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THE JOURNAL OF THE Textile Trades of Canada.

Vol. XX. TORONTO AND MONTREAL, OCTOBER, 1903. No. 10.

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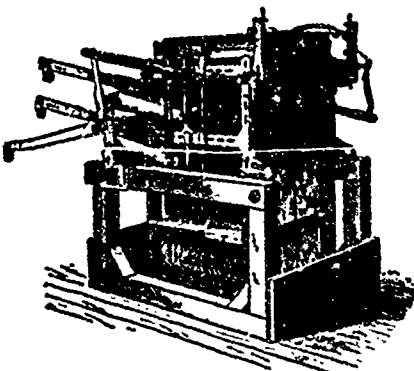
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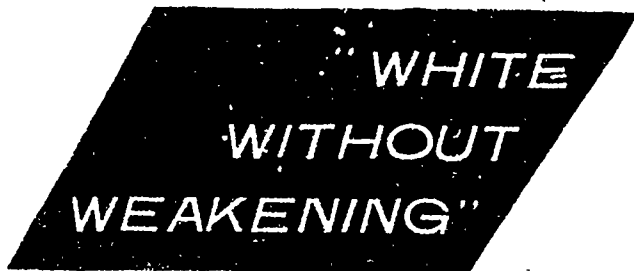
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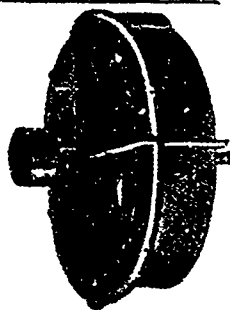
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CANADIAN Journal of Fabrics

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TORONTO AND MONTREAL, OCTOBER, 1903.

No. 10.

Canadian Journal of Fabrics

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

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THE SITUATION.

The daily papers during the last two weeks have been announcing the closing down, or the shortening of hours, of some of our largest woolen mills owing to lack of orders, caused by competition from abroad. This was predicted by the Journal of Fabrics two years ago, and the wonder is that its fulfilment has been so long delayed. That it has come during the high tide of general prosperity in the country is a proof of what we have all along contended, that, so far as home manufactures are concerned, the burden of tribute imposed

by the preferential tariff falls upon the Canadian woolen manufacturers, and to a lesser extent upon the cotton manufacturers. The reasons have been often stated, but two or three of them may be repeated. Owing in part to the suitability of the climate, the water and the adaptability of the people for these industries, the woolen, worsted, carpet and cotton manufacturers of Great Britain stand to-day as the only large industries that have not been either beaten or at least seriously assailed by the rising manufacturers of other European countries and the United States. The best-equipped and most highly specialized branch of manufacturing in the Old Country is thus brought against a Canadian industry which, though already important to us—by reason of the large number of hands and large amount of capital employed—is not yet developed to that point where it can bear the full force of the competition of Great Britain's greatest industry. The woolen and cotton mills of Canada were established under the old general tariff, in which textile machinery was taxed to such an extent that it has cost about 40 per cent. more to equip a mill here than in Britain. The word "tax" bears its fullest significance in this connection, because the duty on textile machinery, such as spinning, weaving, wool working and other large special machines does not protect a home industry because no such machinery is made in Canada. Therefore the Canadian Government compels the woolen manufacturer to fit out his mill under a highly protective tariff and sell his goods under conditions allied to free trade. Again, the Canadian manufacturer has the added burden of German and other foreign competition to deal with, for under cover of the preferential tariff large quantities of such goods are sent into England for so-called finishing, and after passing into third or fourth hands are exported to Canada as British goods. This is a kind of fraud that is difficult to deal with, but we have evidence that it exists to a greater extent than is imagined by people not immediately concerned.

Now, we believe the great majority of Canadian textile manufacturers are willing to bear a fair share of tribute for Imperial unity; but under the preferential tariff as at present arranged they are bearing a heavy burden, while manufacturers in other lines are not called upon to lift a finger in the cause. For

example the Canadian furniture manufacturers could vote for a British preference of 50 per cent., or even 75 per cent., without sacrificing a dollar of their own trade, for the good reason that in the lines of goods which Canadian furniture manufacturers produce they can actually beat the British maker in his own market. It is easy to shout for the preferential tariff under those circumstances.

The unbiased reader will see that the incidence of the preferential tariff does not fall equitably on the various industries of Canada; and, while the Canadian textile manufacturer is willing to give the British merchant and manufacturer an advantage over the foreigner he can hardly be asked to make all the sacrifice while his fellow-countrymen in other lines are not called upon to pay a penny of the tribute.

We are glad to note that the *Globe*, whose editorial is quoted in this issue, takes a very reasonable view of the woolen men's position; and the *Montreal Witness*, another Liberal journal, also appreciates the peculiar position of this industry. At the annual meeting of the Canadian Manufacturers' Association last year members of the Dominion Government also admitted the justice of the woolen men's representations, but so far they have not acted on their convictions. What are they going to do about it?

THE NEED OF THE DAY.

We have long held the opinion that one of the causes of the failure of Canada to make the progress it should in textile manufacturing is the absence of centres of technical and industrial education in our own country suited to the rank and file of woolen and cotton mill operatives. The recent opening of the textile paper making sections of that magnificent institution, the Manchester Technological College, and the prospects of the early establishment in London of a great technological institute, to which Lord Rosebery and a number of public-spirited citizens are contributing, shows that the Mother Country is now awake to the vital necessity of better technical training if it is to hold its old supremacy in textile manufacturing. Not alone Great Britain, but the United States is now fully alive to the bearing of technical training on its industrial progress, and the several textile schools established in the past five or six years in the chief textile manufacturing districts of the Eastern States will show that our neighbors appreciate the situation, if we in Canada do not. Herbert F. Walmsley, president of the New England Cotton Manufacturers' Association, in his opening address at the convention held this month, said:

"A word with reference to the technical education movement. We are told that among many causes that have contributed to the advancement of German industry are the educational conditions upon which Ger-

many has relied so largely in the past for the maintenance and remarkable development of her industrial progress. The importance of technical education is fully understood in this country; nevertheless, we must see to it that neither Germany nor any other country surpass us in this particular, never losing sight of the fact that the continuance of our prosperous existence as an industrial and commercial people depends upon our ability to compete in the great markets of the world with European rivals. We cannot live without exchanging the work of our hands and the thought of our brains with those of other nations. If they surpass us in intelligence, we shall become poor and incapable in comparison with them. Excellent work is being accomplished by our textile schools, and must form one of the chief elements of our success in commercial and industrial prosperity. Regarded from the economic or industrial point of view, how important, then, is the question of technical education; that this sentiment has taken possession of the people of this great and rapidly evolving country is manifested by the readiness and munificence with which either as individuals or as communities they establish, throughout the length and breadth of the land, agencies whose functions shall be the industrial enlightenment and artistic training of its citizens. There must be no disposition to remain satisfied with past or present achievements. The wisdom of appropriating from the public funds such moneys as may by the authorities be deemed proper and sufficient for the encouragement of the technical instruction movement can scarcely be questioned."

All this applies with special force to the woolen industry of Canada, because, while the requirements of our climate indicate a large field for textile manufacturing, while the country produces a wool of remarkable strength, we have a population well qualified to excel in designing and manufacturing. Moreover, we have an enormous amount of cheap electric power. In the cotton and other branches the French Canadian population are especially deft in mill work, and only require technical training to achieve the highest results. Had a system of technical training been adopted in Quebec years ago, the French Canadians, who now provide the bulk of the skilled labor for United States mills, would have been employed at home in cotton mills that would have been shipping Canadian cottons all over the world. As it is, Canadian labor has all these years been building up United States industries and aggrandizing United States capital. The cheap power possessed by this country will, no doubt, in time draw back much of this capital and skilled labor; but a technical training school will help on the process, and it is time that our Provincial Governments bestirred themselves to do their part if they want to save Canada from dropping out of the race. A man is wanted who will do for the textile trades what Sir William Macdonald has done for the engineering trades in equipping

the Applied Science Department of McGill. As the pulp and paper industry has a great future in Canada, a start might be made, as in Manchester, by combining the textile with the pulp and paper trades in equipping the first institution.

MORE PROTECTION FOR WOOLENS.

Once again is heard a loud cry to Mr. Fielding, calling for increased duties on woolen goods. The Canadian woolen industries, it is claimed, are rapidly being ruined; they cannot compete with British factories; mills are closing down on every hand. Now, while there is a degree of truth in these contentions, there is also a large amount of falsehood; and, unless the two are carefully separated, we believe that the spirit of partisanship which prompts the mixing of the two ingredients will result in serious injury to the interests which it is desired to benefit. One of the high-tariff newspapers recently published a list of twenty-six woolen mills in this country which had closed down, either permanently or for an indefinite period. The paper in question, however, did not mention that of these mills the majority had closed down long before the preferential tariff was ever heard of, or that in some cases they were shut up simply because their plants had been removed to other places. What is a Minister of Finance to say to an argument so clumsily expressed?

Plain truth obliges us to declare that three-fourths of the woolen mills of this country have nothing to complain of whatever. Some of them are running night and day; others are adding to their capacity. Broadly speaking, the blanket, carpet and knitting sections of the trade are fairly prosperous.

On the other hand, it cannot be disguised that the manufacturers of tweeds are in a sorry plight. They are butting against the British manufacturers in an industry of which they are the acknowledged masters; the one trade in which Britons have not lost ground. And our mills are doing it under peculiarly discouraging circumstances. The Canadian manufacturer has to send thousands of miles for his machinery, besides which he has to pay duty on it, cost of packing, freight, etc.; he has to pay interest on his investment at say 6 per cent. against 4 per cent. in Britain; his labor costs on the average 40 per cent. more than that of his rival, and his increased expenses taken together certainly offset the protection he now receives, 23 1-3 per cent. But besides this, there are other considerations. The British tweed manufacturer can make the finest goods in the world; but he is also an adept at turning out, with a beautifully finished appearance, shoddy stuff that is not worth the labor of making it up. Then again, under the preferential tariff, not only British but German goods creep into this market by the most ingenious of methods.

Now, an increased duty of something like 10 per cent. net, or perhaps five cents per pound net, would doubtless do a good deal to remedy this state of affairs, and we think the tweed makers are entitled to consideration. But to make the need for a higher tariff on tweeds a *casus belli* for a general increase all round is altogether different, and calculated not only to defeat its own purpose, but, what is more to be regretted, to postpone the granting of relief to the class which really needs it.

—Sweet clover, having been proved unadapted for making binder twine, must, we suppose, be declared a nuisance. The council of a western township has passed the following resolution: "That sweet clover be and is hereby classed as a noxious weed in that township, and that it will be considered as such in the future."

—The Boston Herald prints the following curious story, showing how addicted to tobacco English workmen are. The directors of an English woolen mill offered £1 to each of its thousand employees who would abstain from smoking and chewing tobacco for six months. Although the offer went into effect only a few weeks ago, over 300 operatives are already disqualified from receiving the sovereign, and it is thought that only a small number will be able to hold out during the half-year.

—Of the British knitting industry, the Hosiery Trade Journal says: The knitting industry, generally speaking, has, at the present time, reached a critical stage. Few departments can boast of any remunerative business on hand, while the reports from others are of a most serious character. Such conditions as now exist have not been known for the past thirty years, is the report of a well-known authority. Manufacturers cannot accept orders at anything like old prices, while merchants refrain from placing orders at the advance necessary. In the underwear department this is felt most keenly owing to the heavier character of the goods.

—Notwithstanding the stimulus given to trade with Britain by the preferential tariff, the commerce between the United States and Canada was larger in the last fiscal year than in any preceding year, according to statistics furnished by the Department of Commerce and Labor for the United States. Imports from Canada amounted to \$54,660,410, and exports to Canada \$123,472,416. In only one year, that of 1881, did the imports ever before reach the \$50,000,000 mark. Exports to Canada never reached \$100,000,000 until 1901. The imports into Canada from Great Britain have increased from \$13,000,000 in 1901 to \$56,000,000 in 1903, but the imports from the United States increased in the same time from \$110,500,000 to \$129,000,000.

—While the cotton trade of Great Britain has for some months past been depressed, and some millions of spindles have been idle at times, this condition appears to be largely due to the shortage in the supplies of raw cotton. It has also affected the cotton exports of the United States in a marked degree, the exports in colored goods the seven months of last year being 101,500,000 yards, and less than 80,600,000 in the same period this year, with a corresponding sharp decline in uncolored goods. On the whole, the operations of the raw cotton speculators will do more harm to the United States cotton trade than to the cotton trade of other countries which depend on the States for their supply of the raw material.

—One cause of the very keen competition now being felt by Canadian woolen mills is the depression now prevailing in Yorkshire, which is reacting on this market. A loud and bitter cry is going up from the manufacturers of Bradford who have a good deal of machinery standing idle. This state of things appears to be due in some measure to unseasonable weather, which has left a large quantity of summer goods on hand in the home trade; and the great popularity of French goods in the British market has also its influence. The heavy woolen district of Yorkshire is equally depressed. It is a common thing to see Yorkshire weavers going home at the week-end with the equivalent of \$2.50 to \$3, while a weaver who averages \$4 a week is doing uncommonly well. Such facts throw a side light on the operation of the preferential tariff, elsewhere referred to, from a Canadian standpoint.

—It will be a surprise to the uninitiated to learn that the consumption of binder twine this year in Canada has gone into the millions of dollars. The Canadian Government, in view of the importance of this industry, have taken two steps which will be generally approved of. One is the appointment of an inspector of binder twine, whose duty, among other things, is to see that the farmers get the full measure of twine they pay for. A number of prosecutions were made, chiefly against United States makers and shippers, and the inspector estimates that \$175,000 has been saved to the farmers of Canada this year by the enforcement of the provisions of the Act. About 275,000 pounds of United States twine were recalled from sale on account of short measure. The other step is the renewal of the duty on binder twine, taken as a means of countervailing the export duty on sisal from the Philippines. One of the first moves made by the United States Government when it obtained control of the Philippines was to put an export duty on sisal in order to throw the trade into the hands of the United States merchants and manufacturers. This amounted to an actual bounty to the United States binder twine maker as against

the Canadian maker, and, as experience showed that the Canadian farmer got his twine no cheaper by reason of these bounty-aided imports, it was well that this unfair handicap was offset by the duty. But if the new "headers," which harvest grain by stripping the heads off, come into general use, the magnitude of the binder twine industry may very greatly diminish in this country as well as in other grain-raising countries.

—The Hosiery Trade Journal is rather scornful about the paper stocking, and has this to say: "Our old friend, the paper stocking, is to the front again in the columns of the non-technical press. In the latest report which comes from the Continent, it is admitted that little is known of the process of manufacture, but, it is added: 'Let no one assume that these stockings, because they are made of paper, will only last a few days, for they will really last almost as long as ordinary stockings, the reason, it is pointed out, is because the paper of which they are made is, during the process of manufacture, transformed into a substance closely resembling wool, and is then woven and otherwise treated as ordinary wool.' We have not seen the new "wool," but if it so closely resembles the genuine article as to affect the present high prices of that commodity, its advent will be welcomed in many quarters, even though this latest example of Continental enterprise threatens further inroads on the British hosiery industry."

—The surtax imposed by Canada has hit Germany pretty hard, as was to be expected. Textiles especially suffer. The Chamber of Commerce, Chemnitz, reports that the increase in duties has hit the Saxon textile industry very hard, especially in cotton woven gloves and stockings, which were largely exported from Saxony to Canada. The additional increase of 33 1-3 per cent. will completely prevent continuation of the Saxon export to Canada. The situation is the same as regards the weaving industry. These industries will make an effort to retain the Canadian market by altering the quality of their goods and foregoing profits, but in the long run the surtax will prove too heavy. The toy industry is also seriously affected, and the whole of this export trade to Canada will be lost if the increase of 33 1-3 per cent. duty becomes permanent. The German Chamber of Commerce urges a friendly arrangement with Canada on a basis of mutual concessions. It points out the serious consequences of a customs war with Canada, as it would endanger German commercial relations with England, and German industries could not stand the consequences of a customs war with England. It suggests that an arrangement could perhaps be made on the basis of a preference of from 5 to 10 per cent. allowed by Canada to the Mother Country as against Germany.

—Recent changes in the Government of Russia appear to indicate that the policy of that nation will be to drop its protective tariff and make agriculture its great end and aim. The wants of the average Russian are so few, or his tastes are so crude, and his purchasing power so low, that the manufacturing industries, especially textiles, are threatened with ruin. It is a portentous change in policy, and may profoundly affect the trade of Canada. Within the past few years the special attention given by Russian agriculturists to dairying and cattle and sheep raising has been such that they have been able to increase their trade with Great Britain and the Continent enormously. A Canadian fur merchant, J. D. Allan, of Toronto, just returned from Russia, says the stock raisers of that country have better methods than those of Canada. If Russia is destined to outdo Canada in stock-raising and dairying, will Canada be able to return the compliment by supplying Russia with textiles and other manufactured goods? If the question were asked with respect to finer goods, the answer would be clearly no; but there would be a possibility of doing a trade in coarse goods, since Canada has been able to ship cotton goods to China regularly for years past, and if to China why not to Russia if she abandoned her attempts to develop her own manufactures.

—It will be interesting to Canadian manufacturers of all classes to know that the new preferential tariff of the South African colonies, which was planned at a customs conference in Bloemfontein last March, is now in actual operation. Under this tariff goods from Great Britain will enter Cape Colony, Natal, the Transvaal and Orange River Colony at a reduction of 25 per cent. from the rate under the general tariff. It is provided that a like preference will be granted to any British colonies granting reciprocal concessions. It is provided in the Canadian Preferential Tariff Act of 1897 that the preference will be given to "any British colony or possession the customs tariff of which is on the whole as favorable to Canada as the British preferential tariff [of Canada] herein referred to is to such colony or possession," so that, so far as Canada is concerned, we understand that the reciprocal preference between Canada and South Africa goes into operation automatically. This will open up a promising field to Canadian manufacturers of clothing, men's furnishings, and some lines of cotton and woolen goods, binder twine and other items of textiles, some of which, as a matter of fact, have already been exported to South Africa under the level tariff hitherto in force. To give an idea of what the possibilities are for Canadian manufacturers in this part of the Empire we need only mention what our wideawake neighbors have done in recent years in South Africa. The exports of the United States to those colonies, though they have grown steadily in

the last twenty-five years, did not amount to a tenth of British exports there down to the year 1897, expanded to one-quarter of the British exports last year, or, in round figures, \$33,000,000. When the preferential act of 1897 was promulgated it already embraced in the scope of its operations the colonies of Bermuda, the British West Indies and British Guiana.

DYE TESTING.

By E. S. Graves, New Bedford, Mass.
(Concluded from last month.)

Mordants and assistants of the following strengths are best kept as stock solutions:

Glauber's salt, Xyls.....	10. 100
Common salt	10. 100
Potassium di chromate.....	5. 100
Copper sulphate.....	5. 100
Sulphuric acid.....	10. 100
Sodium acid sulphate.....	10. 100
Sodium hydroxide.....	10. 100
Sodium carbonate.....	10. 100
Alum	10. 100
Phosphate of soda.....	10. 100
Acetic acid.....	10. 100
Sodium sulphide.....	10. 100

Other chemicals less commonly used can be made up as needed. As the same amounts of mordants and assistants must be used in each dye bath of a series of comparative dyeings, the same degree of accuracy in weighing out the chemicals for these solutions is not necessary. Scales sensitive to 0.1 of a gram are generally used for this purpose

Method of Testing Strength of Direct Cotton Colors.

As a rule one per cent. of the standard is used, and this is true for blacks as well as other shades, since one per cent. dyeings are more easily compared than fuller ones. They are dyed with the addition of 20 per cent. Glauber's salt alone in most cases. Exceptions are dyestuffs very sensitive to acids, as Benzo purpurine and Congo reds and dyestuffs, which are difficult to dye level, in which case 2 per cent. soda or 2 per cent. phosphate of soda is also added. It is best to use bleached cotton yarn in all cases unless there is some special reason for using unbleached yarn. The length of the bath is usually twenty five times the weight of the yarn

As an example, suppose a sample of Benzo purpurine is to be tested to see if it is up to the standard. First four dye baths are made up as follows:

No 1	45 c.c Standard	1. 500 = 9%
	20 c.c Glauber's salt.....	1. 10 = 20%
	2 c.c Soda	1. 10 = 2%
	Water to 250 c.c. = 25 X weight of cotton	
No. 2.	50 c.c Standard	1. 500 = 1%
	20 c.c Glauber's salt	1. 10 = 20%
	2 c.c. Soda	1. 10 = 2%
	Water to 250 c.c. = 25 X weight of cotton.	
No. 3.	50 c.c. Sample	1. 500 = 1%
	20 c.c Glauber's salt.....	1. 10 = 20%
	2 c.c. Soda	1. 10 = 2%
	Water to 250 c.c = 25 X weight of cotton.	
No 4	55 c.c Sample	1. 500 = 1 1/2%
	20 c.c Glauber's salt.....	1. 10 = 20%
	2 c.c Soda	1. 10 = 2%
	Water to 250 c.c. = 25 X weight of cotton.	

The four dye pots are now placed in a hot concentrated salt solution, and when the temperature is about 90 deg. C. the four ten-gram hanks of cotton previously wet out and numbered with small pieces of string are entered and turned with glass rods. The numbering is done by tying knots in the numbering strings, No. 1 having one knot, No. 2 two knots, etc. The dyeing is continued between 90 and 100 degrees C. for three-quarters of an hour, when the heat is shut off and the dyeings are allowed to cool for fifteen minutes. The amount of turning necessary depends upon the level dyeing properties of the color, which varies greatly with different products. Then the dyeings are thoroughly rinsed, hydro-extracted and dried in an atmosphere free from acid fumes. When thoroughly dry the hanks are straightened out and compared. If No. 2 and No. 3 are identical the sample is up to standard. Suppose No. 4 was weaker than No. 1, then it is evident that a second series of dyeings must be prepared, using the same amounts of the standard and more of the sample. Suppose No. 3 were found to be weaker than No. 2 but stronger than No. 1, then a new series between the two would have to be prepared. It is often necessary to make several series of dyeings before the exact strength is obtained, and it is always best to check your results by a fresh series when the exact strength has been determined.

Testing Sulphur Dyestuffs.

In dyeing the sulphur dyestuffs it is best to use two five-gram hanks in each dye bath, each numbered as above. Thus, when the dyeing operation is completed one-half of the dyeing can be subjected to any after treatment prescribed, and both direct and after-treated dyeings can be compared. On account of the variation in the solubility of these products no definite rule can be given that will apply to all sulphur colors. Twenty times the amount of goods should be the length of the dye bath. Enough sodium sulphide must be used to give perfect solution of the color, but, as an excess tends to strip the color from the fibre, an excess must be avoided. No undissolved particles should remain in the dye bath, which can easily be seen by dropping a little of the solution from the dye bath on filter paper, when any undissolved particles can be readily detected. The hanks should be turned every five to ten minutes, and colors that oxidize readily should be dyed, keeping all the hank beneath the liquor. Sulphur colors should be dyed for one hour between 90 and 100 degrees C., the beakers being immersed in the concentrated salt solution, and should then be allowed to cool for fifteen minutes. When completely dyed the hanks are wrung out and separated. One half is thoroughly rinsed, wrung out and then dried, while the other is given the prescribed after treatment. After treating with metallic salt, ageing or oxydizing being carried out under the same conditions for all the hanks. For sulphur 5 per cent. dyeings should be made, a less or greater quantity being used according to the strength of the product. To test a sulphur blue the first series of dyeings would be as follows:

No. 1. Ten grams cotton in two five-gram hanks:

100 c.c. Standard	2: 500 = 4%
50 c.c. Salt solution.....	1: 10 = 50%
5-10 c.c. Sodium sulphide.....	1: 10 = 5-10%
5 c.c. Soda	= 5%
Water up to 200 c.c. = 20 X weight of goods.	

No. 2. Ten grams cotton in two five-gram hanks.

125 c.c. Standard	2: 500 = 5%
50 c.c. Salt	1: 10 = 50%
5-10 c.c. Sodium sulphide.....	1: 10 = 5-10%
5 c.c. Soda	= 5%
Water up to 200 c.c. = 20 X weight of goods.	

No. 3. Ten grams cotton in two five-gram hanks:

125 c.c. Sample	2: 500 = 5%
50 c.c. Salt	1: 10 = 50%
5-10 c.c. Sodium sulphide.....	1: 10 = 5-10%
5 c.c. Soda	1: 10 = 5%
Water up to 200 c.c. = 20 X weight of goods.	
No. 4. Ten grams cotton in two five-gram hanks:	
150 c.c. Sample	2: 500 = 6%
50 c.c. Salt	1: 10 = 50%
5-10 c.c. Sodium sulphide.....	1: 10 = 5-10%
5 c.c. Soda	1: 10 = 5%
Water up to 200 c.c. = 20 X weight of goods.	

A stronger solution is required as the sulphur colors are usually quite weak, and must, to dye satisfactorily, be applied from a concentrated bath. Twenty times the weight of the goods is usually prescribed.

If dyeings No. 2 and No. 3 are identical the sample is standard; if not, the procedure is the same as explained under direct cotton colors. Sulphur colors are quite difficult to test as they exhaust very poorly, but, as they often vary widely, the necessity of testing them is greater than for any other class of dyestuffs.

Sulphur dyestuffs decompose on exposure to the air and moisture, and they are often found to be far below standard on this account. A decomposed sulphur color when moistened with water will usually give a distinct odor of hydrogen sulphide.

Diazotized and Developed Colors.

Dyestuffs which are of most value when diazotized and developed, for instance primuline, are tested in the same manner as given for direct cotton colors, except that two five-gram hanks in place of one ten-gram hank are dyed, and after the dyeing operation one skein from each dye vessel is washed, wrung out, and dried, while the other is diazotized and developed. Both the direct and diazotized and developed dyeings are then compared.

The same is true of colors after treated with metallic salts, coupled with diazotized paranitra aniline or subjected to any other process of after treatment to enhance the shade or improve the fastness, the results being compared in both the direct and after treated conditions.

Method of Testing Basic Colors.

Basic colors are best tested on bleached cotton which has been carefully tanned and the tannin fixed with tartar emetic. Bleached cotton yarn is steeped over night in a solution containing 5 per cent. tannic acid, reckoned on the weight of the goods. The bath is heated to 70 degrees C. previous to entering the cotton. Without previous rinsing the yarn, mordanted with tannic acid, is wrung out evenly and then fixed for twenty to thirty minutes in a fresh, cold bath with 2½ per cent. tartar emetic, rinsed well and allowed to dry.

For most all basic colors the best assistant is 2 per cent. acetic acid and 2 per cent. alum, reckoned on the weight of the goods, using forty times the weight of the goods in liquor. To produce level dyeings, which is often difficult, proceed as follows: Measure out the required amounts of dyestuffs for each dye pot and dilute in a 250 c.c. lipped beaker to 200 c.c. First turn the ten-gram hanks, numbered and wet out in cold water, in the dye pots, which should each contain 200 c.c. of solution containing the 2 per cent. acetic acid and 2 per cent. alum. Add to each bath 50 c.c. of the diluted color and turn the hanks ten minutes, then add another 50 c.c., and again turn the hanks ten minutes. Repeat this process until the 200 c.c. of color solution has all been added. Wash any remaining dyestuff adhering to the beaker into the dye pot, using a little of the liquor of the dye bath for this purpose,

transfer the beakers to a water bath between 70 and 75 degrees C. and turn for fifteen to twenty minutes. The dye bath in most cases will exhaust almost completely. The dyeings are then removed, rinsed, wrung out and compared. It is usually best to make 1 per cent. dyeings the amounts of dyestuff to use for the first trial, being the same as required for direct cotton colors. Thus, for the first series four dye pots would be prepared as follows:

- No. 1. 45 c.c. Standard 1:500 = 0.9%
- 2 c.c. Alum 1: 10 = 2%
- 2 c.c. Acetic Acid 1: 10 = 2%
- Water to 400 c.c. = 40 X weight of goods.
- No. 2. 50 c.c. Standard 1:500 = 1%
- 2 c.c. Alum 1: 10 = 2%
- 2 c.c. Acetic Acid 1: 10 = 2%
- Water to 400 c.c. = 40 X weight of goods.
- No. 3. 50 c.c. Sample 1:500 = 1%
- 2 c.c. Alum 1: 10 = 2%
- 2 c.c. Acetic Acid 1: 10 = 2%
- Water to 400 c.c. = 40 X weight of goods.
- No. 4. 55 c.c. Sample 1:500 = 1.1%
- 2 c.c. Alum 1: 10 = 2%
- 2 c.c. Acetic Acid 1: 10 = 2%
- Water to 400 c.c. = 40 X weight of goods.

After the first series of dyeings the strength of the product can, as a general rule, be closely approximated with a second trial. It is often necessary, however, to prepare several series before the exact strength of the product can be determined. If, however, the product is standard the first dyeing will determine this.

Testing Acid Colors.

The acid colors present the least difficulties in testing for strength, as a rule they exhaust well and when properly dyed level easily. It is best to make tests on 10 gram skeins of wool. Most of the acid dyestuffs may be dyed with 20 to 30 per cent. bisulphate of soda or in case the color does not level easily or is sensitive to sulphuric acid five to ten per cent. acetic acid may be used. The bisulphate of soda may be replaced by 10 per cent. Glauber's salt and 4 per cent. sulphuric acid, but in this case the sulphuric acid must be measured very accurately. A very good method of procedure in this latter case is to mix all the water, acid, and Glauber's salt needed for the entire series of dyeings in a large glass cylinder, mixing it thoroughly by pouring from one cylinder to another. Thus supposing the following series of dyeings are to be made to compare a number of acid Violets:

- No. 1. 50 c.c. Acid Violet 4 BN 1:500 = 1%
- 10 c.c. Glauber's Salt 1: 10 = 10%
- 4 c.c. Sulphuric Acid 1: 10 = 4%
- No. 2. 50 c.c. Acid Violet 3 B Extra. . 1:500 = 1%
- 10 c.c. Glauber's Salt 1: 10 = 10%
- 4 c.c. Sulphuric Acid 1: 10 = 4%
- No. 3. 50 c.c. Acid Violet c BC 1:500 = 1%
- 10 c.c. Glauber's Salt 1: 10 = 10%
- 4 c.c. Sulphuric Acid 1: 10 = 4%
- No. 4. 50 c.c. Acid Violet S4B 1:500 = 1%
- 10 c.c. Glauber's Salt 1: 10 = 10%
- 4 c.c. Sulphuric Acid 1: 10 = 4%

The amount of water must be enough to make the dye liquor thirty times the weight of the wool, so each dye pot must contain besides the 50 c.c. dyestuff solution, 250 c.c. water, sulphuric acid and Glauber's salt. This must first be mixed for greater accuracy in a cylinder and then measured into the dye pots. The procedure would be as follows: Place 16 c.c. sulphuric acid 1:10 and 40 c.c. Glauber's salt 1:10 in a graduated glass cylinder of 2,000 c.c. capacity. Fill with water a little above the 1,000 c.c. mark and thoroughly mix. Of this mixture place 250 c.c. in each dye pot together with the required amount of dyestuff. Enter the wool when the bath is luke warm, heating the dye pots in a strong calcium chloride or glycerine bath. Bring to a boil and boil for three-quarters of an hour or until the bath is well exhausted. When the dyeing is completed, the skeins are thoroughly washed, dried and compared.

Some acid dyes exhaust very poorly. The most important of this class being the acid magentas, patent blues and acid greens. It is then well to make an exhaust test on such colors, that is, after the dyeing has been removed from the dye bath a second ten-gram skein is dyed exactly as the first and in this manner the amount of color unexhausted can be determined.

For a number of the acid colors an after chroming is beneficial to the shade or fastness. If, however, strength is the only matter in question this after treatment is best avoided, as it is extremely difficult to get accurate results with after chromed dyeings.

Alizarine Colors and Colors Requiring a Chrome or Alumina Mordant.

Wool for this purpose must first be carefully mordanted. To mordant with alumina use 10 per cent. alum, 3 per cent. tartar, 2 per cent. oxalic acid. To mordant with bichromate of potash use 3 per cent. bichromate of potash, 2½ per cent. tartar.

It is advisable to begin the mordanting operation at a low temperature, say about 60 deg. C., and slowly heat up within one-half hour to boiling, which must then be continued for one-half to two hours.

The mordanted wool is then washed well, shaken out and dried. Hanks weighing exactly 10 grams are then prepared for the tests.

Many of the alizarine dyestuffs come on the market in paste form, and the standard solution is made by weighing or measuring out a definite quantity of the well mixed paste and diluting to a definite volume with distilled water. Owing to the great number of processes for the application of these products no rule can be given for dyeing alizarine colors that would apply to more than a small part of them.

Where the best method of application of an unknown product is in doubt, a few experiments with mordanted and unmordanted cotton and wool will usually reveal a method of application that can be used in testing. A method of application exhausting the dyestuff well and giving level results will always answer in testing for strength.

Schultz & Julius Ubersicht über die Kunstliche Organische Farbstoffen and Hurst's Dictionary of the Coal Tar Colors are good works of reference for determining the best application when the name and the maker of the product is known, and the Year Book for Colorists and Dyers, volume five, contains a list of some three thousand dyestuffs now on the market with the makers and method of application.

Fastness.

The fastness of dyestuffs is always comparative. No

dyestuff can be said to be absolutely fast. Unfortunately no standards for comparisons have been devised, and the published statements of the manufacturers vary greatly and are seldom if ever guaranteed. Personal opinion also differs to a great extent in this matter of fastness, and tests are made often necessarily under widely different conditions. In most cases when the fastness of a product is in question, it is best for the ones interested to make tests in a small way themselves before arriving at any definite conclusions regarding the properties of fastness and such tests are satisfactory only when they are carefully made to approximate closely the conditions of actual practice.

Most important are the fastness to light, washing and milling. Goods are often washed with soap and soda and the fastness to alkali must be known. Fastness to acids is also frequently required for cotton warps intended for cross dyeing and for woollen goods to be carbonized after dyeing.

Materials to be worn next the skin should be dyed with colors not affected by the organic acids contained in the perspiration.

Fastness to stoving (that is the action of sulphurous acid), and fastness to chlorine are sometimes required where piece goods are bleached after dyeing. Wool blankets and cotton towelling with colored strips or borders are often bleached in this manner.

When goods have to be steamed, as in calico printing, or hot pressed in finishing, care must be taken to obtain colors that are not stripped or do not change their shade in these operations.

The method of estimating the fastness of a product is obvious, and consists in putting a properly dyed sample through the operations it must withstand.

It is not necessary to make a large dyeing in order to obtain samples to experiment upon.

A ten-gram skein can be dyed by any prescribed method and except in the case of fastness to perspiration can be given the necessary test. It is often required that in washing a color shall not bleed on to white cotton or wool.

Whenever several tests are to be made comparatively, it is necessary that they be made under the same conditions. For example suppose several colors were to be tested for their fastness to washing and bleeding into white cotton. The same amount of the dyed sample would be taken in each case, a convenient amount would be say fifty strands eighteen inches long. These would be braided with twenty strands white cotton and twenty strands wool. For each test the same amount of soap solution would be used and the washing carried out at the same temperature. The washing operation would thus have been carried out under the same conditions for all the samples and the results would be comparative.

Generally the light test is made under glass exposed to the direct rays of the sun so as to get the greatest possible proportion of the direct rays and thus the maximum effect in the shortest time. Sometimes it is best to let the dyeing stand not only the light but the weather; this latter test is better when the finished product must stand similar conditions as for awnings, etc. When a light test is made one part of the dyeing should be protected so that any change taking place can be easily seen and compared with the original dyeing.

A good way for preparing dyeing on yarn for exposure to light is to wind the yarn on heavy cardboard about four inches wide covering about one inch. Several dyeings can thus be wrapped side by side. One-half of the dyeing is then covered with a piece of black paper and over this a

strip of heavy oiled paper is placed large enough to tuck under and be firmly fastened with small brass fasteners. The length of the exposure depends of course on the requirements, and varies from a few days to several months.

To get a general idea of the fastness of a dyestuff the following tests should be made:

Fastness to Light.

Samples prepared as above should be exposed one and six weeks in summer and nearly twice as long in winter under glass to the direct rays of the sun or if required to the combined action of light and weather.

Fastness to Washing.

The dyeing should be braided with undyed cotton and wool and washed with a solution of soap using for 5 grams goods, 200 c.c. of a 5 per cent. soap solution.

Fastness to Alkali.

Five grams of the dyeing, together with one gram skeins of undyed wool and cotton, should be treated for one hour at 70 deg. C., with 200 c.c., 5 per cent. soda solution or with 200 c.c. of a 5 per cent. solution of equal parts soap and soda.

(Fastness to Acids.)

Five grams of the dyeing, together with one gram skeins of undyed and cotton, should be boiled for one hour with 4 per cent. sulphuric acid and 10 per cent. Glauber's salt, calculated on the weight of the goods; that is for five gram goods, 2½ c.c. sulphuric acid 1:10 and 5 c.c. Glauber's salt 1:10 and water up to 200 c.c.

Fastness to Chlorine.

Samples should be immersed in a solution of chloride of lime, 2° Tw. for from one-half to twenty-four hours. The number of colors that can stand twenty-four hours is very limited.

Fastness to Stoving.

The dyed sample is moistened and subjected to the action of the fumes from burning sulphur for from one to twenty-four hours. The number of colors that will stand stoving is very much greater than for chloring.

Fastness to Milling.

There are very few aniline colors that will stand a severe milling while a great many products will withstand a light milling and are sufficiently fast for many purposes. As a rule colors that will withstand an ordinary flannel milling are said to be fast to milling.

Fastness to Perspiration.

The fastness to perspiration must be determined by a practical test, that is, by actually wearing the dyed material in question.

Level Dyeing Properties.

It is often desirable to test the levelling power of a dyestuff and this may be determined by practical tests to determine the amount of turning or agitating necessary to produce level results. The selection of the proper amounts of assistants and the temperature at which the dyeing is conducted are also important factors.

Matching Colors.

It is often desirable to duplicate the results given by one color with mixtures of other colors of the same class.

Matching one dyestuff with mixtures of others is an art only acquired after a large amount of experience. Often an exact match is an impossibility, but generally a very close approximation is possible.

Colors are best matched in a small way, making series of comparative dyeings, a number of appropriate mixtures

being dyed under identical conditions with two strengths of the standard.

It is always good practice to dye two strengths of a standard as it makes possible a greater number of comparisons with fewer dyeings. In attempting to prepare a match it is often well to make a large series of combinations and with the testing apparatus, described above, twenty-eight comparative ten-gram dyeings can be made at one time.

The number of possible combinations and possibilities are infinite. The art of matching colors can be learned by experience only and requires a broad knowledge of dyestuffs and their application.

Determining the Class and Application of an Unknown Dyestuff.

Cotton and wool, both mordanted and unmordanted, should be dyed under various conditions.

Systematic trials should be made as follows:

In each of five dye-pots place 50 c.c. of a solution of the color 1:500 and 200 c.c. water. If a solution of the product is difficult to obtain, heat a small amount of the dye in a test tube with hydrochloric acid and test the escaping fumes with filter paper moistened with lead acetate. If a dark coloration is formed the product is a sulphur dye.

In the five dye-pots the following tests are applied: In No. 1, dye unmordanted cotton with 30 per cent. Glauber's salt. No. 2, dye unmordanted wool with the solution neutral. No. 3, dye unmordanted wool with 4 per cent. H_2SO_4 and 10 per cent. Glauber's salt. No. 4, dye mordanted cotton (tannin and tartar emetic), having the solution neutral. No. 5, dye wool mordanted with bichromate of potash and tartar. After slowly heating to boiling and allowing to cool the dyeings are taken out and thoroughly washed. The result will probably indicate at once to what class the color belongs.

Testing Dyestuffs for Impurities.

As has been already stated, most dyestuffs are diluted usually with salt, Glauber's salt or dextrine. If dextrine has been used, it is easily detected by the characteristic odor on dissolving in hot water. It is best detected when mixed in the dry state, as is usually the case, by means of the microscope.

Glauber's salt or sulphates may usually be detected by adding hydrochloric acid and barium chloride to a dilute solution of the dye. When the color of the solution obscures the reaction, the dye may be precipitated or salted out by saturating the solution with pure salt and the sulphate detected in the filtrate by adding hydrochloric acid and barium chloride.

Chlorides can usually be detected by simply adding nitric acid and silver nitrate to a dilute solution of the dye. The coloring matter can also be extracted with alcohol, leaving the salt undissolved in the residue which is then tested for chloride in the usual manner with nitric acid and silver nitrate.

By far the larger proportion of dyes found in commerce sold under various names, consist of mixtures of straight colors.

A manufacturer may make but twenty straight colors yet place hundreds of different mixtures on the market.

When, as is most frequently the case, dyes have been mixed in the powdered state, they can be recognized by blowing gently a little of the powdered dye up a large piece of filter paper that has been moistened with water, or if the dye be insoluble, with alcohol or some suitable solvent. Each particle as it dissolves forms a little streak of color, and if more than one coloring matter is present they can

be readily detected. Another good method is to blow the powder over the surface of concentrated sulphuric acid contained in a white porcelain dish. The particles of dye are dissolved and give their color reaction with the sulphuric acid, and in this manner mixtures of dyes of the same shades in their water solution can be recognized. Sometimes mixtures are made by dissolving two or more dyes together and reprecipitating them; in this case the above methods are not reliable. As most colors do not exhaust exactly the same such mixtures can usually be detected by dyeing three or four successive samples from the same bath of the color in question, either by the difference in shade, of the first and last trial, or the differences in the color reactions of the dye on the fibre will reveal the fact of its being a mixture.

Identification of Coloring Matters

Dyestuffs are recognized both on the fibre and in the coloring matters themselves by means of characteristic reactions or colorations that are given when they are treated with various reagents.

In practice, however, shades are more frequently obtained by combinations of two or more coloring matters which often render detection extremely difficult if not impossible. Many tables of reactions have been gotten up and published, but the difficulties encountered in describing such reactions are great and the number of products is getting to be so numerous that the practical dyer does not enquire further than the practical results to be obtained from a dyestuff or the properties possessed by a given dyeing. A man who is constantly testing dyestuffs can in time recognize products with comparative facility, and when one coloring matter only has been applied to a fabric, can often tell what that coloring matter was.

To become at all proficient in this line would require constant application and the end would scarcely justify the means. When practical results are desired, one can generally tell by a few trials in what manner an unknown dyestuff is best applied and when the strength and fastness has been tested there is little more of value for the practical dyer to determine.

NEW EMBROIDERING MACHINE.

The United States Consul at Glauchau, Germany, gives a description of a new embroidering machine that can be attached to an ordinary power loom, either jacquard or not, by means of which it is claimed that it is possible to produce almost any embroidered design while weaving the cloth. There are two sets of needles, or threaded-carriers, fixed in front and above the reeds of the loom, and the pattern is made by means of cards operated from the jacquard cards. The bars to which the needles are fixed oscillate in either direction, making it possible to embroider borders or designs on each edge at the same time. The needles being movable, the distance between the threads can be governed at will, and they will carry the finest silk or the coarsest knotted yarns possible. In making patterns with this attachment on heavy cloth no sign of the embroidery is visible on the under side.

J. J. Griffith has been appointed liquidator, and Jas. McKinnon, S. W. Jencks, and J. A. Tate, inspectors, in connection with the winding up of the Dominion Carpet Co., at Sherbrooke, Que. The English shareholders at a meeting in London, unanimously decided to allow the company to be brought under the winding up act.

APPROXIMATE METRIC EQUIVALENTS.

By Fred. Brooks, Civil Engineer, Boston.

This table shows the comparative size of the principal metric and old units, arranged so that approximate equivalents may easily be absorbed by the memory. Three leading units, of length, weight and bulk, are made conspicuous each as nine-tenths of its metric analogue; and the true relations among the old units are adhered to as far as prac-

ticable in the approximate equivalents, so that one equivalent may be associated in the mind with another. For example, the quart being 0.9 of a cubic diameter, the cubic foot, or 30 quarts, is 30×0.9 , or 27 cubic decimeters, again, the ounce, or weight of 1,000 cubic foot of water, is the weight of 27 cubic centimeters of water, or 27 grams. The approximations that are grouped together generally contain the same percentage of inaccuracy. Values sufficiently accurate for business purposes are added in parentheses.

LENGTH.		AREA.		BULK.	
1 inch	and 2½ centimeters (2.54)	1 sq. inch	and 6¼ sq. centims (6.451)	1 cu. inch	and 15¾ cu. centimeters (16.387)
1 foot	" 0.3 of meter (.3048)	1 sq. foot	" 0.09 of sq. meter (.0929)	1 cu. foot	" 0.027 of cu. meter (.028316)
1 Yard	" 0.9 "Meter (.9144)	1 sq. yard	" 0.81 " " (.8361)	1 cu. yard	" 0.729 " " " (.7645)
1 rod	" 5. meters. . (5.029)	1 sq. rod	" 25. sq. meters (25.29)	100 cu. feet	" 2.7 cu. meters (2.8316)
1 chain	" 20 " " (20.117)	1 rood	" 1000. " " (1011.7)	(The unit of ship's measurement for register.)	
1 furlong	" 200. " " (201.17)	1 acre	" 0.4 of hektar (4.047)	1 M board meas. and 2½ cu. meters	(2.36)
1 mile	" 1600. " " (1609.3)	1 sq. mile	" 256. hektars (258.99)	1 cord	" 3.6 " " (3.624)
WEIGHT.					
1 grain	and .06¼ of gram (.0648)	1 pound	and 0.45 of kilo (.4536)	1 U.S. liq. pint	" 0.45 of liter . . (473)
1 troy ounce	" 30. grams (31.103)	60 lbs. (wheat bu.)	" 27. kilos (27.216)	1 " " Quart	" 0.9 " Liter . . (.946)
		90 lbs. (coal bu.)	" 36. " (36.287)	1 " " gallon	" 3.6 liters (3.785)
		1 cental	" 45. " (45.36)	1 peck	" 9. " (U.S. 8.81; Br. 9.08)
		112 lbs. (cwt.)	" 50. " (50.8)	1 bushel	" 36. " (U.S. 35.24; Br. 36.35)
		1 Net Ton	" 0.9 Net. Ton (.9072)	1 ton of ship's displacement	" 1 cu. meter.
		1 gross ton	" 1. " (1.016)		
COMBINATIONS.	1 foot-ton (net)	and 0.27 of (metric) ton-meter	. . . . . (.2765)	} WEIGHT & LENGTH.	
	1 foot-pound	" 0.13½ " kilogrameter	. . . . . (.13825)		
	1 pound per running yard	" ½ kilo per running meter	. . . . . (.4961)	} WEIGHT PER LENGTH.	
	1 " " " foot	" 1½ kilos " " "	. . . . . (1.4882)		
	1 pound per sq. foot	" 5. kilos per square meter	. . . . . (4.883)	} WEIGHT PER AREA.	
	1 net ton " " "	" 1 kilo per sq. centimeter.	. . . . . (0.9765)		
15 lbs. " " inch	" 1 " " " "	. . . . . (1.0543)			
1 pound " " "	" 0.07 " " " "	. . . . . (.07031)			
1 net ton " " "	" 0.14 metric ton per sq. centimeter	. . . . . (1.4062)			
	1 pound per cubic foot	" 16. kilos. per cu. meter	. . . . . (16.019)	} WEIGHT PER BULK.	

BOBBIN FILLING; ITS TENDENCY TO KINK.*

When filling was spun by the distaff and spindle, as was the custom a little over 100 years ago, our grandmothers, who turned the wheel and handled the distaff, knew just how much twist to give the yarn to make it strong and durable. When weaving left the hand looms and steam power looms took their place, a greater amount of yarn was required than could possibly be produced by the distaff and spindle. At this time James Hargraves, of Blackburn, England, invented the spinning jenny, from which 16 or more threads could be spun at one time. At the same time a humble barber, Richard Arkwright, in a town some 10 miles west of Blackburn, was busily engaged in developing the important series of inventions and adaptations which resulted in the modern throstle spinning frame. Arkwright's principal patents were secured in 1775, and in that year, Samuel Crompton, of Bolton, brought before the world his mule spinning frame, in which the drawing rollers of Arkwright were, with happy effect, applied to the spinning jenny of Hargraves. This machine has been improved and perfected, until, as we see it to-day, each mule spins 1,200 or 1,500 threads at one time. But in introducing machinery to take the place of one who knew by intuition the amount of twist required for the yarn, we ran against another obstacle which has given us considerable trouble, and that was the

tendency of the yarn from the filling mule to snarl or kink. I remember when a boy the system adopted at some mills; after the filling was spun and doffed in large boxes or baskets they were placed in a dark room on racks three or four tiers high. The floor was laid with timbers some two inches apart. Below the floor, some 12 inches deep, was water running day and night. The filling was left in the room for some three days, when it was carried to the weave room to be used. The time that the filling had remained in this dark room had so set the twist that when the filling was used each strand was perfectly straight, there being no tendency to kink or snarl. But in mills of 1,000 looms or over, too much space was required for this ageing process, and something more rapid was demanded. At this time the process of steaming the filling, to enable the weaver to use the yarn in a few hours after being spun, was adopted, and I think most all mills have adopted this system. Some thirty years ago some mill's more progressive than others began to spin filling on a spinning frame. It was considered cheaper and of better quality than filling spun on a mule. There was not much trouble in the weave room with the filling produced, 5,000 or 6,000 revolutions of the spindle was all that was obtained, but when the Draper Co. had improved the system of spinning and introduced the Sawyer, and afterwards the Rabbeth spindles, revolving some 1,100 or 1,200 revolutions a minute, then trouble began. Many and many a time I have seen bobbin filling carried to the weave room that was a trifle heavier than the number called for, but con-

* Paper read by John Greenwood, Fiskdale, Mass., at the Cotton Manufacturers Meeting. From Fibre and Fabric.

taining the same number of turns of twist as demanded by a finer thread. When the cloth was woven it was more like a Turkish towel than a piece of print cloth or sheeting. Second quality cloth would rush up tremendously; indeed, I have seen every piece woven thrown out for second quality. Various systems have been tried to overcome this difficulty. In some mills a hose pipe is used, and water allowed to run on the filling; others will take a watering-can and sprinkle the filling; others will place the filling in boxes or baskets in the mill yard for a few hours, expecting the atmosphere to develop a filling that will not kink or snarl. But none of these systems are absolutely perfect. Using water on the bobbins will ruin them; in a few weeks they have to be reamed out to fit the spindle, many being broken in the operation. Another trouble which is of vital importance on fine goods is the filling being wet on the outside layers alone, which causes a greater contraction of the cloth, the cloth woven from the rest of the bobbin, two-thirds of the amount of the yarn being almost dry, will be wider on account of the filling coming from the bobbin easier. Considerable trouble is caused from this irregularity in the width of the cloth. A system has been adopted and can be installed at a small outlay, whereby all this trouble can be avoided. There is no fear of the filling kinking, and it greatly improves the appearance of the cloth. You no doubt have heard some cloth brokers say they can tell by the feel of the cloth whether it has been woven with mule or bobbin filling; and there certainly is a difference, so that a man educated to the feel of the cloth can tell at once the kind of filling used in making the piece of goods. I have known printers ask for a shipment of cloth and insist on mule filling being used in weaving it. These orders have been filled and cloth woven from bobbin filling has been shipped. After the bobbin filling has been through this process no man could tell the difference from cloth woven with cop or bobbin filling. The system that has been adopted by some of our Northern mills is to place the filling in a chamber, in bulk or in large boxes, containing the doffing from a number of frames; the bottom of this chamber is covered with slats of say one inch wide, leaving one inch of space between them. Underneath this floor is a system of humidifiers throwing out an atomized spray of water. On the top of the chamber is a pipe, say 10 inches in diameter, connected with a fan which draws the moisture through the mass of bobbin filling. The moistened air is again forced in the chamber underneath and again drawn through the filling. In some two or three hours the filling is ready for the loom, and it is next to impossible to have any kink formed in the filling. The fibres of the yarn, which on bobbin filling are well laid, though having an extra amount of twist spun in the thread, after being through this process become fully as fibrous as mule filling, the cover of the cloth is just as soft and full as if woven by cop filling. In cloth that has to be used for cotton flannel mule filling is invariably preferred, but if bobbin filling has been through this process the nap can be raised, and the finish is just as good as cloth made from mule filling. Some mills where the spinning room is on the upper story will have a pipe extending from the spinning room to the weave room or basement where the chamber may be. The bobbins are thrown down the pipe which extends to the chamber in which the filling is being prepared, by which means the chamber is always full of yarn. The yarn taken out at the front of the chamber causes the yarn in the pipe to fall lower and again fill the box. This chamber may be divided into sections so that different numbers of filling can be conditioned. In my experience I do not know of any other system by which the same amount of filling can be conditioned or made weavable in so short a time.

LOGWOOD AND ITS COMPETITORS.

(From Deutsche Faerber Zeitung).

After the contest of natural and artificial dyes for the last ten years in the case of indigo having been settled there remains as a hitherto impregnable fortress—logwood; hard pressed to be sure, but apparently in a safe position. Logwood holds its position because it gives a full black viewed direct, but in overtone a beautiful blue. Of the artificial organic dyes, with which logwood has been combated with more or less success there are but few which approach this characteristic play of color, but no single one equals it. The strong point of logwood lies in this fact. On the other hand it has been thrown up that aside from the beautiful shade of logwood there is little more to consider, its great sensitiveness to acids and light are generally known. In these two points it is undoubtedly excelled by every artificial dyestuff. If, in spite of this, it still holds its position, it must be that more value is placed on the shade of logwood and its bloom than on its fastness to acids and light.

We will now review briefly those dyes which compete with logwood, first those suited to wool dyeing, and later those for cotton.

Alizarine Black was the first dyestuff which tried to compete with logwood. In point of fastness this dyestuff is far ahead of logwood. I remember a sample card sent out by the Badische Anilin and Soda Fabrik which showed a sample of men's cloth dyed a solid black, but the yarn dyed partly with logwood and partly with alizarine. After several weeks' exposure there appeared a broad black cross on a greenish grey ground. The alizarine black cross had not faded a particle during the exposure, but the logwood ground was destroyed. However, the shade of alizarine black cannot compare with logwood, above all certainly not in the overtone.

Diamond Black possesses about the same degrees of fastness as alizarine black, but it is objected to that the dyebath foams strongly. Although more pleasing in shade than alizarine black yet it lacks the beautiful bloom peculiar to logwood. The marks GA and 2B approach the tone of logwood more closely.

New Victoria Black Blue gives in overtone the full bloom of logwood, but viewed direct is not deep and full enough. It is much faster than logwood, dyes slowly and evenly, and penetrates well, and has found much favor in hat dyeing as a logwood substitute.

Naptha Blue Black is a beautiful lively blue black somewhat like the one just mentioned, but less fast to light than any so far mentioned and not quite so even dyeing.

Naphthylamine Black 4B is a dye whose tone on wool comes very near to that of logwood. The dyestuff is therefore much thought of, and can be considered to be the greatest competitor of logwood although not entirely displacing it. The beautiful shade and easy penetration have given it popularity in spite of the fact that its fastness to light and scouring are not remarkable.

Chromotrope has also been a competitor of logwood for some time, especially the marks S and F.4B. These dyes have been used both as self colors and in company with logwood. The after-chroming of the chromotrope dyeing reduces the chrome and leaves it on the fibre in a condition suitable for the formation of a color lake with logwood. Such a dyeing is properly a dyeing of logwood black over chromotrope black.

A noteworthy example is the new Acid Alizarine Black R extra, dyed together with logwood from the same bath, with the addition of oxalic acid. There results a yellow liquor, in which the wool is dyed black. After an hour or so

5 to 7 per cent. of chrome alum is added, and boiling continued one-half hour longer. In this way the chrome lake of the Acid Alizarine Black R and the logwood lake forms simultaneously. It is not right to predict what use this peculiar combination will have. Finally every acid mordant dyestuff will give similar results, but it is doubtful if this arduous process is to be recommended. It is a sign of weakness for the artificial black dyestuff—a sign of weakness because it has been found necessary to use this method.

The number of black wool dyes is very large, and there is scarcely a case in which one or another has not been offered in competition with logwood. Logwood is not yet beaten, and even Naphthylamine Black 4B has not given it a fatal blow, for it seems to be used in greater quantity than ever.

And now for cotton. Even here logwood is still being used in enormous quantities for black dyeing. In this case not only the tone but the price plays an important part. There is also another important factor; the dyeing with logwood gives not only a black color but also acts as a weighting material. This latter feature has never been duplicated by artificial dyestuffs. In consequence of the close figuring of costs, which show logwood very cheap, its only competitors are the direct blacks; the diazotizable blacks are first of all too expensive. The most popular are Columbia Blacks, Oxydiamine Blacks, Diamine Deep Blacks, Direct Deep Blacks, Pluto Blacks, and for especially blue tones, Direct Blue Black.

All of these direct blacks serve with more or less success as substitutes for logwood as long as the calculation of cost is omitted, and if the increase of weight is not considered. Although the fastness to light of these products is not great, they have a merit that when they do fade they do not turn a dirty green grey like logwood. Which of the products named is most suitable depends on the price at which it can be bought, and on the requirements of fastness of the dyed goods.

As far as cotton is concerned, logwood has met no successful competitor which will put it out of the market. It appears that it will only be displaced when it is combated with the yet to be discovered artificial hematine. The constitution of hematine having not yet been discovered, it seems to have still a long race to run.

A CANADIAN COTTON MAN'S CONCEPTION.

The following correspondence appeared in a recent issue of the London Times:

Editor. The Times: Sir,—From a correspondent in Canada to whom I had addressed an enquiry as to the extent of the concessions we might look for from the protected cotton industries of Canada, under Mr. Chamberlain's preferential scheme, I have received the attached letter.

My correspondent controls 60 per cent. of all the cotton goods made in Canada and writes with authority. His words harmonize with those of the late President of the Dominion Cotton Company, who recently declared that unless the Canadian mills were given increased protection against the goods dumped down by Manchester, they would be ruined.

The writer of the letter is a fair sample of the men Mr. Chamberlain will have to deal with in negotiating his preferential scheme, and it looks as if Mr. Balfour had hit the nail on the head when he said: "But if in return for all this" (preferential treatment) "the colonies have nothing to give us, the scheme must fail." "Nothing," in my opinion, represents the sum total of the "quid pro quo."

Our only competitor in Canada is the Canadian, and he is only human.

Mr. Chamberlain may quite possibly persuade the people of Great Britain to handicap themselves by taxing the food, but when he tries to persuade the colonial protectionist to put his hand in his pocket for the benefit of the farmer, I fear me much he has a task rather beyond him.

Your faithfully,
Wm. Anderson.
12 Princess Square, Glasgow, Sep. 19th.

(Copy.)

"Montreal, Sept. 7th.

"Dear Sir,—Your favor of the 15th inst. to hand.

"I may tell you straight that it would be impossible for the cotton mills to exist if there is any further concession made in the matter of the preferential tariff. We are pushing the Government strongly to get a further addition to the tariff, and if the present Government does not do it we will simply have to fight and get the Conservatives in. What we want to do in this country is to make all the cotton and woollen goods to be used in this country, and the only way to do it is to have adequate protection.

"I inclose you pamphlet which was got up before the present session of Parliament, which will explain our position thoroughly. At the same time I would say this, that there will always be a certain quantity of fine goods which it will be years and years before Canadian manufacturers can make. These we would like to get from Great Britain, and, in order to do this, we should say: High tariff against the United States, Germany, etc., and a lower tariff against England, and the lower tariff must be such a tariff as would permit us to live and be able to extend our works as the population increases.

"Yours truly,

KANO, AFRICA'S MART.

The most important addition to the British Empire in recent years is that of Kano and the Fulani Empire. Kano is, indeed, the principal market and centre of trade in the interior of Africa, and not only that, but likewise the centre of all sorts of African industries. Kano, indeed, having been frequently described as the Manchester and Birmingham combined of the Dark Continent. Joseph Chamberlain, ex-Colonial Secretary, declares that the annual attendance of the market at Kano exceeds a million persons from all parts of Africa, while Colonel Monteil, the French explorer, and Edmund D. Morrell, in his *Affairs of West Africa*, estimate that the number of natives who visit Kano each year for purposes of trade is at least twice as large. The market is held daily throughout the year, and the most bewildering diversity of articles are always on sale; native cloths, which are products of the Hausas looms and dye pit; silk embroidered robes, leather and brass ware, weapons, rough agricultural implements, silver and brass ornaments, ivory, antimony, ostrich feathers, live stock of every conceivable description, slaves, salt cakes, natron, European merchandise and ammunition—all these and a thousand things more are on sale in this immense city which, enclosed in a lofty encompassing wall, is reputed to be no less than sixteen miles in circumference. Many caravan routes converge at Kano, and the procession of heavily laden camels and asses of men, mounted and on foot, of slaves, women and children, seems to be endless. The market has been held thus daily on the same site for over a thousand years, and at the time when William the Conqueror fought the battle of Hastings

and established himself on the throne of England, it is probable that the daily market was in progress at Kano amidst surroundings almost identical in form and appearance with those of the present day. Each particular class of goods has its own special market, and thus, whereas in one quarter of Kano one finds nothing but leather on sale, in another district of the city the trade is restricted to cloth. Every imaginable type of African may be seen there, merchants from Egypt, Tunis, Tripoli and Morocco, from the eastern Sudan and from the shores of the Red Sea, as well as from the western coast, which is washed by the Atlantic. Even Zulus, Oriental Jews, East Indians and Malays are seen there, and, strange to say, not only has peace from time immemorial been preserved among this strange medley of purchasers and vendors, but, moreover, they likewise understand one another, carrying on their bargainings by means of signs. The traders have indeed a sort of language, which beneath their long sleeves is carried on by means of diverse grasps of one another's hands, wrist, and arm, the deliberations being in this way concealed from the onlookers and from the curious.—Correspondence of The Globe.

WOOLEN MILLS CLOSED.

The report that several of the Canadian woolen mills had been obliged to close their doors or were about to do so, for want of orders, has been confirmed by what has taken place during the past few weeks. The Toronto Star gives the following summary of the mills either wholly or partially shut down, with the number of cards:

Mills.	Sets of Cards.
Yarmouth	4
Ottawa, French mills	4
Almonte, Elliott's mills	7
Almonte, Wylie and Shaw's	2
Almonte, Cannon's	2
Almonte, Baird's	2
Cornwall Mfg. Co.	10
Blakney, P. McDougall's	2
Gananoque, Cook and McIntyre's	2
Port Emsley	2
Valleyfield, Wattie's	3
Campbellford, Senior's	4
Streetsville	7
Galt, George Godfrey	2
Glen Tay	4
Port Hope	1
Sarnia, Smith Bros.	2
Weston	10
Lambton Mills	5
Peterboro, Blyth mills	2
Peterboro, Brodie's	4
Peterboro, Auburn mills	8
Wingham, Inglis and Armstrong	2
Carleton Place, Hawthorne; Gillies, total for two mills	9
Montreal Excelsior mills	11

Total, mills, 26; sets of cards 111

While it is true some of the mills have closed, the above list is very misleading. Thirteen of those enumerated have been out of business for years—some of them over ten years. Some of them were burned. Some, such as the Cornwall mill, closed because the machinery had become out of date. Most of them closed before the time of the preferential tariff.

Of those recently shut down, the following comments may be offered:

In the two mills at Carleton Place the number employed was 165. A few have been sent to work in the company's mills at Waterloo and Hespeler, where together with the Maple Leaf mill at Markham, the company's operations will be concentrated. The mills will be run as long as orders last, but the outlook at present is not very promising. The Carleton Place Herald, however, speaks of the shut down of the Gillies' mill as being for repairs and renewals, and hopes it will be brief.

The Auburn Woolen mill, at Peterboro, which has been running without interruption for twenty-five years, has partially closed down. At a recent meeting of the directors, the president stated that the company had not been so short of orders in ten years, and had not work enough ahead to keep the mill running for ten days.

The Rosamond Woolen Company, at Almonte, has only been producing one-third of its capacity for months past, and unless orders pick up soon, the intention is to suspend operations altogether.

The Excelsior mills, at Montreal, have closed down for two weeks, and when they resume will, it is expected, only run four days per week. The management are desirous of giving employment to their hands as long as possible.

The large mill of the Penman Manufacturing Company, at St. Hyacinthe, Quebec, is running on half time, reducing by one-half the quantity of wool consumed.

The mill of S. T. Willett, at Champlain, Que., has been running on Government orders. These, however, are now almost filled, and there being no other orders on hand, the mill will likely be closed soon.

The other manufacturers of woolen cloth, it is stated, are maintaining an existence in a sort of hand-to-mouth style, with output greatly reduced, and few orders ahead.

The depression does not apply to manufacturers of knitted woolen goods, who are rather prosperous, owing to the fact that the German surtax of 25 per cent. recently imposed has effectually shut out importations from their German competitors.

Speaking of the situation, the Toronto News has this to say: "The woolen men feel that their industry has been offered up as a sort of sacrifice by the Canadian Government to the principle of Imperial preference. Naturally self-preservation causes them to object to such treatment. They contend that Canada should be allowed to develop her own industries, even though by sacrificing one of them a gift should be conferred on the Mother Country. Prior to the preference the rate of duty was 35 per cent. The preference brought it down to 23 per cent. The manufacturers are not asking now for a full restoration of the former rate, but that it be placed at 30 per cent., at which they claim they will be able to compete on an equal basis with the British manufacturers." And again: "The woolen manufacturers contrast their lot with those in the United States. There the same conditions of manufacture apply, except that in the latter country prohibitive duties of from 65 to 150 per cent. are imposed on imported goods. The result is that while Canada, with its population of only 5,000,000 people, imports \$12,000,000 worth of woolen goods, the United States, with its large population of 76,000,000 people, imports only \$18,000,000 worth."

In this connection an interesting story, on account of the light it throws upon the situation of the woolen industry, was told to a representative of the News who visited W. D. Long, of Long & Bisby, in Hamilton. The News represen-

tative was shown a piece of black russel cord cloth, recently exhibited in a frame at the "Made-in-Canada" Exhibition, in Hamilton, which was manufactured at Hespeler, over thirty years ago by the firm of Randall, Farr & Co. This firm evidently produced a fine quality of goods, but it was learned that they had a hard row to hoe in Canada. They were struggling along under a low tariff, and had the greatest difficulty in making ends meet. Finally, in 1873, they packed up their plant, bag and baggage, chartered a special train, and transferred their entire machinery, the warp on the beams, the cloth in the looms, and the fillings in the bobbins, together with their large force of labor, to Holyoke, Massachusetts. To-day, under the firm name of the Farr Alpaca Company, they are perhaps the most prosperous woolen manufacturers in the United States. The company pays an annual dividend of 96 per cent., and this in spite of the fact that they import a large quantity of wool from Canada, on which they pay a duty of 12 cents a pound. They were succeeded in Hespeler by the firm of Harvey & McQueen, which struggled along for a time, but finally went into bankruptcy, after losing \$254,000. The mill then remained idle for some years, and is now occupied by the Canada Woolen Mills, which is having a precarious existence. It shows you what a little protection will do, said Mr. Long.

The situation among the cloth manufacturers is at an acute stage, arrived at in a long continued period of depression. The woolen industry is the one unprosperous industry in the country. The manufacturers attribute all their troubles to the British preference of 1895. With it hard times began, and matters have been growing from bad to worse ever since. During this time the importations of British cloth have almost doubled, increasing, in round numbers, from \$6,000,000 per year in 1896 to \$11,500,000 per year in 1902. In the first five months of the present year, British trade returns show an excess in the exports of woolen cloth to Canada over the same time last year of \$1,750,000—enough, it is claimed, to keep five of the largest mills in Canada running for twelve months.

To return to the question of British competition, as explained by the News, the Canadian woolen manufacturers consider that 30 per cent. is a fair estimate of the disadvantages they labor under, as compared with the British manufacturer. One great disadvantage they claim is higher cost of labor. Here 80 cents a day is paid for boys over 14 years old, while in England the law allows boys 11 years old to work half the day, for which they are paid 18 cents. Foremen are paid from \$2.50 to \$5 a day in Canada and from \$1.50 to \$2.50 in England. As illustrating this point, Mr. Millichamp, of Toronto, mentioned the case of a British immigrant weaver he had recently employed. This man had been endeavoring for years to save enough money in England to come out to Canada. He was not an expert workman, but after working four months here he was able to save enough money to send for his family to come out. Another factor is the higher cost of raw material which is simply equivalent to the freight, insurance and commission. Mr. Long, who is perhaps the largest wool importer in Canada, states that colonial wools, bought in the London sales, cost the Canadian manufacturer 10 per cent. more than the English manufacturers, while the latter had the advantage of being able to get quick supplies. Ninety-five per cent. of the wool used for Canadian cloth was imported. Higher interest rates in Canada are a further disadvantage. Industrial paper in England can be sold at 3 per cent. and not less than 6 per cent. in Canada. Another decided disadvantage is the restricted character of the Canadian market.

This prevents the different companies from specializing in their factories, whereas in England three important industries are conducted separately, viz., (a) the scouring and mixing of the wool and its manufacture into yarn; (b) the manufacture of the yarn into different products, and (c) the dyeing and finishing processes. The manufacturers also claim that the competition they suffer most from is the selling of job lots in England at sacrifice prices. Canadian buyers go over to England and pick up stocks that the factories have left over and are willing to sell at sacrifice prices, sometimes at less than 50 cents on the dollar, and the duty paid on these is at the slaughtered reduction. This class of goods is used extensively for the manufacture of the cheaper ready-made clothing. A minor difficulty is the prejudice amongst the public that imported goods are superior to home-made. This, however, is being overcome as it becomes known that Canadian wools are the best in the world for their finish and wearing qualities. The exhibit of the Made-in-Canada wools at the Dominion Exhibition attracted a great deal of attention, and doubtless had the effect of impressing thousands of Canadian consumers with their excellence.

These considerations will serve to show why the woolen manufacturers want a duty of 30 per cent. They are hoping against hope that they will get it, and unless they do they predict positively that the industry will dwindle into insignificance. The increase of 7 per cent. would place them on an equality with the strongest industry in Great Britain and would only make a difference to the consumers of from 10 to 15 cents in the price of a suit of clothes.

But all the woolen men do not take a pessimistic view of the situation. Robert Darling, speaking of the woolen trade, said that the men who understood the business, and who had taken off their coats for the fight, were not closing down their mills. The fact that George Pattinson, of Preston; the Paton Manufacturing Company, of Sherbrooke, and others, are kept fairly busy with orders goes to show that business is good.

The Trade Bulletin, Montreal, has this to say of it: The real cause of the depression in the woolen trade is due to the fact that the fashion has changed from worsted to tweeds, the latter being turned out much cheaper by the Yorkshire mills than by manufacturers here. For instance, tweeds costing 50 cents laid down here, could not be manufactured by Canadian mills under 70 to 75 cents. This information we have from one of our best posted manufacturers. These imported tweeds are said to be made from a mixture of cotton and wool, and consequently, the raw material costs the English manufacturer considerably less money. The question then arises, why cannot Canadian mills turn out the same goods by using cotton and wool? The answer is because they do not yet know the process which is said to consist of a peculiar blending of the cotton thread with a twist of wool. Be that as it may, it is the change of fashion from worsted goods to tweeds that is the main cause of a number of our woolen mills closing down and others running at a reduced output.

STAINS AND THEIR REMOVAL.

It is, perhaps, hardly necessary to say that stains should be treated as speedily as possible after their first appearance; when once dry they are more difficult to remove, requiring both time and perseverance. Paint should be instantly wiped on; grease on wood, stone, or carpet, should be congealed before it has time to penetrate, by throwing cold water over it. Tea, coffee, ink, wine, and fruit stains,

will disappear in a quarter of the time if they can be attended to while wet. Spots on colored material must not be rubbed, but dabbed over and over again until they disappear. Rubbing roughens the surface, and often leaves a whitened circle almost as unsightly as the original stain. The dabbing is best done by covering a finger with an old handkerchief frequently changed, and great care should be taken to confine the operation to the area of the stain itself, and not to extend the damage by damping and rubbing the surrounding material. In the treatment of stains, to know what you mean to do, and to do it quickly and neatly, is more than half the battle. We will take stains on white washing materials first:

For acids, tie up a bit of washing soda in the stained part, make a lather of soap and cold soft water, immerse the linen, and boil until the spot disappears.

For anilines, wet with acetic acid, apply diluted chloride of lime, and wash out carefully.

Apple and pear stains may be removed by soaking in paraffin for a few hours before washing.

Blood, if fresh, is removed by soaking for twelve hours in cold water, then washing in tepid water. If the mark still remains, cover it with a paste made of cold water and starch, and expose to the sun for a day or two. Old stains require iodide of potassium diluted with four times its weight of water.

For coffee and chocolate stains, pour soft boiling water through them, and while wet hold in the fumes of burning sulphur.

Fruit stains can be treated in the same way, if fresh, but if old, rub them on both sides with yellow soap, cover thickly with cold-water starch, well rub in, and expose to sun and air for three or four days. Then rub off the mixture and repeat the process if necessary.

Grass stains are removed by alcohol.

Ink requires milk for its removal; the spot should be soaked and gently rubbed. A fresh stain will disappear quickly, but an old one may need soaking in milk for twelve hours.

For iron mould, spread the stained part on a pewter plate, set over a basin of boiling water, and rub the spots with bruised sorrel leaves, then wash the article in soft, warm suds; or, cover the spots with a paste made of lemon juice, salt, powdered starch, and soft soap, and expose to the sunlight.

Mildew can be removed by the above paste, or by simply wetting the spots, covering them with powdered chalk, and bleaching on the grass.

Paint will disappear before turpentine and perseverance.

Perspiration spots, if new, should be treated with weak ammonia; if old, with dilute of oxalic acid.

Scorched linen can be restored if the threads are not injured. Peel, slice, and extract the juice from two onions, add half a pint of vinegar, half an ounce of curd soap, two ounces of fuller's earth, boil these well, and when cool, spread over the scorch, let it dry on, and then wash out the garment.

Tar can be taken off with petroleum.

Tea stains yield to the action of boiling water poured through them from a height, or to glycerine.

Wine stains, if old, treat like old fruit stains; if fresh, table salt spread over the spots while wet will neutralize the damage.

Stains of which the cause is unknown will frequently disappear if held in a pan of milk boiling on the fire, or by

soaking them in sour buttermilk and drying them in the sun. The articles should then be washed in cold water, dried, and the process repeated several times in the day. The following bleaching liquid will effectually remove any trace that may still remain after the garments have been through the laundry. It may be called an instantaneous ink and stain extractor, but requires to be used with care lest the fabric suffer: Put a quarter of a pound of chloride of lime and a quart of soft water in a wide-mouthed bottle, and shake it well. Cork tightly for twenty-four hours, then strain through cotton, and add one teaspoonful of acetic acid to every ounce of the mixture. Damp the stain, apply the extractor, and wash well in clear, soft water.

For the removal of stains and spots from colored materials and carpets, ammonia takes the first place. Almost any mark, new or old, will yield to its persevering use. It can be applied to woolens, cottons, and silks. It will remove ink spots from marble, paper, and wood. Grease flies before its application; and when diluted with water, spots caused by orange or lemon juice or vinegar are removed from the most delicate materials. For very nice fabrics some people like to use the old-fashioned javelle water, but ammonia, delicately applied, does quite as well. From carpets, curtains, and suits of clothing it will remove almost any stain, including that caused by whitewash. Ink spots are always the most difficult to efface. Use milk or clear water until the spot disappears, being careful not to extend the area of damage by rubbing the ink into the adjacent material. Benzine will remove paint from delicate fabrics; if it fails, turpentine must be used, and the mark which it leaves effaced by alcohol. If in the process of removing stains the color departs from the material, it can generally be restored by dabbing with chloroform.—Dyeing and Cleaning Trades' Journal.

INSPECTION OF BINDER TWINE.

Last year the Dominion Government enacted that all binder twine should, under a penalty of 25c. a ball, bear a tag stating the number of feet per pound in each ball, and that if the length of twine did not agree with that stated on the tag—within a five per cent. limit—the dealer should be liable to a fine of from \$1 to \$25 per ball. Joseph L. Haycock, ex-M.P.P., was appointed inspector to see the law enforced. During the recent trip of 5 weeks to the West, he condemned twelve lots of twine, of both Canadian and American manufacture. He collected fines aggregating more than \$500, confiscating a quantity that was under grade, and drove out of the country more than 200,000 pounds of inferior twine. Some twine, supposed to be 600 feet to the ball, measured only 428—that is to say, the farmer had to pay nearly one-third more for the length of twine he used. Hitherto unscrupulous manufacturers have traded on the fact that it is impossible for the farmers to inspect binder twine, as the necessary unrolling in order to measure it made it useless for the binder, but this fraudulent article will, as the result of Mr. Haycock's appointment, be driven off the Canadian market. He will inspect the twine being used in the corn districts of Ontario, and will then make a tour of inspection of the Canadian twine factories.

Mr. Haycock stated to the Agriculture Committee of the House of Commons that the consumption of binder twine in Canada amounted in value to \$3,700,000 per annum. Some amendments to the act are proposed.

Foreign Textile Centres

Accrington.—Cotton trade unsettled and unsatisfactory, with 2,000 looms waiting for beams.

Belfast.—Market quiet, but showing steady expansion without activity. Prices very firm with fractional advance. Manufacturing end improving. White goods for home trade in better request. Handkerchiefs in moderate demand. Shipping trade fairly strong, with more demand from the colonies.

Bolton.—The hosiery trade is extending in the Bolton district, a large firm having acquired an additional mill in order to be better able to cope with their increasing trade.

Dundee.—Jute market greatly excited, the final forecast giving 6,500,000 bales instead of 5,400,000, and prices have receded considerably. The fancy jute trade is inactive. Cords, ropes and twines in excellent request. Flax business very limited. For yarns, fair business at unchanged prices. Linens in fair request. Heavy canvas trade very dull.

Kidderminster.—Fair trade being done, but some mills on short time. Outlook favorable except in prices for carpets, which are not satisfactory. Yarn trade disorganized and little doing, but prices firm.

Kircaldy.—Linoleum and floorcloth manufacturers are well employed, the output being very large. Business with Canada and United States good.

Leeds.—No material change in the market which is still depressed. Orders are only such as will cover immediate requirements. Canadian demand only moderate. High price of merino gives the call to cheaper grades. Wool firm, with slow sale.

Leicester.—Trade is reported as bad in the fashioned and seamless hose departments; fair with glove and fancy hosiery makers; at Loughborough slightly improved on shirts and pants, slack in the fashioned and seamless hose branches, at Hinckley fair with makers of seamless hose, but slack in the shirt, pant and half-hose departments.

Manchester.—The failure of John Wrigley & Sons, the outcome of an attempt to corner Egyptian cotton, has had a disquieting effect, but is a relief to the fine spinning trade. In American cotton the future is still obscure, but prospects on the whole favorable. The early part of October may see present values maintained, but with no disaster to new crop. Prices are likely to recede later. Cloth market shows limited enquiry, impracticable offers and small results, with unsatisfactory prices.

Nottingham. Employment shows a decline, as compared with a month and a year ago.

Rochdale.—A little more animation is manifest in the flannel market, and prices are firmer, but demand is not what it should be at this season.

THE PROPOSED LINEN FACTORY AT ORILLIA,

The by-law to aid in the establishment of a linen factory, at Orillia, by the Dominion Linen Mills Co., has been carried by a vote of 558 to 14. There were 888 qualified voters.

The Dominion Linen Co. is not the same as that which proposes to start a linen factory at Bracebridge, but there is a rumor that those interested in the latter may go in with the Dominion Co.

E. J. H. Pauley, president of the company, writing to A. B. Thompson, president of the Orillia Board of Trade, says:

A few words re our company and the linen industry may prove of interest to you. The Dominion Linen Mills Company, Limited, of Nova Scotia, was incorporated by special Act of the House of Assembly, Nova Scotia, in April, 1903. Capital \$500,000 (in 20,000 shares of \$25 each.) *Directors and directors:* Edwin J. H. Pauley, president, banker and broker, Halifax; A. W. Redden, vice-president, boot and shoe merchant, Halifax and Sydney; Max. Ungar, secretary, proprietor, Ungar's Laundry and Dye Works, Halifax and Sydney; William N. Silver, of W. & C. Silver, dry goods, Halifax; T. S. Bowser, of G. M. Smith & Co., dry goods, Halifax. The Dominion Linen Mills Company was formed for the purpose of carrying on the business of the manufacture of linen, woollen, cotton, yarns, clothing, linseed oil, meal, and cake, etc., and textile goods of every description. At the present time the whole of the linen used in Canada is manufactured and imported from abroad, while the Dominion produces an unlimited supply of excellent material suitable for the industry. In order to take advantage of these facts and give employment to a large number of operatives, the company proposes to erect a large and fully equipped mill with the latest and most modern machinery. Our plans call for the erection of a handsome brick structure, which with first instalment of machinery will entail an initial expenditure of over \$100,000, a large portion of which will be expended on the building and improvements in connection therewith.

Regarding the production of flax in Canada, Manitoba alone for the year of 1902 doubled its statistical acreage over that of 1901, and when it is considered that an extensive immigration of flax growers is taking place from the North-western States, it is evident that this increase, which amounted to 564,440 bushels, will be fully maintained. It must also be considered that the province of Ontario, notably Perth and Waterloo counties, produce this raw material abundantly, and that the soil and climate of the country surrounding Orillia is likewise admirably suited for the production of the flax plant. At the present time Canadian flax is raised almost entirely for the seed only, which is ground by different Canadian factories for the oil. When it is considered that one of the most valuable crops raised in Canada is only partly saved and utilized, and that with proper methods Canadian flax fibre can be manufactured into different grades of goods, some conception can be formed of the commercial opportunities offered in this field. In order to take advantage of these facts and utilize this raw material in a practical way, the Dominion Linen Mills Company, Limited, contemplate the use of patented flax cleaning machines of the latest and most improved type, and also in conjunction with the same, our improved method for degumming and bleaching the fibre, whereby the material will be provided as required, suitable for the purposes of the company, and at a cost a little more than nominal, when compared with the systems in general use by the foreign manufacturers.

The equipment of our mills will include special textile machinery, built to our order by one of the largest machinery corporations in Great Britain, each machine being guaranteed to produce the quantity and quality of the materials required. The continuous operation of the mills is not dependent on Canadian flax fibre, or crops, as our machinery is also especially built for the manufacture of linens from regular linen yarns, which are spun in Ireland, Holland, Belgium, Germany, France, Russia, etc., where all

linen manufacturers obtain their supplies, and is imported to Canada free of duty. As a very much larger ratio of profit accrues to the company, by obtaining the raw material direct from the flax fields, it is intended to establish fibre mills or receiving depots, fully equipped with flax cleaning and other machinery, in districts wherever flax is grown in desirable quantities suitable to the company. The fibre thus obtained is then cleansed, treated, baled, and shipped direct to our linen mills, to be manufactured into staple goods. The value of imports of manufactures of flax fibre entered for consumption in Canada for twelve months ending June 30th, 1902, amounted to \$1,979,710. The imports of cotton manufactures for the same period amounted to \$7,392,977. We operate the entire system from the raw material to finished goods. With a most modern and complete equipment the Dominion Linen Mills Company, Limited, of Nova Scotia, through their main plant, if located in Orillia, aim to compete both in quality, excellence of workmanship, variety and price, with any similar goods imported into Canada, and to that end will operate an entire system of manufacture from the raw material, through the various operations of preparing, spinning, weaving, bleaching and finishing, to the folding department, where the goods are folded into that attractive shape in which they will be displayed in the many dry goods stores. By combining the entire system of manufacture under one control and expense, additional profits are assured to the company, as it is the custom of foreign linen manufacturers to have the various operations carried on by separate establishments, thereby involving separate profits. Our company will have associated with it a staff of the most competent, practical and experienced textile men possible to secure. Experts in our system of linen manufacture, superintendents of different departments, etc., have contracted with our company, and skilled labor from the home of linen—Ireland—has been arranged for. From the inception of our business we shall employ not less than one hundred operatives, a larger portion of whom will be males, such as carders, degummers, weavers, bleachers, etc., and gradually increase our plant and works and list of employees, as the home labor becomes educated and skilled. Our initial pay roll is estimated to be not less than from \$1,000 to \$1,500 a week, which in the natural course of trade will find its way to the benefit of all in the community.

The gentlemen associated with me as directors of the Dominion Linen Mills Co., Limited, are business men of high moral and commercial standing, as any mercantile agency or banking institution will attest.

The Manitoba yield of flax seed for 1902, amounted to 564,440 bushels, but in addition to this seed, there is the flax fibre, which was mostly destroyed, and which should have found a good market in Canada, for there is no reason why we should not have the linen factories for the manufacture of the flax which we can grow, as well as cotton factories for the manufacture of cotton which we cannot grow.

In conclusion, let me add that with machinery and processes incomparably superior to any other in use; with supplies of raw material, whether Canadian, local, or imported, practically inexhaustible; with the latest, fully equipped, up-to-date textile plant; with your unsurpassed cheap electric power and water suitable in every way for our industry; with an assured market for all the goods manufactured; with splendid facilities for shipping, and an avenue to the world's market, it must be apparent to even the most conservative that the success of the company is assured. In addition to being a most remunerative investment for its shareholders and that of the locality, wherein

the company's works are established, a new industry will be built up, a new field for labor in that particular locality will be opened, and new assets will be secured for the community.

I trust that we shall have the pleasure of labelling our output, at an early date, as "Made in Orillia."

MADE IN CANADA EXHIBITION.

The Daughters of the Empire, in Hamilton, got up an exhibition of Made-in-Canada goods last month, which was a great success. The drill hall, where the exhibition was held, was converted in a wonderfully pleasing manner into an old English street, with about forty windows, each of which displayed the products of one particular factory. Among the exhibitors were the following in textiles: Hamilton Cotton Company, Hamilton; Galt Knitting Company, Galt; Harris & Co., woolens, Rockwood; T. Upton & Co., Hamilton; Tolton & McKay, shirts, Toronto; Boyd Caldwell Company, woolens, Lanark; C. Turnbull & Co., Galt; Crompton Corset Company, Toronto; Penman Manufacturing Company, Paris; R. Soper & Co., Hamilton; Dominion Corset Manufacturing Company, Quebec; Grafton & Co., clothing, Dundas; Watson Manufacturing Company, Paris; Corticelli Silk Company, Toronto; Toronto Carpet Company, Toronto; Colonial Bleaching and Printing Company, Montreal; Holt, Renfrew & Co., furs, Quebec; Cumming & Sellers, furs, Toronto; Brown & Wigle, Kingsville, woolens; A. & R. Clarke, Toronto, leather.

LITERARY NOTES.

The October number of the Canadian Magazine contains a graphic sketch of the memorable congress of Chambers of Commerce in Montreal, written by Ernest H. Cooper, secretary of the Montreal branch of the Canadian Manufacturers' Association, and brother of the editor of the magazine. The sketch is illustrated by photographs of some of the leading personalities at the congress, and by a bird's-eye-view of the congress in session. Mr. Hannay continues his history of the war of 1812, the present chapter recounting the battle of Lundy's Lane, the hardest fought battle of the war, and the bloodiest battle, in proportion to the numbers engaged, ever fought between British and United States troops. "The Threshing of the Grain" is a picturesque account by W. N. Belford, of modern methods of reaping and threshing grain as carried out on the prairies of the Canadian West. Prof. W. S. Milner philosophizes on "Ancient and Modern Conceptions of Liberty." There are several contributions in fiction and poetry.

The October Century is in a large sense a sportman's number, the article on "Field Sports of To Day," by Dwight W. Huntington being a notable contribution in this department. Among topics of general interest, Dr. L. O. Howard, of the United States Department of Agriculture, reports on the experiments made to show the connection between yellow fever and mosquitoes. An account by Alonzo Clark Robinson of "The Destruction of Philae" sets forth the damage apparently done to this great historical ruin by the construction of the great Nile dam; and there is an interesting article on "The New Woman in Turkey," by Anna Bowman Dodd. The editorial department contains a solemn denunciation of the crime of lynching now so prevalent in the United States. For the November number, Ambassador White's relations with Bismarck will be recounted, and Thackeray's unpublished letters on America will also begin to see the

light. Ernest Thompson Seton, or, as his Canadian friends still know him, Seton Thompson, will soon begin in the Century a series of papers on "Fable and Woodmyth."

The November issue of *The Delineator* sustains its recognized position as an exponent of the fashions. The art supplement deals with winter styles. In fiction there is the second instalment of *The Evolution of a Club Woman*, the bold narrative of a woman's experiences in clubdom, purporting to be fact, a short story by William MacLeod Raine, entitled *An Unpremeditated Engagement*, *An Interrupted Honeymoon*, and other sketches. In the second of his photographic articles, J. C. Hemment relates some of his thrilling adventures with the camera. N. Hudson Moore has a strikingly-illustrated paper on Chrysanthemums, and in the "Miladi" paper Clara E. Laughlin writes of *Conflicting Tendencies in early married life*. *A House Small but Artistic* is pictured and described by Alice M. Kellogg, and in "Carlotta and I," Miles Bradford tells the story of an old-fashioned Thanksgiving. For the children, there is a *Firelight Story*, by Livingston B. Morse; entertaining *Pastimes*, by Lina Beard, describing the construction of the Statue of Zeus at Olympia; an amusing story by C. V. Mathews, called *We Meet Monsieur Daguerre*, and a *Sewing Lesson*. In addition there are articles by experts treating problems of the home and household.

Max Jagerhuber, editor of *Dry Goods*, New York, has issued in pamphlet form his interesting paper read before the Lowell Textile School, on "New York as a Textile Mart." After some figures on the volume of the dry goods trade of New York, he gives an account of the different methods of selling in the jobbing and commission trade, how business is carried on with the mills, the clothing trade, etc., and how the trade auctions are carried on.

The Canadian Manufacturer Publishing Co., McKinnon Bldg., Toronto, have rendered the commercial world a good service by compiling, from official sources, the customs tariffs of Canada, Great Britain, the United States, Australia, and South Africa. Apparently it is the first attempt to present what may be called an Imperial tariff book, and in these days, when the fiscal relations of Great Britain and her colonies are so intently discussed, such a work will be very valuable for reference. It appears in the form of a special number of the *Canadian Manufacturer*, and is sold at the popular price of 50 cents.

The Kidderminster Shuttle, one of our most valuable exchanges, which comes from the carpet manufacturing district of Great Britain, has issued a special industrial number called *Kidderminster in 1903*. It is handsomely got up and contains much information relating to the carpet industry of that city.

FABRIC ITEMS.

Lace collars are very popular this year.

The unfavorable weather during the month of September will, it is feared, affect the yield of Egyptian cotton.

Of binder twine to the value of \$1,750,859 imported by Canada in 1902, the United States supplied \$1,683,772 worth.

There is considerable disease in the flax of North Dakota. Flax wilt has damaged the crop very seriously. Formalin is the remedy recommended.

The union tailors in Windsor, Walkerville and Sandwich recently struck for higher wages. The masters, having given an increase a year ago refuse to give another.

High winds and heavy rain in September damaged the cotton crop in the Southern States.

Canadian mills have put up a variety of woolen cloth, this season suitable for fall and winter wear, which is proving extremely attractive to buyers, and the trade in these is now very active.

A Canadian manufacturer in a letter which appears in the *London Times*, says it will be impossible for the cotton mills to exist if there are any further concessions made in the matter of the preferential tariff.

About \$15,000,000 of Canadian capital is invested in the Canadian woolen industry, and about 3,000 people are employed in the various factories. This includes the capital and workmen of the knitted and worsted goods factories.

Scotch woolen manufacturers are almost unanimous in the opinion that Canada's preference has increased and is still likely to further increase their trade with the Dominion. The Kidderminster carpet manufacturers hold the same view.

The Canadian cotton mills, which figured some time ago that their year's raw cotton would cost them 10 cents a pound, now find that it will probably not be less than 11 cents, perhaps more. No wonder that the price of manufactured cottons has been advanced.

Restriction is to be placed on the importation into British Columbia of sheep from Oregon and Washington. Deception has been practised in the past, and sheep imported for immediate slaughter have been turned out to feed and disease brought in.

Winnipeg jobbing houses are unable to secure fresh stocks of white and gray blankets, because an exceptionally heavy demand has cleaned the makers out. As there is always a large demand for these blankets from railway and other camps in the fall, the prevailing scarcity may result in hardship to the men.

The market for all classes of woolen knitted goods, gloves, hosiery, underwear, stockings, is very firm, and some smart advances have taken place. Blankets are in keen demand, and the supply is short. One mill sent word that they would not be able to ship goods recently ordered before the middle of January.

The Department of Agriculture in the United States is encouraging the production of silk in that country. Over 15 million pounds, valued at 50 million dollars, are imported annually, and the Government is trying to cultivate the business as a home pursuit. Machines and cocoons have been imported, and the latter are supplied free to those desiring to engage in the business.

F. W. Christie, of Dairsie, Maine, has been travelling in Canada, having been commissioned by the Dundee Courier to make an exhaustive study of agricultural conditions in every part of the Dominion. Among other things, he will investigate the possibilities of flax growing in Canada. Mr. Christie is one of the best-known practical agriculturists in Scotland, and his reports will be widely read among all classes.

The Crown Tailoring Co., of Toronto, is willing to drop the suit against the city regarding the contract for firemen's clothing, if the Lord will agree not to make the use of the Journeymen's Tailors' Union label a condition of tender. The Board of Control was willing, but the Council wishes the suit to go on. The city solicitor advises that the city cannot legally require the use of any particular label. The minimum wages to be paid for the making of the garments will be made a condition of the contract.

The scarcity of raw cotton is affecting the supply of cotton cordage.

Over 90,000 sheep have been sheared, to the end of August, in the Stirling district, Alberta, and over 600,000 pounds of wool obtained.

A bill introduced in Parliament by Walter Scott, M.P., providing that imported woolens should be marked according to grade by the Customs authorities, has called forth much opposition from the trade.

The C.P.R. Steamship Empress of India recently arrived at Vancouver with a cargo of silk, valued at \$1,728,000, which was shipped east by special train. This is the largest silk shipment made from the Orient this year.

The consumption of raw cotton in Mexico is some 100,000 bales, 53,000 of which are imported. Cotton manufacturers there continue to have a good time under the influence of important bounties on exports and heavy import duties on foreign goods.

It is expected in Russia that a reduction in duty on raw cotton will be made in 1904. This is the first departure from the prevailing protective system. The purchasing power of the Russian masses is so low that the textile interests are threatened with ruin.

The price of wool is still maintained around top figures on the London market, and mediums are now taking the place of merinos. The supply is very small, Australia being particularly weak. The number of sheep sheared this year is the least for 25 years, and in Queensland the estimated clip is 1,000,000 pounds less than last year.

Textile manufacturers now more than ever make use of attractive labels and boxes in doing up their goods, and this method of presenting new goods often effects sales where homely parcels or goods without labels are sold with difficulty. Levy & Co., printers, Leader Lane, Toronto, make the printing of such labels their sole study, and samples of designs which they send post free to manufacturers, show their skill in this art.

Many new processes for the manufacture of rubbers have come to grief upon being tested on a commercial scale. The Atlantic Rubber Shoe Company, of Boston, however, was organized a year or two ago, for the purpose of making such goods under the H. J. Doughty patents, by which, it is claimed, they can be moulded by machinery at a saving in cost of one-third, compared with the old methods. The company has completed the building of a large plant in Providence, R.I., to employ over a thousand hands.

The actual price of raw cotton laid down in Canada is at present 13 cents per pound. At present the American crop prospect is uncertain, but the yield will not be above the average, and an average crop will not be any more than sufficient to supply the current demand, in view of the increased consumption incidental to good times. This means that present prices for raw cotton may continue indefinitely. In this belief many mills are reducing their output in order to husband the supply of raw stock now on hand. Some mills have closed down entirely. These will not come into the market again until prices suit them.

One of the principal attractions at the St. John's, Newfoundland, agricultural exhibition this year, says the Herald, was the work of the boys of the Mount Cashel training school, of whom about 30 were present. All the appurtenances were on a raised platform for the making of shoes and hosiery; the tailory was in full swing, the boys cutting and stitching garments with remarkable adroitness, and the loom, manipulated by four bright youngsters, turned out homespun of an excellent quality. A great variety of stock-

ings made on the knitting machines were shown, including an excellent article in cycling hose, and the manufactured homespun which the boys wore themselves showed the possibilities of the school in this important department. Possibly never before were the advantages of a technical training so fully exemplified.

Bellhouse, Dillon & Co., sole agents in Canada for Kuttroff, Piekhardt & Co., New York, have issued a new sample card of one-bath Chrome dyestuffs and Aniline Dyestuff of good fastness to milling on loose wool. The card was prepared with a view to showing full series of 1-Dip Topped Colors. In addition to these a number of dyestuffs are also represented requiring no after chroming, only such however as may still be called very good and which for obtaining certain shades prove indispensable. The card will bring to the attention of the consumer various products which if not fulled too heavily do not stain white wool and should answer all practical requirements. The material in the card is zibeline, but is worthy the attention of manufacturers who do not dye zibeline goods, in fact all who are interested in fast colors—one-dip. These colors are meeting with good sale in Canada.

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.

Darius Allport is opening up a new woolen mill at Smith's Falls.

The Beaver Rubber Clothing Co., Montreal, is increasing its capacity.

The Montreal Woolen Mill has installed two new looms and other machinery.

The Paton Mfg. Co.'s woolen mill at Sherbrooke is reported to be running full time.

The Canadian Cordage Co., at Peterboro, is enlarging its works by additions to its packing-house, 75 x 35, to its preparation-room 73 x 70, and to its storehouse 80 x 50.

Parties in Brantford and elsewhere, who have purchased the mills of the Western Canada Woolen Mills Co., at Medicine Hat, N.W.T., are making arrangements for new machinery, and will shortly reopen the mills.

The Martin Electrical Supply Co., of St. Catharines, have been awarded the contract to install an 800-h.p. motor for the Canadian Colored Cotton Co., at Hamilton. The cotton company will thus do away with the use of steam.

The Penman Mfg. Co.'s mill at Coaticook is now manned as follows: J. B. Henderson, superintendent; M. O. Dougherty, carder; Arthur McClerc, spinner; James Wallace, knitter; John Hislop, finisher; Samuel Shaw, dyer.

The Dominion Cotton Mills at Kingston, which closed down for a couple of weeks in September, on account of the condition of the raw cotton market, resumed operations with a full staff on the 28th. While shut down necessary repairs were made.

The Boyd Caldwell Co.'s woolen mills at Appleton have started again after a rest of about two weeks, during which time the water-power underwent a number of improvements. Piers have been built so as to control the water and prevent the formation of anchor ice. The dam has been repaired and another water wheel added.

Wm. Algic, Alton, Ont., has recently installed new machinery in some parts of his woolen mill.

James Hendry, late superintendent for the Canada Woolen Mills at Carleton Place, has taken a position as general superintendent of the woolen mills at Peterboro.

The Richelieu Woolen Mill, Chambly Canton, Que., which recently shut down for a few days to clean the boilers, has started again. The mill makes fancy tweeds. E. Leyden, overseer of finishing at this mill, died recently.

The Ontario Linseed Oil Co., Owen Sound, Ont., have received three carloads of machinery from the Chas. F. Elmes Engineering Works, Chicago, to be installed in their linseed oil works, which will be in operation shortly.

In an item which appeared last month relating to the Dominion Belting Co., it was stated that the duck for their belting was manufactured by the Hamilton Cotton Mills Co. It should have been the Imperial Cotton Co. The Hamilton Cotton Co. does not make duck.

Hutchinson, Shurly & Derrett, of Toronto, manufacturers of twines and cordage, are adding 45x60 feet to their floor space by an addition to their present buildings. The new portion, fitted with new machinery, will be used as a braiding room. The old braiding-room will be utilized as a shipping-room.

A mill near Manchester is being equipped with the necessary apparatus for electrical driving of its machinery, and will give the system a thorough test. The steam turbine is now spoken of as a possible motor power for textile mills.

The Boyd Caldwell Co. sent a magnificent exhibit of woollens, according to the Carleton Place Herald, from their mill at Lanark, to the Made in Canada exhibition at Hamilton. R. W. Robertson had charge and received the personal congratulations of Hon. Geo. W. Ross, who inspected and greatly admired the display.

The M. J. Wilson Cordage Company, Chatham, Ont., suspended operations on September 15th. It was not intended to close down for some time yet, but the girl employees asked for an advance of 15 cents a day and the manager decided to close the mill. Arrangements are being made to install rope machinery, and as soon as this is done operations will be resumed.

The suit of Ineson vs. the Hamilton Cotton Co. for damages, has just been tried at the Hamilton fall assizes. Eight witnesses were called by each party, and seven in rebuttal. The defence made a stiff fight, claiming that it was through no negligence of the company that Jos. Ineson lost three fingers. It came out in evidence that Ineson got judgment for \$150 damages some time ago for injuries received while working at the Hamilton Steel Co.'s plant last winter. The trial resulted in a verdict in favor of the Cotton Co.

The Dominion Woolen Mfg. Co., Beauharnois, P.Q., are reported to be very busy in spite of the unsettled condition of the woolen industry in Canada. They are running the carding and spinning departments overtime. They have built a new fulling mill, and have put in a new steam brush, a new dyeing machine, new feeds on their cards, and are contemplating the installation of 20 new fast looms. They manufacture friezes, etoffes, costume cloths, rugs and gray blankets. William Morrison, formerly of Hespeler, is superintendent.

On the occasion of a recent friendly contest between the Westmount Bowling Club and the Valleyfield Bowling Club, James Brown, president of the former club, congratulated F. Lacey, manager of the Montreal Cotton Co.'s mills at

Valleyfield, on the relations existing between the proprietors and employees. He referred to the excellent facilities for recreation that had been furnished the employees in the erection of a club-house, which had a reading-room and library containing several thousand volumes; a billiard-room with three or four large tables; and a dining-room in which 70 to 80 guests could be comfortably seated. Adjoining the club-house is a large curling rink; and alongside of it is the best crown bowling green in Canada, besides a fine tennis court. In fact the employees of the Valleyfield Cotton Mills have advantages unequalled by any club in Montreal, showing that the owners of these mills recognize their sense of duty in caring for the welfare of those who contribute to the earnings of dividends and the accumulation of capital.

BUSINESS NOTES.

The Puritan Laundry, Co., Hamilton, has assigned.

The name of The Sovereign Mitt, Glove & Robe Company of Delhi, Ont., has been changed to The Sovereign Mitt, Glove & Robe Company.

The Royal Neckwear Co. is the name of a new firm with headquarters at Montreal, under the management of Wm. Lazer, an experienced manufacturer.

M. Fisher & Co., of Montreal and Toronto, importers of worsteds and tweeds, are establishing warehouses in Winnipeg, which will be under the charge of W. D. LeBoutillier.

H. Breitman, who two years ago went into the manufacture of fur linings and collars for the wholesale trade at Montreal, has compromised with his creditors at 35 cents on the dollar; 25 cents cash, and 10 cents on time.

The business of W. H. Storey & Sons, of Acton, and W. J. Chapman, of Wingham, have been merged and incorporated under name of W. H. Storey & Sons. The business will be carried on at Acton, at which place it was established in 1868.

The Thornton & Douglas Co., manufacturers of clothing at Stratford, Ont., may remove from that city because of litigation respecting the premises they occupy. They have retail stores at Stratford, Guelph, and Chatham. They have been in business 17 years, and employ from 50 to 60 hands in their manufactory.

E. R. C. Clarkson, liquidator of the Western Canada Woolen Mills Company, of Medicine Hat, N.W.T., has reported to the Master-in-Ordinary that, after paying a dividend to the creditors, he had \$1,400 to distribute among the contributories. The court made an order for the distribution.

A previous announcement as to the filling of the place of the late A. F. Gault, on the board of the Montreal Cotton Co., was premature. Charles Garth, vice-president, has been elected president, as successor to Mr. Gault. S. H. Ewing becomes vice-president, and Hamilton Gault and H. Markland Molson have been added to the board of directors.

The following mills figure in the list of creditors of the Imperial Cotton Co., Montreal, of which A. Cohen and I. Haltman were proprietors: Canada Woolen Mills, Dominion Cotton Mills, Montreal Cotton Mills, Montreal Woolen Mills, Maple Leaf Woolen Mills. The following also appear in the list: Canada Paper Co., Dominion Paper Co., American Button Co., Corticell Silk Co., Commercial Twine Co., Empire Mfg. Co. There are some 150 creditors, among them being some of the largest dry goods houses and manufacturers in Canada and England.

The capital stock of the Crown Manufacturing Co., Toronto, has been increased to \$100,000.

The new Winnipeg wholesale dry goods house of Green-shields Western, Limited, expect to have their new warehouse completed and filled with goods by the 1st of December. R. R. Gallagher, lately senior western representative of Greenshields, Montreal, will become managing director.

The September term of the Court of King's Bench, at Montreal, is over, but Messrs. Bachrack, Blakely and Levey, the Toronto merchants charged with conspiracy to defraud the creditors of George Margolius, were not placed on trial. A motion was made on the part of the defence, that the report of the commission which went to New York and took evidence there, should be rejected from the record, and was granted by the court. The cause of this was that the Attorney-General and the Crown Prosecutor had agreed to the postponement of the carrying out of the commission, of which agreement Judge Desnoyers, the commissioner, had not received any official notice. An impression prevails that the case will never come to trial.

The following companies have been incorporated: The Corona Rubber Co., \$100,000, Montreal, to carry on the manufacture of India rubber and gutta percha goods, A. V. Roy, John J. McGill, E. Gauthier, Gustave Gravel, and Magloire Huberdeau. The Dominion Linseed Oil Co., \$500,000, Toronto, James Livingston, of Baden, Ont., and others. Ungar's Laundry, Dyeing and Carpet Cleaning works, \$30,000, St. John, N.B., Louis Green, J. B. Gillespie, M. B. Edwards, Elizabeth Green and Nita Gillespie. The Berlin Robe & Clothing Co., \$100,000, Berlin, Ont., to manufacture and sell imitation fur robes, knitted goods and clothing and goods of an allied character, W. J. McMurtry, Geo. Moore, R. B. Moore, G. R. Barrie, and W. T. Barrie. The Isle Verte Mattress Manufacturing Co., \$10,000, Isle Verte. One. C. A. Gauvreau, S. Picard, A. J. Roy, C. G. Bertrand, C. Prefontaine, J. F. Bertrand, E. Cote, A. Giroux, and L. Bertrand. Medicin-Hat Woolen Mills Co.

The case of the town of Galt vs. the Bank of Montreal came up again before Judge Jamieson, at Guelph, a few days ago. As already stated in the Journal of Fabrics, this was an action to recover the amount of a cheque for one hundred dollars given by H. H. Burrows on certain conditions, in connection with the carpet factory established by Burrows at Galt, which conditions were fulfilled. This cheque was accepted by the Bank of Montreal, and Chancellor Boyd ordered the town to pay into court \$998.21 in the carpet factory suit. This \$998.21 included the one hundred dollar cheque. Relying on the order of Chancellor Boyd, the town paid the \$998.21 into court, but the Bank of Montreal refused to pay the cheque, hence the suit. The case was heard in Guelph, where the cause of action rose, and where the defendants carry on business. Evidence was given proving the making of the cheque, and the order of Chancellor Boyd was produced which implied the validity of the cheque. Judge Jamieson, however, refused to accept the cheque without an additional guarantee of its validity. Accordingly the case was adjourned till further evidence of the certifying of the cheque was produced. At the court the other day technical evidence was given as to the validity of the cheque, and judgment was reserved.

WOOL MARKET.

The fifth series of colonial wool sales for the year commenced on September 15th. There was a good attendance, and competition, particularly for crossbred wools, was animated and general. Prices for well-grown merinos

showed no alteration from those current in July, but some irregularity was noticeable in the bidding for inferior and faulty sorts, which sold in buyers' favor. Fine crossbreds easily maintained the sales' rates, while quotations for medium and coarse grades ruled $7\frac{1}{2}$ to 10 per cent. above the level. The sales closed with still a large attendance. Prices at the close were firm and competition keen. During the series 1,000 bales were taken for America, 80,000 for the home trade, and 70,000 for the Continent, and 7,000 were held over for the next sales. Medium and coarse crossbreds were in strong demand throughout the series, the former opening 5 to $7\frac{1}{2}$ per cent., the latter 10 per cent. higher than at the July sales. During the sales these wools advanced steadily in price, closing 10 and 15 per cent. respectively above the average price in July. The merinos remained unchanged with a rather light demand, prices on faulty merinos being irregular. With the exception of South African, all wool showed either an increase or remained unchanged from the last series. The South African wools opened 5 per cent. lower, owing to an indifferent demand, and the poor quality of the offerings. Slipes were in fair request, Cape of Good Hope and Natal grades showing a small advance.

In Boston the market has shown more life the past week, and an increased volume of business has been transacted. Some of the large manufacturing concerns have been in the market. In some instances they have taken some fair-sized parcels of wool, especially territories of all grades, including fine and fine medium, both clothing and staple, and medium wool, the fine and medium costing between 47c. and 53c., according to fineness, staple condition, etc. There has been a good inquiry also for quarter, three-eighths and half-blood fleeces, of which the supply is limited, and on this latter class of stock especially prices have ruled firm with an upward tendency. Some holders of quarter-bloods are asking prices which are at present above the level of the market, but are confident that it is only a question of time when buyers will come up to their ideas. The strength of medium wools, in fact, continues to be the feature of the situation. Manufacturers are obliged to get up goods at a certain price, and they are buying such stock as will enable them to do this. The tendency is to buy as largely as possible of the lower class of stock, but supplies are small. In fleeces, the inquiry has been chiefly for medium and low wools and for delaine. Fine clothing wools have ruled quiet. Territory wools show increased activity. Pulled wools are in fair demand. Foreign clothing wools are moving in small lots all the time. Business in carpet wools has increased. On the whole, the market shows a strengthening tendency.

Toronto.—Market quiet. Pulled supers scarce and in good demand. A sale of two car-lots for export to the United States is reported. Quotations are. Combing fleece, 16 $\frac{1}{2}$ to 17c.; clothing, 18 to 19c.; rejections, 12c.; unwashed, coarse, 9c.; unwashed, fine, 10c.

Montreal.—The market is very bare of stock, and the manufacturers are only buying from hand to mouth. With some of them closing down, there is so little demand that the wool dealers are not keeping up stock. The prices have not changed since last report.

Winnipeg.—Dealers offer $7\frac{1}{4}$ c. for further lots of unwashed fleece laid down here.

J. F. Morley's blanket factory at Dunlop, Ont., has gone out of business, and the machinery is being removed. It is proposed to utilize the building for Etherington's carpet factory, now at St. Catharines, and the town of Dundas is asked to give a loan of \$10,000.

PERSONAL.

John Murphy, senior partner in the wholesale dry goods firm of J. & M. Murphy, Halifax, is dead, in the sixtieth year of his age.

F. B. Rollinson, who recently resigned his position as superintendent of the Paton Mills, Sherbrooke, Que., has gone to Wakefield, U.S.

J. B. McPherson has been elected secretary of the National Association of Wool Manufacturers of the United States, with headquarters at Boston.

H. H. Burrows, so well known in connection with the carpet manufacturing business at Galt and other places, has, with his family, returned to Guelph from Southampton, where they have been spending the summer.

A. Shirreffs, who resigned as manager of the Richelieu Woolen Mills, Chambly Canton, Que., with a view to retire from business, has located in Sherbrooke. One of his sons is superintendent of the Shirreffs' Worsted Co., North Chelmsford, Mass.

Thomas Oliver, for twenty-five years buyer for the Sandford Mfg. Co., Hamilton, is dead. Previous to becoming buyer, he represented the firm in British Columbia. He crossed the ocean over one hundred times on the business of the firm. His death was caused by Bright's disease.

J. R. Moodie, of the Atlas Knitting Co., Hamilton, has been appointed honorary Lieutenant-Colonel of the 91st Highland Regiment, now being organized in Hamilton. He has subscribed \$2,000 towards the equipment of the regiment. Mr. Moodie has also taken out a permit for a \$20,000 residence on the corner of Bay and Bold streets.

The oldest milliner on the continent of America, says the Galt Reporter, lives at Fergus. She is Mrs. Pattinson, relict of the late William Pattinson, merchant of that village. Mrs. Pattinson has been fifty-seven years actively engaged in the millinery business, and this is her one hundred and fourteenth season. Without interruption she has continued since 1846 in the management of the millinery department of her husband's business, which since his death, five years ago, has been conducted by her son. Mrs. Pattinson makes regular trips to Toronto to make purchases, and has a staff of six young ladies under her direction.

THE GLOBE AND THE WOOLEN INDUSTRY.

The Toronto Globe, discussing the woolen industry, editorially, has this to say: "Complaints on behalf of the woolen industry in Canada have brought out the fact that similar depression exists, not only in Canada, but in Great Britain and the United States. The Canadian duty on tweeds is 35 per cent., and it is reduced to 23 1/3 per cent. by the British preference. If this fails to give Canadian woolen manufacturers a distinct advantage in their own market, it shows that there are disabilities to be removed. On woolen machinery the duty is 25 per cent., and while it may be lessened by the British preference the tendency is to buy in the United States, where parts can be supplied without delay. There may be need of relief in this respect, as the freight on woolen machinery amounts sometimes to as much as 15 per cent., and manufacturers make an additional charge for packing. There are many obvious disadvantages in buying machinery at a distance, and they should not be augmented by unnecessary imposts.

"The chief difficulty encountered by Canadian woolen manufacturers in meeting foreign competition is the excessive charges for local transportation. It is natural to suppose that Canadian manufacturers have the advantage of proximity. But that idea is dispelled by the astonishing revelation that Manchester is often nearer to Toronto, in a commercial sense, than are some points in Ontario. Those who take only a general interest in the development of the woolen industry will be surprised to learn that it costs about as much to send wool from Toronto to Almonte as from Toronto to Manchester. The local rate is evidently a piece of extortion, and perhaps it would be more fittingly characterized by a stronger term. It is the duty of the Government to provide for remedial interference by a railway commission at once. While giving continuous attention to the gateways of the Dominion, we have allowed the highways to be virtually closed by private corporations. Various grades of wool must be mixed and blended in the production of tweeds, and it is consequently necessary to assemble the products of different countries. The British manufacturers have not only the advantage of cheaper rates from foreign countries, but have actually as cheap rates on Canadian wool as have our local manufacturers. In shipping their tweeds and worsteds they have the same advantage in the Canadian market. They can ship to Canadian wholesale houses and manufacturers of ready-made clothing at rates as low as are paid by local manufacturers.

"By excessive local freight rates the railways put our woolen manufacturers at a greater disadvantage than if they were located on the other side of the Atlantic. They are in a measure isolated in their own country, both in regard to obtaining material and delivering goods. While the railways' enjoy such power, it is dangerous for any of their victims to protest or complain. Rates to Toronto on some classes of goods are about the same from Collingwood as from Liverpool. A consignment of wool from Vancouver to Toronto was recently shipped to Boston and thence to this city, the long route resulting in a material saving in freight rates. And the rate from Vancouver to Toronto is still lower than that from points in Alberta. On wool from Toronto to Halifax, the rate is actually higher than if it were loaded on a vessel and carried across to Liverpool. These are some examples that show what Canadian woolen manufacturers must contend with. Every line of industry is occasionally overdone and must suffer the natural reaction. Such depressions are inevitable. But that is no excuse for continuing unnecessary imposts or tolerating conditions under which success depends on the voluntary favor of carrying corporations."

WHERE OUR GLOVE LEATHERS COME FROM.

A journal representative visited one of the leading glove concerns, and while in conversation with the manager gathered a good deal of information about the source from which the various leathers are procured. Some deer and buckskin were from Buenos Ayres and Central America. Some horse hides were from Para on the Amazon; elk hides were from Africa, a large proportion of the sheepskin used is from Australia and New Zealand; the little reindeer skins used in the finer grades of warm lined gents' gloves are from Germany. Mocha, which is used extensively in glove leathers to-day, and which dresses the same as a buckskin, is a goat skin coming from the East Indies, South America and China. The tannage of sheepskin is so greatly improved that now the proportion of goods made from these is larger than ever.

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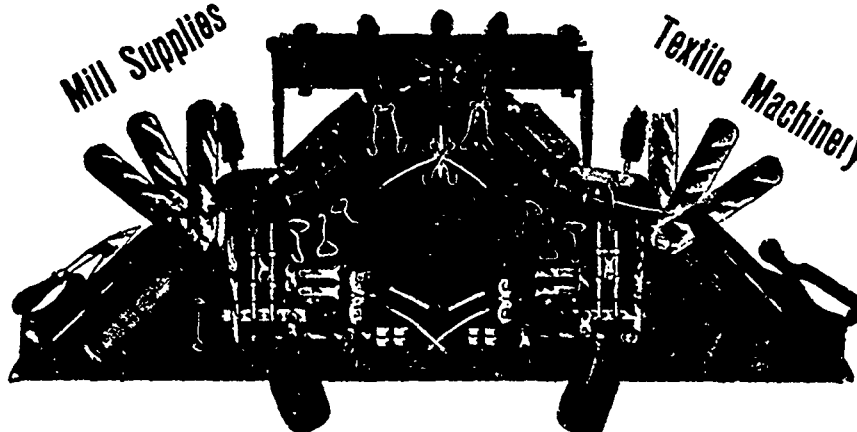
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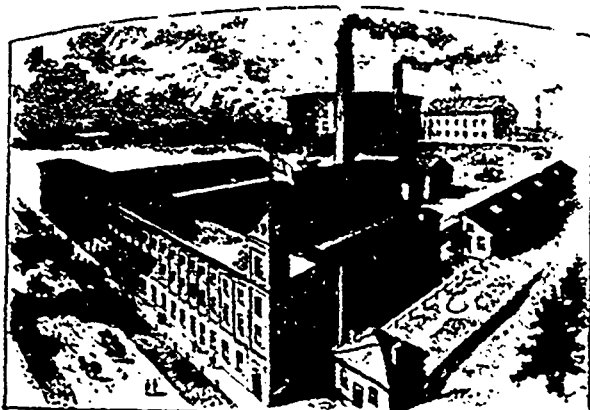
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Prices on Application

DYEING COTTON GARMENTS BLACK.

In dyeing black over other colors, especially red, there is often considerable difficulty in getting a good black. This trouble will be avoided, it is said, and a good black always result if the following process is adopted: After thoroughly cleaning the garments with soda and rinsing them, make in a wooden vessel in a bath with 10 per cent. of bichromate, 8 per cent. of aniline salt (both previously dissolved in boiling water), and 5 per cent. of sulphuric acid. After half an hour's working in this, 10 per cent. more sulphuric acid is added, and the goods are again worked till the bath is exhausted. This is known by the liquid losing its yellow color, and takes one hour. Then rinse thoroughly, and dye in a bath consisting of 20 per cent. Glauber's salt, 3 per cent. carbonate of soda, 5 per cent. of soap, and 4 per cent. of Pluto Black and Columbia Black FB, or Oxydiamine Black D. Dye for one hour at the boil and rinse. The bath can be used again. Starch with paste to which a little common salt has been added.—Textile Excelsior.

J. L. Jackson, who succeeded F. B. Rollinson as superintendent at the Paton Mfg. Co. Sherbrooke, was formerly of England. Mr. Rollinson is now superintendent and manager of the Wakefield Mfg. Co., Wakefield, U.S., in which he is interested financially.

On a recent morning the following notice was posted in the clothing manufacturing department of the Emerson, Hague Manufacturing Company's factory, at Winnipeg: Notice. On and after Monday, the 28th inst., a bonus of 10 per cent will be added to the amount of wages earned by

Situations Wanted.

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

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each operator in the manufacture of overalls, etc.—The Emerson-Hague Manufacturing Co., Limited. The object of the notice was to encourage the employees to do good work, and we have no doubt it will have the desired effect.

Miss Bella Meyers, employed in the weaving department of Pattinson's woolen mills, Preston, was struck in the eye by a shuttle while at her work. The eye was burst open and the vitreous humor escaped. After treatment by a local doctor, she was sent to the Toronto General Hospital. It is feared the eye may have to be removed.

CHEMICALS AND DYESTUFFS.

Nothing new to report. Business is fair, and there is some enquiry for heavy lines for delivery before close of navigation.

Bleaching powder	\$ 1 30 to \$ 1 50
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 00 to 2 25
Caustic soda, 70°	2 35 to 2 50
Chlorate of potash	0 09 to 0 10
Alum	1 30 to 1 50
Copperas	0 65 to 0 75
Sulphur flour	1 50 to 1 70
Sulphur rock	1 60 to 1 80
Sulphate of copper	0 06 to 0 6½
White sugar of lead	0 07 to 0 08
Bich. potash	0 07 to 0 08
Sumac, Sicily, per ton	57 50 to 58 00
Soda ash, 487° to 587°	1 15 to 1 25
Chip logwood	1 50 to 1 75
Castor oil	0 07 to 0 08
Cocoon oil	0 07 to 0 08

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James Randle's large three story woolen mill at Meaford was partially destroyed by fire on October 7th. The mill is driven by water-power, has one set cards, 4 looms, and 240 spindles, and makes blankets, tweeds, and yarns. Carpet manufacturing in a limited way was also recently commenced by Mr. Randle. The loss is about \$10,000, insured

for \$4,000 in the Economical and Anglo-American companies. James Grant and Alexander Hill, two firemen, were injured by falling from a broken ladder. Both had bones broken, and Grant was injured internally. A high wind was blowing, and at one time it looked very much as if the business part of the town would go.

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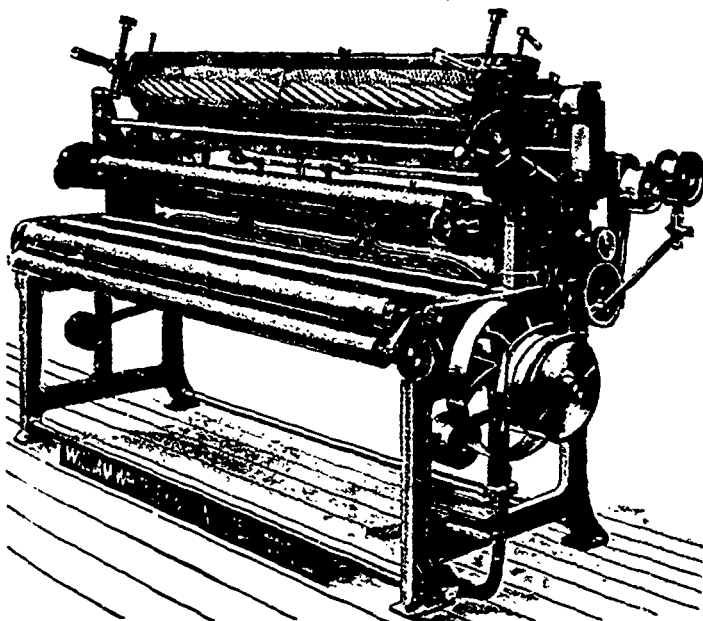
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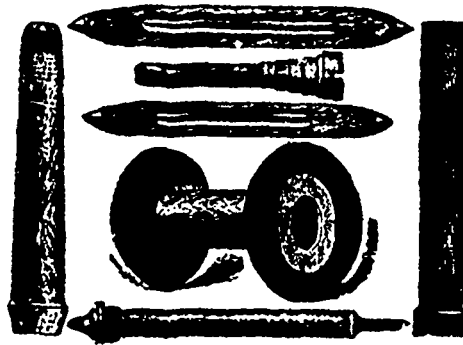
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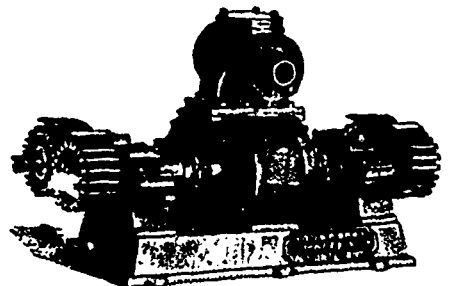
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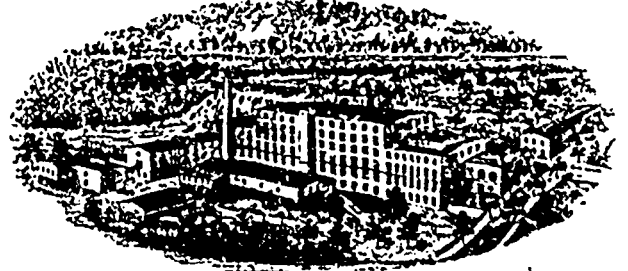
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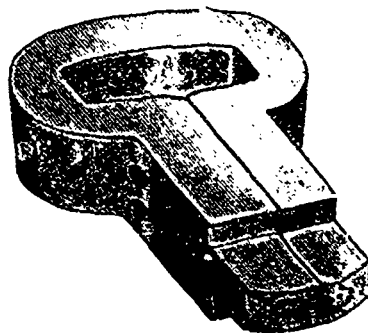
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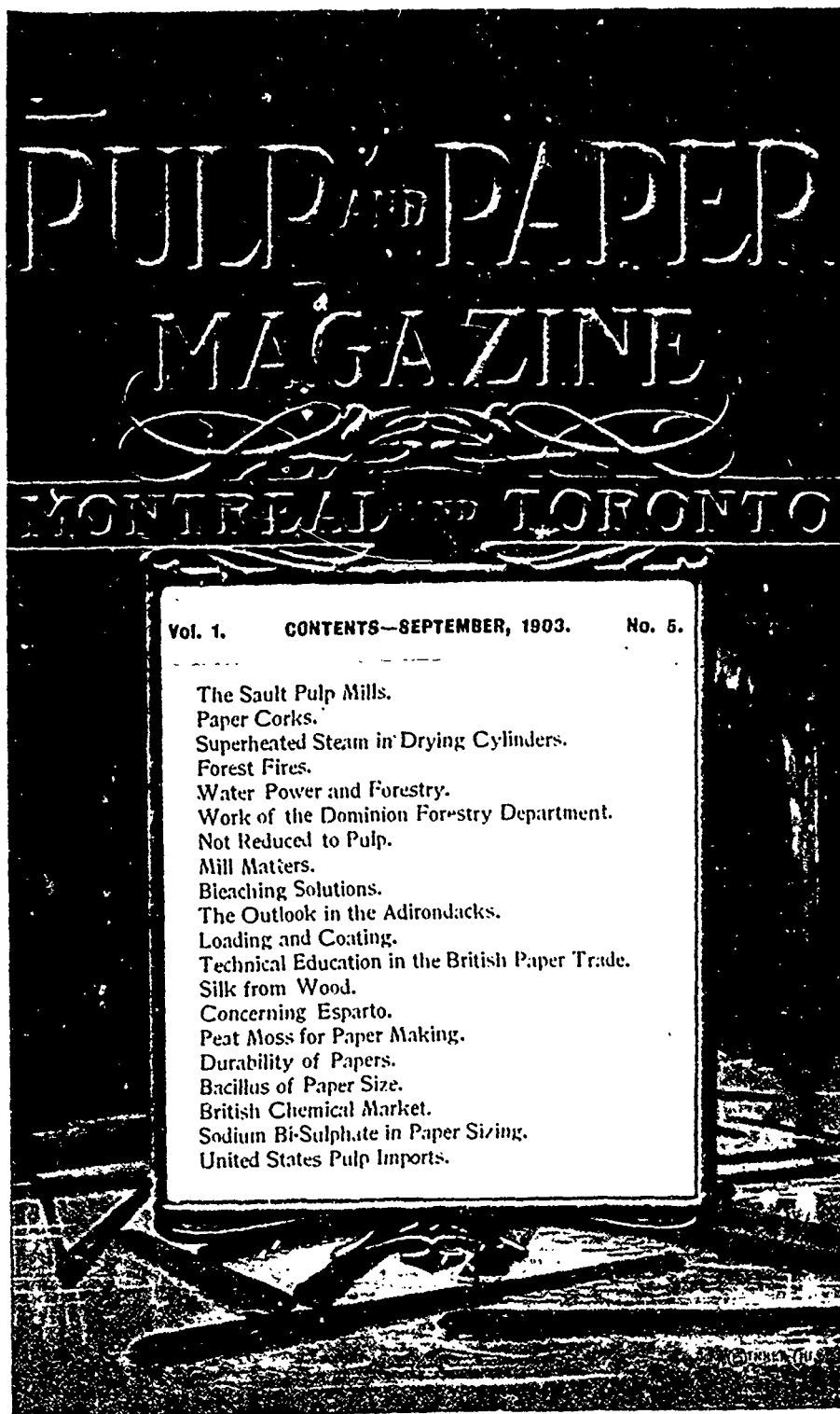
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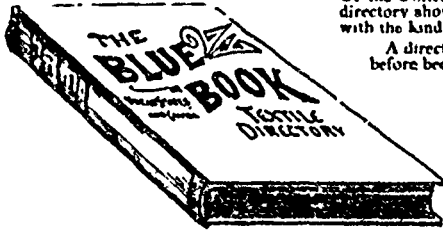
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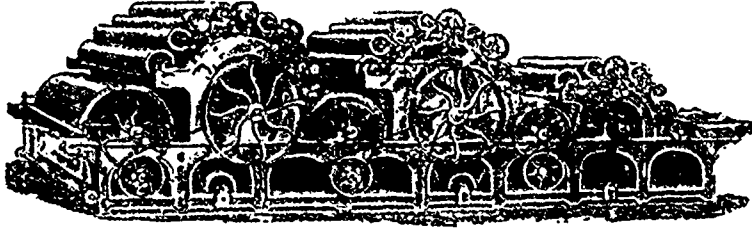
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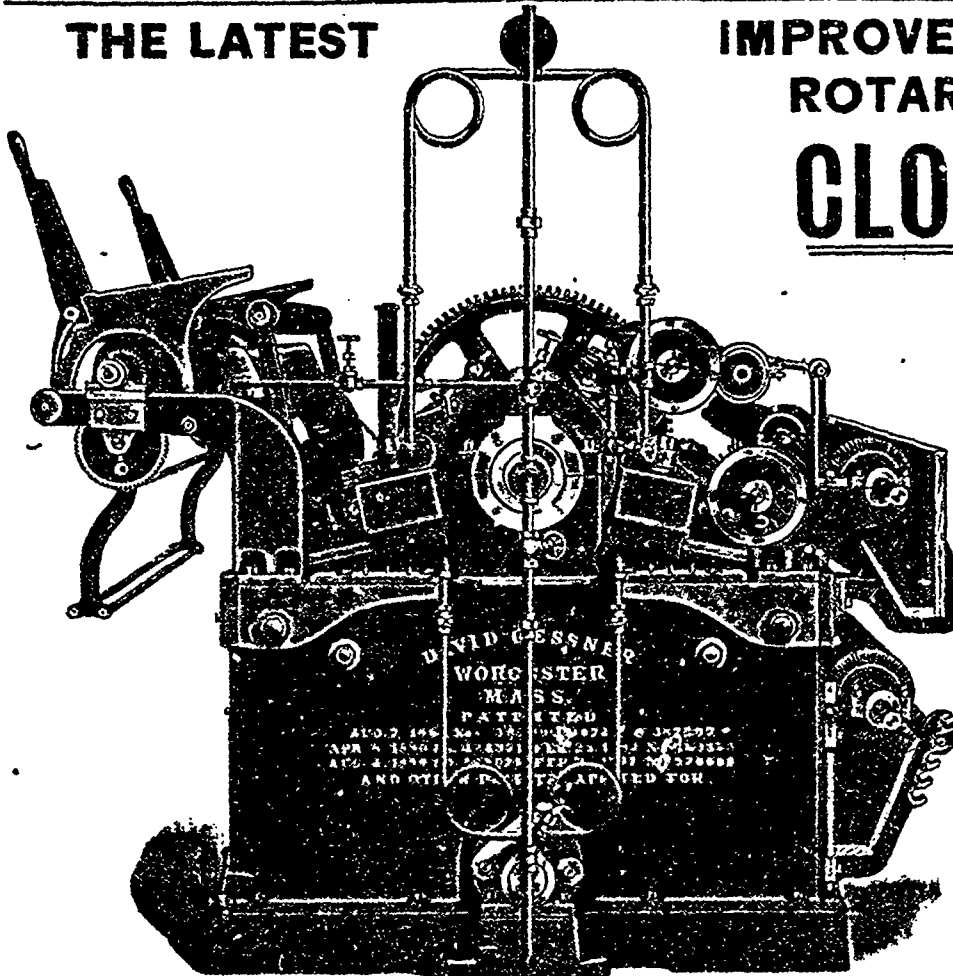
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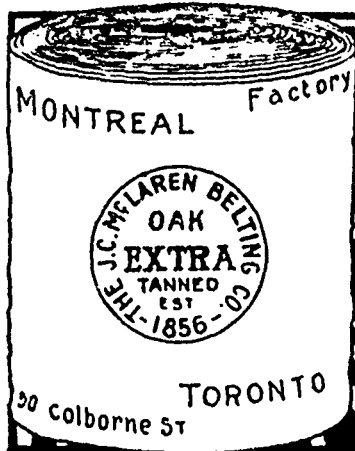


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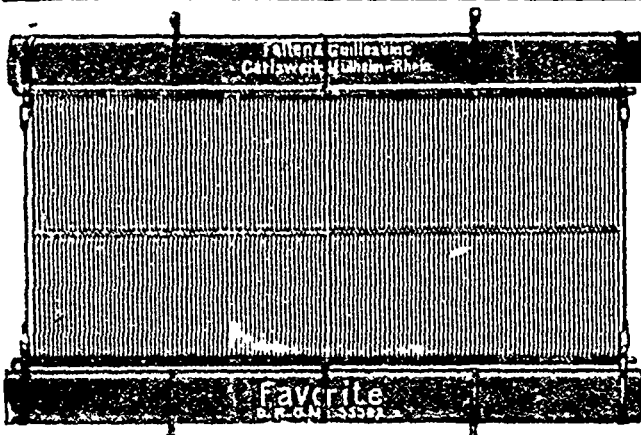
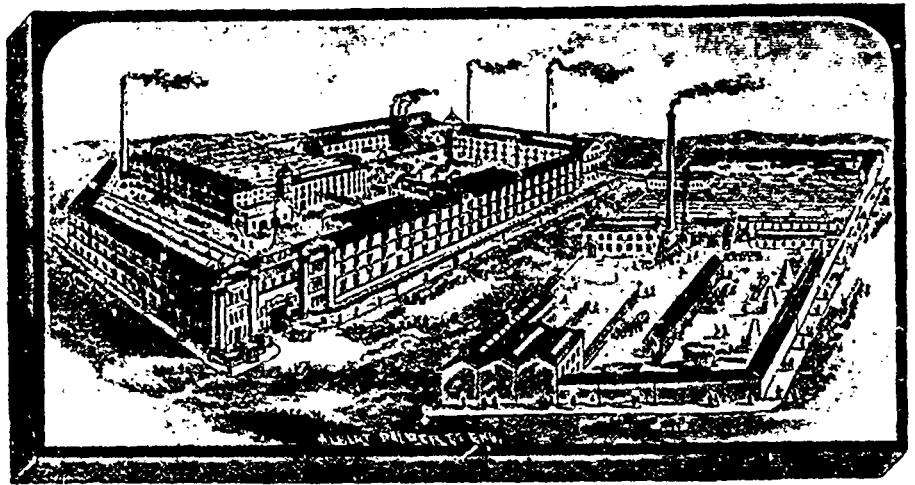
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