loops interlock, forming the "Overlock" seam.

4. Trimming of raw edges in one operation with the making of the stitch.

5. "Overlock" Concealed Stitch Hem, no stitches showing on the right side.

Even a novice in the business can see that a machine possessing such great advantages would be almost indispensable to the manufacturer, and that the superior finish of the "Overlock" seam, hem and overedge would be attractive to

system, manufacturers have been enabled to meet those demands economically. The U. S. Consul at Nottingham, England, in a report to the Bureau of Consular Reports at Washington, said:

"The 'Overlock' stitching device of Willcox & Gibbs has had a phenomenal success since the date of its introduction . . . The keen competition among manufacturers has necessitated its use both as a matter of economy and to improve the character of the output for a discriminating market."

It was soon found, however, that the "Overlock" stitch could be applied to the finish and decoration of dress goods for overwear, as well as underwear, and consequently garment manufacturers generally have begun to use the "Overlock" system in numerous ways, as shown by the following partial table:

Flannelette wrappers and nightgowns—overedged, seamed and hemmed.

Ribbons, neckwear and belts, made of satin and various other materials—overedged, with or without cord.

Chiffon, mull and horsehair fabric for millinery purposes—overedged.

Felt and imitation fur—overedged for hats and millinery novelties.

Shirtwaists, skirts, petticoats, etc.—overedged and overlock striped, tucks overedged, insertion of lace in muslin. Overedged cut strips used in making of girdles (corsets).

Hemming, and seaming (as in shaping) of hosiery.

Overedging of moccasins and shoe tongues.

We show in this issue some illustrations of "Overlock" work on underwear and woven fabrics for dress goods.

The "Overlock" stitch can be varied in many ways, as for instance, the width or depth of bite, or the number of stitches to the inch may be increased or decreased; two or more colors of thread may be used; one, two or three cords may be inserted in the overedge, or the cord may be omitted; a tinsel or wire cord may be used, supplying stiffness to the edge.

These illustrations and suggestions will lead the intelligent manufacturer, buyer or dealer to devise many other ideas in connection with the application of the "Overlock" stitch to garment manufacture.

The headquarters of the Willcox & Gibbs S. M. Co., are in New York City, at 658 Broadway.



FOREIGN COMPETITION.

(Textile Recorder, Manchester.)

The more we investigate foreign competition the more our confidence in ourselves increases, since we can find nothing serious to contend with except longer hours and cheaper labor. How is it that in most cases the foreigners, with their superior education, longer hours, and cheaper labor, cannot compete with us in the open markets of the world? This cry of "Wolf" where there is no wolf is sickening. Additional light is now being afforded to us by the competition amongst themselves of our foreign rivals. Last year the Belgians frequently asserted to the writer that they were surpassing the French manufacturers and capturing the trade in merino, cashmere and other dress goods, but without a personal comparison of the goods the assertion was not taken seriously. From France

there is now ample admission and confirmation, and also proof that the trade there is not all plain sailing. Owing to the new law making ten hours the legal working day, manufacturers have attempted to reduce wages, with the result that strikes and labor disturbances have ensued. A Government Textile Commission was appointed to investigate the condition of the manufacturers and the workers in the north of France, and, although its labors are not yet concluded, we have already much information. It is admitted by the French manufacturers that the Belgians have captured most of the Fourmies trade. Wages in the Belgian textile factories are 20 to 30 per cent. below the French standard, besides which they have longer hours, the combined circumstances enabling the former to produce goods 12 per cent. cheaper. There has been an alarming decline in the export of Fourmies goods since 1883 in cashmere and other dress goods, the total having fallen from 370 to 218 million francs. The president of the Worsted Spinners' Association proved the decline by showing that, in the district of Fourmies the number of spindles in 1892 were 944,000, but now only 822,700. The number of looms employed by manufacturers had fallen from 16,800 to 14,700 during the same period, and the number of workers reduced in proportion. The hands employed have fallen in numbers during the last ten years from 25,000 to 20,400. The towns of Lille, Roubaix, and Tourcoing have also suffered, and the linen industry is said to be in sad plight.

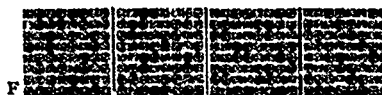
Textile Design

The design shown is a fancy worsted trousering, black ground and twist stripe. The weight is semi-tropical, but suits the colonies, and also the South American markets. A nice change of style is effected by substituting steel grey for the solid black threads.

A, 2/36's black worsted; B, 1/36's black, twisted to 1/36's white, 18 turns per inch. Warp, 3,970 threads, 66 in. wide in the loom. On eight healds, cross drafted. Reed, 4/15's. Weft A, 58 picks per inch. Shrinkage in slight fulling, 6 per cent. Clear finish, 56 in. wide. Finished weight, 14 oz. per yard. Warping, 2A, 4B, 12A, 4B, 16A = 32 threads.—Textile Record.



DRAFT No. 229.



DESIGN No. 229.



PLAN No. 229.

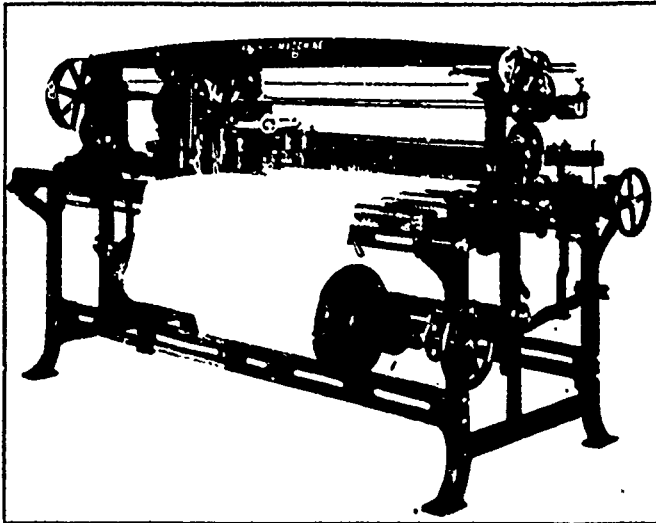


—Following up previous experiments and inquiries relative to flax culture in this Province, Mr. A. L. McCredie, specialist, has gone to Waterloo county to inquire into the process there, and to endeavor to find out how the Ontario flax fibre may be improved should it be found desirable to cultivate it for flax manufacturing purposes.

WARP-TWISTING MACHINE.

On this page will be found illustrations of the warp-twisting machine, invented by Gustav Hiller, of Zittau, Germany, mentioned last month in this magazine.

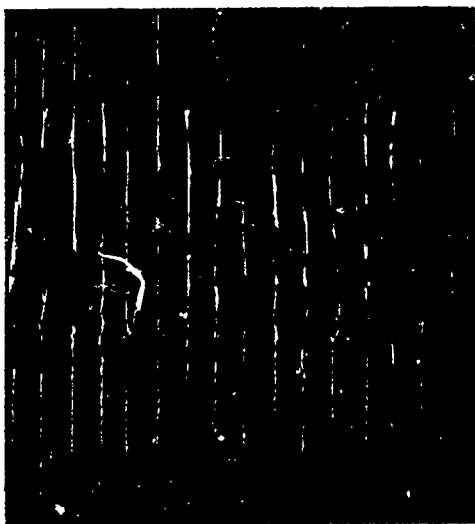
As is shown by the accompanying illustrations, both warps are put into the machine with cross rods in such a



Warp-twisting Machine. (From Textile American.)

way that they are directly opposite each other, and the ends are held together by a press, which is lifted by the machine, in order to slacken the warp at the moment that the two threads which are about to be fastened together are taken into the twisting apparatus. The machine works automatically; takes a single thread from each warp, cuts them, and twists them firmly together.

The illustration of the machine shows the mechanism which moves above the warp, about to begin the operation of twisting on the first ends. The other illustration shows the so-called twist; that is, the nature of the binding.



The Ends of Two Warps as Joined by the New Machine. (From Textile American.)

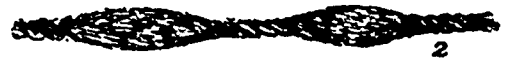
This machine is applicable to all classes of yarns, be they cotton, wool, linen, or silk. It is able to twist about

2,500 ends in an hour, whereas a good hour's work for an expert twister is 800 to 1,000. It thus does the work of about three experienced twisters, and it can be operated by an inexperienced workman.

EVEN AND UNEVEN ROVING IN WOOLEN SPINNING.

Since carding and spinning go hand in hand in woolen manufacturing, it is first necessary to refer briefly to carding. As a rule the carder calculates his roving to be drawn-down to about one-half on the mule, in order to assist in drawing out and reducing any lumps or other irregularities in the roving in the final yarn produced. There will be no trouble in drawing out a good even roving made from long, even stapled wools, this one-half or more in spinning, however, the best spinner will find it impossible to draw out uneven roving or such as made from short staple stock more than one-third, without keeping the mule standing most of the time piecing up broken ends.

With reference to uneven roving delivered to the spinning-room, the lumpy sort will be the ones making the



most trouble; in fact, it may be impossible for a fine thread to be spun out of it, since it is a well-known law in spinning that the lumps will take the twist only after the thin places between said lumps are twisted extra hard. This naturally tends to increase in proportion the size of the lumps, and in turn reduce the thinner places still more.

In order to explain this subject, the accompanying two illustrations are given, of which Fig. 1 represents an uneven, lumpy, unspun roving or carded wool. Examining the illustration, we will find that instead of having an even surface, said roving is lumpy, caused either possibly on account of dull card wires, or insufficient carding, or improperly prepared stock, etc. Such roving may now and then occur in any mill, but it should be seldom the case, and if found, the trouble at once remedied by proper attention to the set of cards where it was made.

In drawing out this roving on the mule, the same receives a few turns per inch as the carriage back off. The drafting occurs at this point, and, since the tendency is for the twist to take effect between the lumps, as previously mentioned, it follows that the lumps are more or less untouched with reference to twists by the mule, and remain soft and pliable, being drawn out only slightly in size, whereas the thinner places between the lumps have taken all the twist which actually ought to have gone in the full length of the thread under operation, said fine hard twisted portions of the yarn not drawing down any to speak of, and for which reason the mule does little towards correcting such imperfect roving, resulting in an uneven yarn as readily seen by means of examining diagram Fig. 2, and where we see that the bunches as mentioned before, although slightly drawn out as to size, are yet distinct in the thread, the thinner portions of the thread, as having taken all the twist, clearly showing too much of it. The reason for this is found in the fact that the larger in circumference a body, the harder it is to revolve it, and since the lumps in the roving are of a larger diameter as com-

pared to the thinner portions of the thread, it consequently follows that said lumpy portions of the thread acquire little, if any, twist compared to the thinner portions; in fact, all the thinner portions in the full stretch of roving under operation must be twisted solidly into a wire, as we might say, before twist is put in the larger places; i.e., the bunches, each bunch acting as a pin of a fixed lever for the length of the thin roving adjoining.

The proper amount of the draft to be put in the yarn at the mule requires good judgment, the rule usually observed being that the longer and coarser the stock, the quicker the drawing should be. If the roving pulls out from between the draft rollers during drawing, it is a sure sign that the draft is too slow, and for which reason put on a larger draft gear (backing off gear), or let out on the upper steady rope and take up at the bottom. If the roving snaps off about half way between the draft roll and the tops of the spindle during drawing, it is an indication that the carriage is backing off too quickly, the twist not having a chance to take hold, and in which instance reverse the previously given advice.

This law of uneven roving, producing bunchy roving, and in turn uneven bunchy yarn, although detrimental to an uneven thread, is frequently taken advantage of in the manufacture of bunchy yarn for the sake of producing fancy effects in fabrics; in fact, it is all the rage at present in connection with fancy dress goods, not only in the woolen and worsted trade, but at the same time in cotton and silk.

With reference to woolen carding, a double ring doffer system is devised, which delivers a regular lumped roving, and which then in turn is twisted just enough to impart sufficient twists to the yarn, i.e., to the spaces between the bunches in order to produce a thread capable of being woven; in this manner resulting in the fancy thread now extensively used.—Textile World Record.



WOOL MARKETS.

High prices still prevail in the wool markets, with no immediate prospect of a drop, but rather a further advance. The Canadian clip, which is diminishing each year, is thought this year to be about 25 per cent. below last year's clip in quantity. As the price of goods has not by any means kept pace with the raw wool prices, a great deal of complaint is heard from mills. Wool is now about four cents dearer than manufacturers can afford to pay with the prevailing prices for their product. This applies, however, only to lines in which there is British competition. In other lines the high prices are an advantage, as the farmer becomes a better customer for flannels, etc., and mills which are running at all at present are doing good business.

Dealers are paying 20 to 21 cents for washed fleece, 15 to 17 cents for rejections, and 11½ to 13c. for unwashed. Pulled supers are selling at 20 to 21½c. and extras at 21½ to 23c.

Windleier & Co., of London, report markets firm, with a strong undertone for all classes. As there are only 80,000 bales available for the auctions on the 20th instant, as against 160,000 last year, there will probably be an advance at that time.

Commenting on prevailing prices, a dealer remarked that the rise and fall of cotton has had considerable influence on the wool prices. When cotton was high, wool was used extensively as a substitute, but with the drop in cotton that much wool business fell off.

Montreal Wool Market.

Wool market is very strong. Manufacturers are looking round for stock before asking for fresh fall orders. Wool in this market is very limited. Nearly all the Canadian, both fleece and pulled, have been sold, the former at 20 to 21c., and the latter 23 to 25½c.

Foreign merinos are firm, with an upward tendency. The colonial sales take place in London on 20th inst., when another important advance is expected.



BRITISH TEXTILE CENTRES.

Kidderminster.

Manufacturers have a fair amount of wholesale and shipping work, but the retail trade is distinctly slow. Spinners are only indifferently employed, for buyers take as little as they possibly can. Prices of yarn, no doubt, stand in the way of business to a great extent, but the wool market is such that lack of trade does not shake quotations in the least.

Leeds.

Though the volume of trade was much below the normal, a fairly healthy tone pervaded on August 16th, and the future is being looked forward to with some amount of confidence. The bulk of spring orders was not large, but they are coming forward steadily. The price of raw material continued firm. Merchants and wholesale clothiers moreover did not appear inclined to buy except to supply immediate wants. Tweeds were the best selling lines, both for men's and women's wear. The outlook in respect of exports to the colonies was fairly promising.

Leicester.

The yarn market exhibited a slight recovery. Hosiery fabrics for autumn and winter wear are in better demand, both for home and colonial markets, and large contracts have been placed for specialties.

Huddersfield.

Orders of late have come in very slowly. There have been but few repetitions during the week, and fewer still on new patterns in the best kinds of staple products. The tendency to short-time continues, though a few firms are well placed. In low and medium worsteds there was also a diminished trade, and the Colne Valley is for the week given up to holiday-making. Spinners reported a trifling increase in trade, which may augur better things for the near future. Most of the colonial markets continue firm and steady: There was some slight improvement in South Africa, and Canada and Australia remain satisfactory. There was not much doing with the Continent, and a very meagre trade was transacted with the United States.

Belfast.

There is not much actual change at the market, but demand is fully sustained, and the tone of the market is promising. Prices all round show a hardening tendency; stocks generally are in small compass. The spinning branch show a healthy amount of briskness, and tow yarns are firmer, owing to the unwillingness of producers to book further ahead at late rates. Lines are steady and unchanged.

The manufacturing end is slightly better, and more business is offered than for some time past. White goods for the home markets are in fair average request for the season. The shipping trade is satisfactory, though the States cannot be reported as good. The colonies are fairly active.

Rochdale.

At the recent flannel market it was reported that business for this month continues of a holiday character. Very little new business came to hand. The orders were small and for the assortment of stocks, but occasionally a line of fair size was put through, though this was exceptional, as merchants prefer to wait until the regular winter demand sets in. Prices remained firm, with a slight upward tendency. Manufacturers found no relief in wool.

Kirkcaldy.

In the linoleum industry there is considerable activity, and, while the output is large, prospects are also fairly satisfactory.

There is no indication of the slightest improvement in the linen trade, no increased demand for yarns or for manufactured goods. Canada, the United States, as well as the home houses, only buying in the most sparing manner.

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.

Operations have been resumed in the Killaloe Woolen Mills, by M. Roche, Jr., & Co. The mills have been closed for some time.

The Carleton Woolen Mills, Woodstock, N.B., are running full time, and activity along all lines is reported in that town.

The Avon Hosiery Co., Stratford, is erecting a brick building 72 x 38 feet. The company will manufacture hose, socks, and toques.

The wholesale milling business of Robert Taylor, Toronto, has been incorporated as Taylor & Smart, Limited, with a capital of \$50,000.

The Pandora Cap Co. has been incorporated at London with a capital of \$25,000. F. A. Jones, G. Brooks, and others are the incorporators.

The Union Hat Works, Brockville, recently purchased by the Walthausen Hat Corporation, of South Norwalk, Conn., resumed operations last month.

An exchange reports that the Pepperell Cotton Mills, Biddeford, Me., have had considerable spinning machinery and many looms idle, owing to the help returning to Canada.

The Canadian Colored Cotton Co.'s mill at Marysville, N.B., will resume work early this month. The mill has been shut down for some time while repairs were being made.

The G. P. Perry Knitting Co., Hamilton, Ont., operating ten latch needle machines and ten sewing machines, are to double their capacity. They are making ribbed underwear.

The Western Ontario Cordage Co. has been incorporated at London with a capital of \$300,000. The charter members are D. J. Cowan, T. H. Purdom, K.C., A. Stuart, K.C., and others.

The Penman Mfg. Co., of Paris, Ont., (knit goods), are desirous of establishing a western branch at Medicine Hat. A representative is investigating the wool product and the natural gas resources of the district.

At a recent meeting in Quebec of the directors of the Montmorency Cotton Co., it was decided to erect a bleaching plant in connection with their mills at Montmorency Falls to manufacture white cotton for the home market. The building and plant is to cost \$50,000.

W. K. McLaren has secured a large order for English card clothing for the Seaforth Woolen Mill, lately taken over and remodelled by John Dick, Limited. W. R. McLaren has reclothed the Cobourg mill of John Dick, Limited, within the last six months. The satisfaction given there resulted in the other order.

A small fire occurred at the Slingsby Woolen Mills, Brantford, last month. Very little property was destroyed by fire, but stock was damaged by water to the extent of several hundred dollars. The fire is supposed to have been caused by a nail striking fire with a rapidly revolving machine, and igniting some waste.

The strike at Fall River, Mass., remains unbroken. The mill managers intend resuming about the middle of September, but the operatives say they will persist in their demand for the withdrawal of the reduced wage scale. Many operatives have left the neighborhood, quite a large number having come to Canada.

The Montreal Woolen Mills are now running half time, working each alternate week. The mills have been in continuous operation for fourteen years, and this is the first year in which operations have been carried on without a profit. Two hundred employees are affected. Joseph H. Horsfall is the managing director.

The Drummond Cotton & Bleaching Co. has been incorporated by Senator Wm. Mitchell, of Drummondville; J. W. Woods, of Ottawa; Geo. A. Gatehouse, Milton L. Hersey, Geo. Bothamley, and F. W. Hibbard, of Montreal, with a capital of \$150,000. This company is establishing at Drummondville, Que., a modern bleachery and cotton finishing works with a capacity for turning out about three-quarters of a million dollars' worth of goods. The works will be ready for operation about November next, and will finish and bleach cambries, lawns, fancy shirtings, etc. The joint managers are Messrs. Gatehouse and Bothamley, the former being secretary-treasurer. Mr. Bothamley, who will be superintendent of works, is an expert bleacher, having had extensive experience in the bleacheries of Lancashire, England, and for the past three years has been studying the conditions of the Canadian trade as superintendent of the bleachery of the Dominion Cotton Mills Co. The new company will deal with the wholesale trade only. The works are situated on the St. Francis River, which not only produces ample power, but is of a quality specially adapted for bleaching purposes. The town has a large water power already developed, and the company will get its power from the municipality under favorable terms. The municipality also gives a cash bonus, with lighting at nominal terms and exemption from taxation for twenty years. The head office of the company will be in Montreal, the temporary address being 12 St. Eloi St.

F. S. Johnstone, of Gilbertville, Mass., is now in St. Thomas, Ont., getting his new knitting factory into shape.

It is reported that the Hewson Woolen Mills, at Amherst, N.S., are about to be enlarged, and that more machinery will be installed and extra hands employed.

The postponed sale of the properties of the Canada Woolen Mills, Limited, is appointed for the 15th inst. at the office of the Master in Chambers, Osgoode Hall, Toronto.

The machinery of the old Cornwall woolen mill has been purchased by R. S. Fraser, of Montreal, and is now for sale by him. His advertisement appears elsewhere in this issue.

In the Machinery Hall of the Toronto Exhibition a varied assortment of textile mill supplies and English oak-tanned leather belting was shown by D. K. McLaren, Montreal and Toronto.

John W. Pointer, a young lad employed in the Canadian Colored Cotton Co.'s "Canada" mill at Cornwall, was caught by the trap-door of the elevator shaft as the elevator was rising and crushed so severely that he died on the 4th inst.

At the Toronto Exhibition the J. C. McLaren Belting Co., belting and mill supplies, Montreal and Toronto, had a large display of belting, among which was a 48-inch double belt sold to the Firstbrook Box Co., Toronto, and a 30-inch belt, sold to the Ingersoll Electric Light Co.

The machinery and plant of the Enterprise Hosiery & Underwear Co., Ltd., of Toronto Junction, were sold on August 26th, to Joseph Simpson's Sons, of the Toronto Knitting Factory, at 40 cents on the dollar. The stock was not sold, owing to a lien of the bank interested.

Robert S. Fraser has installed a rotary dryer and complete wool and hair washing plant in wool, wool stock and garneting works at St. Gabriel Locks, Montreal. The dryer is a three-apron machine of special design, and these and other recent improvements will make Mr. Fraser's establishment the most complete of its kind in Canada.

The Excelsior Woolen Mills, of Montreal, which have been curtailing production recently owing to the preferential tariff, took advantage of an accident to the machinery to close down altogether for a week or two last month, but are again running. The accident was a broken shaft which temporarily crippled the motive power.

The proposition for the linen mill at Orillia presents no new developments. When the break occurred in the Orillia power dam the town had agreed to guarantee bonds for \$50,000 (when \$150,000 had been spent by the company), the town having transferred a five-acre site to the company, and agreed to furnish 300 horse-power at \$10 a horse-power. Mr. Pauley expressed an intention of beginning work in the spring, but has made no further move at Orillia.

The Dominion Oilcloth Co., Limited, Montreal, has recently installed a complete plant for the manufacture of mulem. This is a branch of manufacture which has hitherto not been attempted in Canada, owing to the large and expensive plant necessary to produce satisfactory goods. The company have expended a very large sum in the establishment of this new plant, confident of the future of the industry in Canada. Besides purchasing expensive machinery, it has been necessary to increase their building accommodation considerably, the last addition, now in course of construction, being a warehouse 175 x 130 feet. Their present plant occupies an immense area of buildings, situated on both sides of Parthenais street, between St. Catherine and Notre Dame streets.

The Canada Jute Co., of Montreal, makers of bags, are considering the establishment of a branch factory in Winnipeg. Francis Braidwood, the manager, recently visited the west with a view of locating a site, and he says all difficulties could be surmounted but that of labor, the difficulty would be to get the class of men who would remain permanently with the business. The company supplies large quantities of bags to the milling companies in the west. The difficulty of securing barrels for the shipment of Canadian products increases each year, and bags are being used in an increasing degree for the shipment of all possible products.

* * *

Fabric Items

A dry goods firm to be known as Rhys D. Fairbairn Limited, has been incorporated at Toronto, with a capital of \$50,000.

A. L. McCredie, lecturer at the Ontario Agricultural College, is conducting an investigation, and will report to the Provincial Government on the best method of widening the scope of the flax industry in Ontario.

A co-operative store is being organized in Sydney, N.S., by employees of the Dominion Iron & Steel Co., and the Intercolonial Railway. The company is to be known as the Union Supply Co., and is to have a capital of \$20,000.

H. Kellert & Co., wholesale clothiers, Montreal, have purchased property at the corner of St. James and Little St. Antoine Streets, where they will erect a five-story pressed brick warehouse, having entrances from both streets.

The Stewart, Howe and Meek Co. has been incorporated at Toronto, with \$100,000 capital, to manufacture and sell wearing apparel. The incorporators are A. J. Stewart, L. F. Howe, and others of New York City, and C. S. Meek, of Toronto.

The Montreal Small Wares Co., has been incorporated at \$100,000 capital, to carry on a business in pins, needles, buttons, etc. The incorporators are G. A. Driggs and W. R. Willetts, of Waterbury, Conn., and H. Beaudry, J. Beaudry, and C. Dessaulles, of Montreal.

The business of John C. Green & Co., London, has been incorporated with a capital of \$125,000 to carry on a wholesale millinery and fancy goods business. The company's head office will be in Toronto. The provisional directors are J. C. Green, H. E. W. Green, and R. W. Green.

Negotiations are now in progress for the absorption of the Wyld-Darling Co. by Gordon, Mackay & Co. The Mackay Co. is one of the oldest dry goods firms in Toronto, having begun business in 1855. Mr. Donald Mackay is still president. The Wyld-Darling firm was started in 1872, when Mr. Frederick Wyld came to Toronto, and has been carried on at different times under the names Wyld, Brock & Darling, and Wyld, Grasett & Darling. Mr. Wyld and Mr. Andrew Darling are the leading members. Both firms were burned out in the big fire of last April, and the Gordon, Mackay Co. is now about completing a new and larger building at the old site at Bay and Front Streets, with additional land to the west. The woolen business of the Wyld-Darling Co. was taken over by Thos. Ogilvie & Sons, of Glasgow, shortly after the fire.

C. E. RILEY & CO'Y.

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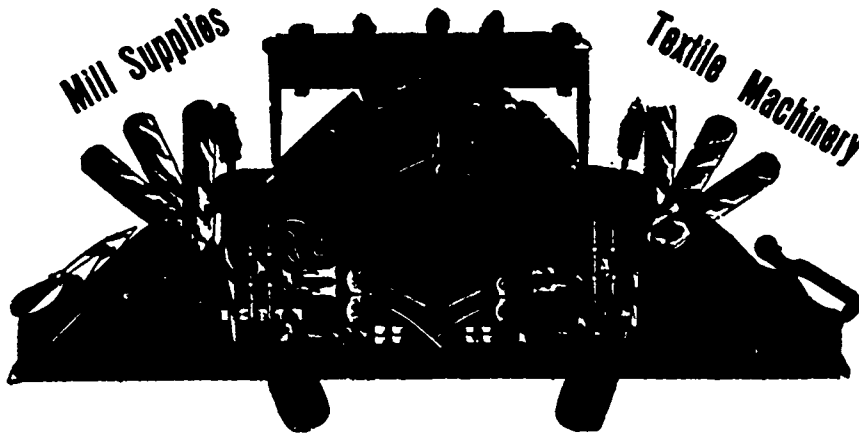
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Wools, Tops, Noils.

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Looms for weaving
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OF EVERY DESCRIPTION

For Woolen, Cotton and Rope Mills. Extra facilities for
supplying new mills and filling large orders.

Correspondence Solicited.

Orders Promptly Filled

—The woolen industry in Canada, judging from what a large number of newspapers say, is in the hands of men who do not understand it, and is evidently in need of being taken in hand by a commission of Liberal editors. Some of the papers also, look as if they might be improved if a woolen man had them in control. It is a pity the exchange cannot be made.—Montreal Gazette.

THE NEW

French Shoddy Picker Machine

SUPERIOR TO ALL OTHERS.

High Test Awarded at Paris Exposition, 1900.

OF SILK, WOOL, COTTON, WASTE, JUTE, etc., it will
produce fifty per cent. more production than the Garnett
Machine on one-half the power—Has no rival on the market.

Toronto Woollen Machinery Company

118 DUK^e STREET, TORONTO.

L. B. JANNAZ, Manager.

Sole Agents for Canada and the United States.

Prices on Application.

Prices on Application

The monthly report of the chief of the Bureau of Statistics of the Department of Agriculture at Washington showed the average condition of cotton on August 25th to have been 84.1, as compared with 91.6 last month; 81.2 on August 25, 1903; 64 on August 26, 1902, and a ten-year average of 73.2. The report caused a slump in prices.

Fibre and Fabric, the well-known Boston textile weekly, has just removed to more spacious quarters, at 146 Franklin Street, Boston. This change also includes Wade's Overseers' Bureau. The paper has been for twenty years an authority in its line, and its overseers' bureau has proved of the highest value to both mill owners and skilled operatives.

The cotton crop of the Southern States is estimated at 10,011,374 bales, a decrease of 716,185 under that of 1902-3. Compared with last year, in round figures the crop of Texas, including Indian Territory, has increased 45,000 bales. The crop of the group known as other Gulf States has declined 430,000, and the group of Atlantic States has fallen off 332,000. The average commercial value of the crop is estimated at \$61.38, against \$44.52 last year, and the total value of the crop at \$617,501,548, against \$480,770,282 last year.

CHEMICALS AND DYESTUFFS.

British centres report the market as being quiet, but with a certain amount of steadiness on the whole and advanced prices in a few cases. With the close of the holiday season it is expected that the market will show much greater activity. The New York market shows some improvement, and sellers are confident that this will continue until the old-time activity is restored.

Bleaching powder	\$ 1 40 to \$ 1 60
Bicarb. soda	1 75 to 2 00
Sal. soda	0 75 to 0 90
Carbolic acid, 1 lb. bottles	0 35 to 0 40
Caustic soda, 60°	2 75 to 3 25
Caustic soda, 70°	1 75 to 1 80
Chlorate of potash	0 07 to 0 08
Alum	1 75 to 1 95
Copperas	0 50 to 0 65
Sulphur flour	1 40 to 1 60
Sulphur rock	1 45 to 1 80
Sulphate of copper	0 06 to 0 06½
White sugar of lead.....	0 08 to 0 08¼
Sumac, Sicily, per ton	45 00 to 50 00
Bich. potash	— to 0 03¼
Soda ash, 487° to 587°	1 15 to 1 25
Chip logwood	1 50 to 1 75
Castor oil	0 07 to 0 08
Cocoonut oil	0 07 to 0 08

NEW BLACK FOR WOOL

EMPIRE BLACK

Absolutely Fast ONE DIP Black

Unequaled for depth of shade. Users of black should investigate.
Fastest Black on the market.

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CARBIDE BLACK E

Cheapest and Best One Dip Black on the Market

HEADQUARTERS FOR

Caustic Potash 90%	Carbonate of Potash
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Yellow Prussiate Potash	Yellow Prussiate Soda

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Used by the largest cotton and woollen
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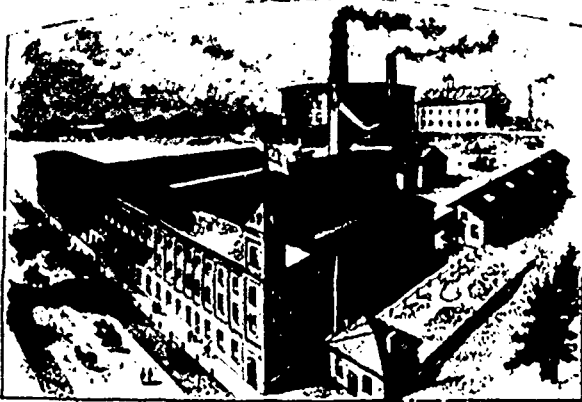
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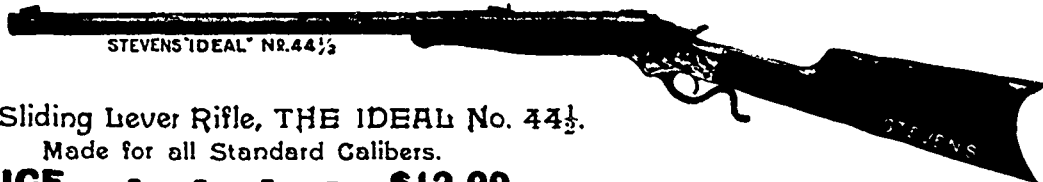
Having lately enlarged and improved our plant, and having a large quantity of well-seasoned stock in the rough always on hand, we are prepared to fill any order carefully and promptly.

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An enquiry will cost you two cents and two minutes time. If you will favor us with the same we shall be glad to send you samples of any raw material which you may require—quoted at lowest prices, delivered at your station, duty and other charges paid.

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"2 SET WOOLLEN MILL" favorably situated for general work, also for custom trade. Mill now going and doing a healthy business. Address "BROWN," c/o Canadian Journal of Fabrics.

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Position, by practical weaver and finisher, capable of designing for Cotton Fabrics. Best references furnished.

Box 124, JOURNAL OF FABRICS, TORONTO.

Charles J. Dickson, loom fixer of the Streetsville Woolen Mill has resigned his position to accept a post in the Ross Rifle Co.'s new factory in Quebec.

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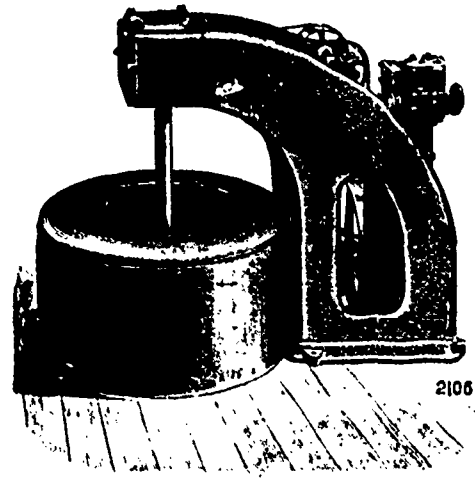
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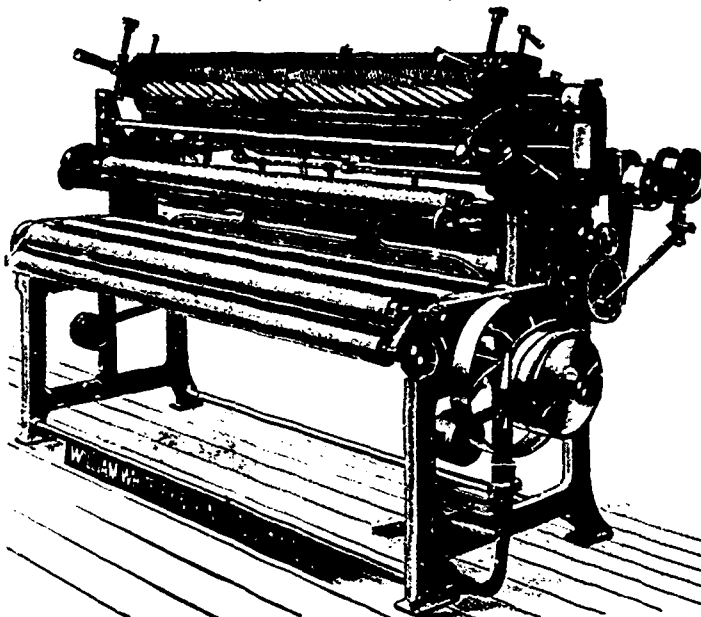
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Tentering and Drying Machines
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Mercerizing Machinery. Complete Plant for Aniline Black.
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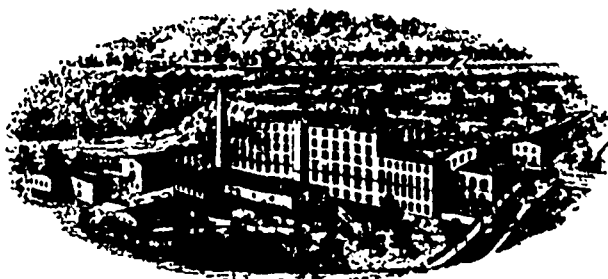
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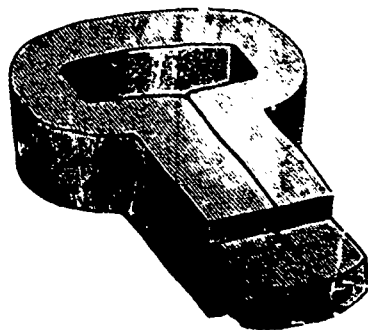
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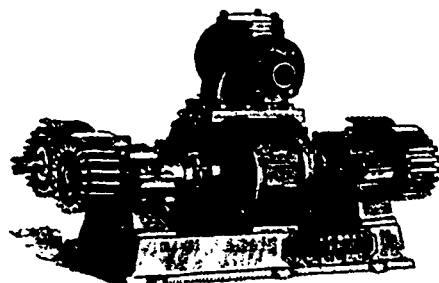
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An association has been formed in England which will be known as the British Weights and Measures Association, having for its objects the defence, standardizing, and simplifying of British weights and measures. The association will take up an antagonistic attitude towards any measures to enforce the adoption of the metre as a British standard, and it proposes eventually to introduce simplified and scientifically related weights and measures based upon the existing British systems.

The Toronto Street Railway Company have recently placed an order with Sheldon & Sheldon, of Galt, Ont., for two 180-inch fans for forced draft, to be used in connection with the Jones stokers which they have installed. These, together with the two other fans of the same size and make, which are already installed, will make the largest plant of this kind in Canada. The fans are of the three-quarter housing type, direct connected to engines, and have a capacity of approximately 90,000 cubic feet of air per minute each at two ounces pressure.

The silk industry is sick, according to the August "World's Work," the fashionable world in recent years having given preference to woollen fabrics. There is no doubt that the world's capacity for silk production has run a long way ahead of demand, and the writer anticipates heavy trade losses before things are better. But it need not be feared, he says, that silk has permanently lost its position in feminine favor; and one beneficial result of the

present crisis will certainly be an agreement among manufacturers to restrict the practice of silk loading or adulteration.

From the textile point of view the most interesting matter before the British Association at its annual meeting in Cambridge was a discussion of the cotton crisis, in which Premier Balfour, president of the Association, participated. He said he feared gambling in futures could not be stopped, but an extension of cotton cultivation would remedy the difficulties the cotton mills were experiencing. The principal paper of the day was by J. A. Hutton, vice-chairman of the British Cotton growing Association, in which he detailed the efforts of the association to relieve Great Britain from dependence upon the United States for raw cotton. He said that the short time on which the English factories were running was not entirely due to the shortage of cotton, but was largely owing to the serious aggravation of the difficulty by numerous speculators. Mr. Hutton pointed out that probably it was not generally realized how very costly it was to remedy this state of affairs, apart from the danger of English mills playing into the hands of foreign competitors. He estimated that no less than 10,000,000 people in Britain were more or less dependent on the cotton trade. The employers alone were losing \$200,000 a week through short time, and the total loss to capital and labor in the cotton and other allied trades throughout the country was not less than \$1,500,000 per week, or \$75,000,000 per annum. Mr. Hutton said there was no hope of immediate relief.

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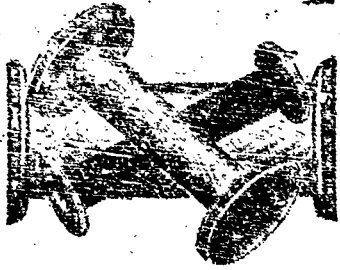
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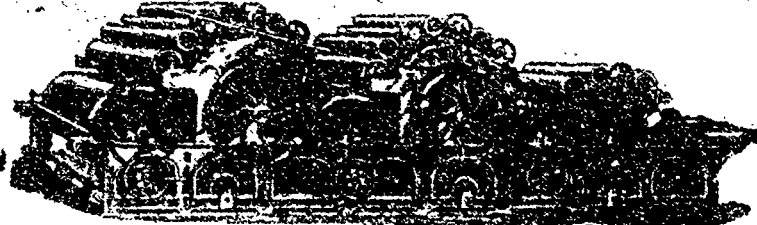
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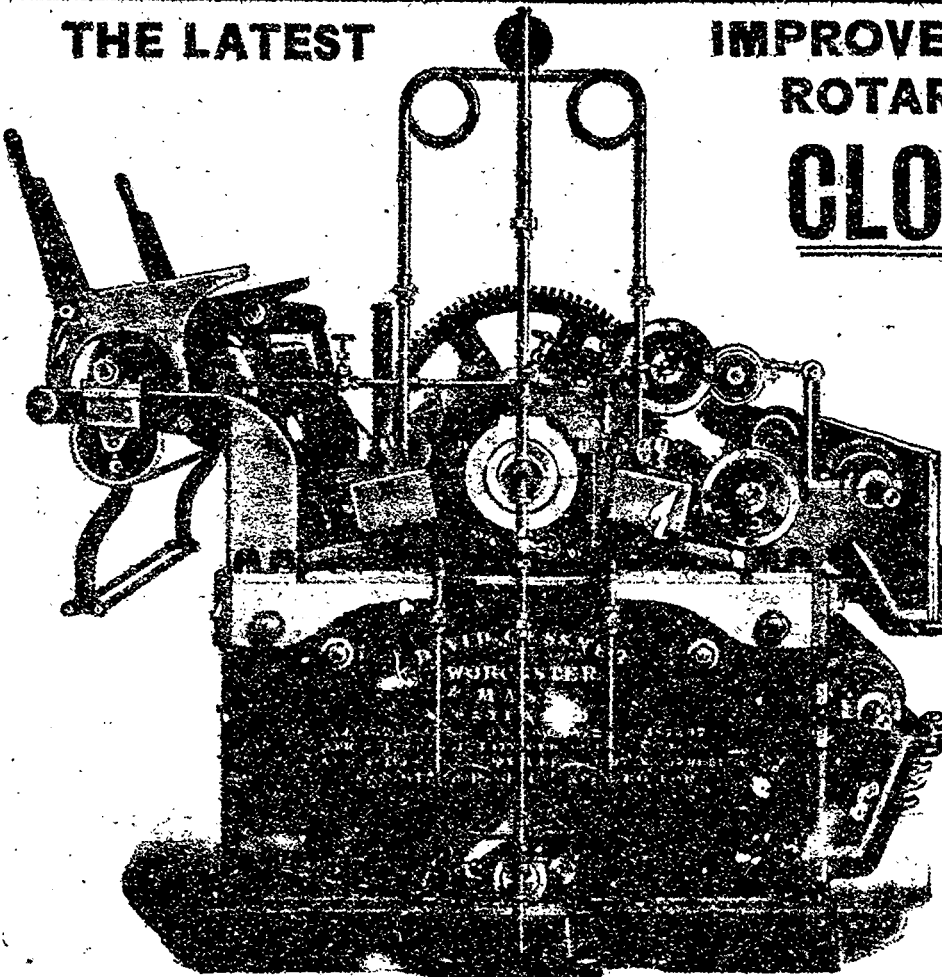
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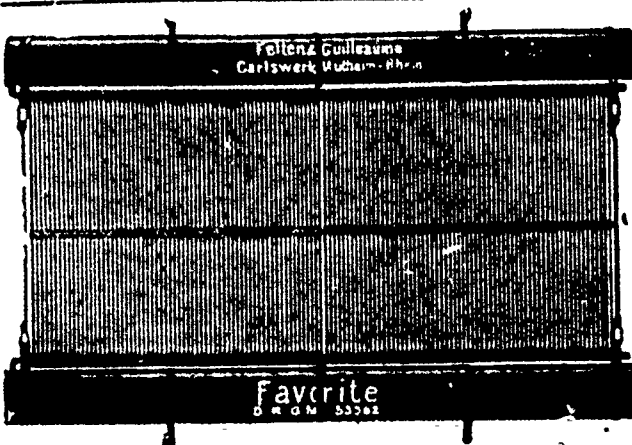
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