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Canadian Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XII. TORONTO, DECEMBER, 1895 No. 12

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THE SEASON'S GREETINGS.

Here and there on the surface of the web which year by year comes from the Loom of Time, there are overshot some lustrous threads which relieve the dull fabric of our work-a-day lives—they are our holidays. While we extend to all our subscribers our best wishes for the coming Christmas and New Year, we would remind them that, like the lustrous threads which, though they usually float concealed in the body of the cloth, and only show occasionally, yet strengthen it, so our good wishes, though only expressed at set times like the present, are always active on their behalf.

Editorial.

Marked "Paid."

An English judge lately exposed a new and peculiarly vicious insolvency scheme. Being about to make an assignment of his assets for the benefit of his creditors, the debtor would reason that the amount of dividend resulting therefrom was nothing to him, and that he would best consult his own interest by conciliating his old customers, especially as he could do this at the expense of his creditors. Accordingly, he wrote "paid" across certain outstanding accounts due to his estate, of course informing the favored persons of what he had done. They, in due course, would return the compliment by again giving their custom to their complaisant creditor when circumstances enabled him to start in business once more.

Works, Not Faith.

We have lately published a number of technical articles translated from the German which treat of methods followed in manufacturing processes in Germany. Too much attention cannot be paid to the doings of our neighbors in manufacturing, for in it, as in some other things, "minding your own business" consists largely in keeping an eye on your competitors. "Made in Germany" is a label which is seen everywhere, even in England, the mother of industries, and much uneasiness is felt by British producers at the competition to which they are subjected, not only at home, but to a much greater extent abroad. Investigation has shown that the processes in use in Germany are far in advance of English methods, and strenuous efforts are now being made by introducing foreign ideas and extending technical education among the work people, to make up the lee way which has been lost through a too firm faith in Free Trade and British manufacturers. The statement cannot be made too strongly that in manufacturing it is not faith, but works, that hold the trade and add to the balance at the bankers.

Fur Fetched News.

There is news and news. Sometimes it comes in little bits, and sometimes you get it in chunks, but generally it is scarce. Such was the case lately in the editorial rooms of the *Draper's Record* when an "Old Draper" sat down to manufacture some yards of the best quality of news that was required to fill in space

reserved for special correspondence which had failed to turn up. The subject chosen was not a fishy one; it could hardly be in the *Record*, but the beaver, as the next best thing, was taken, and imagination given the reins. We learn that "the establishment of beaver ranches is a stock subject in Canadian newspapers." We are grateful for small mercies If it had been announced that "the stocking of beaver ranches in Canada was a fertile theme of British journalists," we would have felt a a loss—the subject would have been beyond us as it were, but when it comes to Canadian newspapers, why we have seen some of them and can discuss the subject. The only cause of complaint against this very newsy article is that the local color stops short just where you expect it to be most complete. You are not given the name of the place where these beaver ranches lie. They are not in Canada, alas! no, but only in Canadian newspapers. The ranches themselves are "in a remote corner of the States, on the upper watershed of the Missouri River. There the beaver is bred, and so generally as to be the local industry, because, so it is said, the land is so sterile as to make any other industry impossible." We learn that these farms are of from ten to fifteen acres and are surrounded by wire netting fences. It is very complete. One could almost start one one's self after reading the sketch, granted the wire fence, the fifteen acres and the imagination of the "Old Draper." We wish, however, that we had the post-office address of o e of the proprietors, as we would sooner buy him out than go to the trouble of stocking a ranch ourselves. The cultivation of certain fur-bearing animals, more common than popular in America, under artificial conditions, has been much talked of lately, but they are not beavers. We fear the aged draper's senses have failed, or that when he projected his astral body to that far clime on the head waters of the Missouri he left his nose behind, or he would have been able to distinguish between *putorius* and *castor*.

A $5,000 Gift. A step in the right direction and a long one, was taken by J. C. Wilson, the well-known paper manufacturer, of Montreal, when he offered to contribute $5,000 towards an institution for the technical education of working men in Montreal, providing the city and Government contribute the sum required to erect and equip the school. As a man who has met with a very great success in a business in which success requires not only abilities of the highest class, but thorough technical education, Mr. Wilson has had an opportunity to observe widely, and his conclusions are worthy of much attention. Canadian trade is not to-day suffering very appreciably, perhaps, through the lack of technical education; but Mr. Wilson's foresight assures him that eventually we will suffer from that lack if we do not take active measures to prevent it, and he nobly steps forward to render the taking of such measures possible. The trade papers of Great Britain would not be one protracted wail from cover to cover, to-day, if there had been a few men of such generosity and clear-sightedness in England a few years ago. The English manufacturers would not have to send their superintendents to Germany to learn manufacturing, as they are doing at present.

Closer Trade. Joseph Chamberlain, Secretary of State for the Colonies, has sent a despatch to the governors of the different colonies, with a view of investigating thoroughly the extent to which in each colony foreign imports have displaced, or are displacing, similar British goods, and the causes of such displacement. Mr. Chamberlain asks them to furnish a tabulated return, showing the value and price for 1884, 1889 and 1894, of foreign articles imported, and the reason why they are preferred to British imports. He also desires to receive a return of any products of the colonies that might with advantage be exported to the United Kingdom or other parts of the British Empire, and he asks for information as to their quality, price and freight charges that would be useful to British importers.

Increased Production. The indications point towards a *material increase in the output of* Canadian mills in the near future. Already we hear of some advances in wages, and a number of our mills are working overtime in some departments. It is greatly to be hoped that when the increased demand produces a more noticeable effect on *the market, the result will not be the entry of much* new capital into the business, but rather the employment to the best advantage of what is already invested. Too little attention is given to the facilities for increased output which working two sets of operatives affords. The product of a mill may, in this way, be doubled, and as *fixed charges, i.e., taxes, insurance, salaries,* etc., remain the same or nearly so, the advantage is enormous. In the meantime, people with money in their pockets will do well to think twice before they decide to build a factory merely because they see in the newspapers that "the blank mills may be running *overtime for the next three months, to fill orders,*" etc. Blank mills may be running overtime to make both ends meet. The fact is well established, we believe, that there are enough mills in Canada to do the Canadian business.

Brace up. There is a marked change in the dry goods business in the past few years; not only is the margin between manufacturers', wholesalers' and retailers' prices in each case narrowed, but the expenses of handling are vastly increased. This condition is not confined to Canada, though its results have been disastrously brought to the public notice in Toronto lately, but is markedly present in the United States and Europe. The evil may be directly traced to the constriction of trade which culminated a short time ago. Retailers bought more sparingly as the stringency increased, and the jobbers, of course, in their turn found themselves unable to buy freely of the manufacturer. A

system of placing very small orders and repeating when necessary rapidly grew up among the retailers, and was adopted by the wholesalers also. So widespread has this petty method of doing business become that recently an English manufacturer closed the account of one of the largest wholesale houses in the United Kingdom because it was found that it cost more to enter up, check and generally undertake the accountancy work of the petty items from their orders than the account was worth. The firm in question would frequently order one piece at a time, and an order for as many as five pieces was unusual. The fact that the account was closed, as related, is one of the most cheering features of the story. It shows confidence on the part of the manufacturer. Now that business is improving such wasteful methods will be given up, and as confidence returns dealers will insist on a profit where for some years past they have been pleased to avoid a loss. In the meantime brace up!

Make Money. Lost time is lost money everyone knows, but all have not the realizing sense of the truth which influenced a New England manufacturer to order his female employés to wear buttoned instead of laced boots, as he found he was losing thousands of dollars annually in the time the young women spent over their shoe-ties. There are larger matters than shoe-ties, however, which any mill owner can think of, without any effort, in which much might be saved by the employment of a little more system and consideration for detail. In all but our largest mills the work, or repair shop, is a place where a little money and time could be spent to great advantage. In some small mills, a hammer, a monkey-wrench, and a few files constitute the equipment, and the "shop" is anywhere that the tools happen to be thrown. In our larger mills we find a full line of wood and metal working tools and a skilled machinist in charge. The small factory cannot have this, of course, but it can have what tools are necessary and a proper place, no matter how small the room is, in which to keep and use them. There is money in this as there is money in anything which enables a man to do more work in a given time. While the buttons saved only a few seconds of each operative's time in the day, a properly fitted workshop will often save, not only hours, but days, for large numbers.

Textile Tendencies.

Cotton Markets. The present month is one of uncertainty in the cotton trade; the exact amount of the crop can hardly yet be said to be ascertained definitely, the American crop being estimated variously at from six and a-half to eight millions of bales, the Government report being authority for the former amount. After the new year comes in, some exact information will be obtainable; trades conditions, which are now shrouded in the deepest obscurity, will emerge into the open, and we should have an idea of "where we are at." The factor which has the most unsettling tendency at present is the presence of large stocks of raw cotton in many mills, and the suspicion that such may be the case with nearly all. As yet few American mills have come into the market, and the recent fluctuations have been caused by the manipulations of speculators rather than by legitimate trading, as we pointed out in last issue of THE JOURNAL OF FABRICS. Several mills have realized enormous profits through their having the foresight and capital to stock up heavily a year ago at from 5½c. to 6c. One Southern mill made $30,000 in this way. The Dominion Cotton Mills Co. is generally understood to have made an immense profit by this means. Middling cotton stands at 8⅜ as at last writing. There is a heavy bull movement at work, however, as is evidenced by the optimistic predictions of the United States papers, whose commercial editors are nearly all looking for at least 9c. as a fair price in January. The American shortage (the crop last year was nearly ten million bales) would justify this position to a great extent, but conditions are not favorable for a good demand from England, and this year we must consider Indian and Japanese competition more than ever before. The world market is what we must study. The people of Canada have during the past year been getting their supplies of unbleached cotton goods at a lower price than they could have been bought for, of similar quality, in the United States, or even in Lancashire, and this without taking into account the question of duty and carriage charges. An advance even more than proportionate with that of the raw material is essential to make the business fairly profitable to the manufacturer.

Woolen Markets. The colonial wool sales in London are the chief feature of interest in the December markets. The attendance of buyers was large and competition keen. A number of American buyers figured prominently in the transactions and bought freely of the better grades of merinos. Prices ruled stronger for high-class stock, and some of the combing wool which comes to New York from these sales cannot be sold under 50c. per lb. cleaned. The demand for worsted goods is remarkably strong at present in the United States markets. Fancy worsteds, worsted mixtures and clay mixtures are eagerly sought after, and manufacturers of carded wool goods, especially piece dyed fabrics, are finding it very difficult to keep their mills running. In England, on the contrary, woolen manufacturers are fully as well employed as the worsted producers, if not better. Whether either of these conditions will affect Canadian trade will require some months to determine. We are like the extremities of the body in Canada; while we always keep in communication with the heart of trade in England, the blood circulates slowly, and it takes a good while for us to feel the effects of what is going on at the great centres. It is safe, however, to expect a somewhat increased demand for worsteds in Canada in response to the influence of fashion from the United States. The present

month sees an active demand established for heavy woolens—chiefly sorting orders from the retailers, who find business brisker, owing to the cold weather.

VAT BLUE WOOL SLIVER.

Wool intended for sliver has been well scoured before combing, and so is clean enough to be dyed in dark colors. When it is to be dyed in pure and bright indigo shades, however, it must be freed from every trace of fat and dirt which may have adhered to it in the combing machine. The process adopted in Germany is thus described in *Reinam's Faeber Zeitung*: If light indigo shades are to be dyed, it is well to make the skein of less than twenty loops. The bales are wound upon a reel 9 feet 10·11 inches long, and 27·56 inches in diameter. The reel is broad enough to afford space at the same time for five or six hanks from as many balls. A girl can readily attend to the unreeling and binding. The skeins are then mounted upon galvanized iron rods, bent into such a shape that the sliver during the dyeing operation is constantly kept beneath the surface of the dye bath, while the handles of the rods are on the outside of the liquor. Before dyeing, the hanks are washed in lots of 100 lbs., in water of 122° F., and to which 17½ ounces crystal soda were added. When the sliver has been thoroughly washed and issues from the soda solution, it is ready for dyeing. A strongly calcareous fermentation vat is not suited for the purpose, for it has been proved that the sliver is attacked in such a vat, even when the lime is neutralized in a warm hydrochloric acid solution after the dyeing. A warm hydrosulphite vat is best suited for the dyeing of sliver. If the dyer uses a calcareous hydrosulphite vat, however, he may readily make it suitable for the purpose by an addition of soda or carbonate of ammonium, and it is evident that, for light colors, a weak vat must be used. Before entering the material to be dyed, the vat must be made so alkaline with aqua ammonia that it has a feeble smell of ammonia, and, in this case, the vat will rapidly clarify of itself.

The hydrosulphite vat is best prepared in an open wood box of about eleven feet in length and breadth, and strengthened by iron bolts, and the deeper it is the less facility there is for stirring the sediment during the dyeing operation; so that a height of 40 to 45 inches is, therefore, most generally sufficient. The vat fluid is heated to 86° F., which is done either by an iron coil or direct steam. The sliver hanks, mounted on sticks, are next entered into the vat, and slowly moved to and fro in it, care being taken that the material is constantly underneath the surface of the liquor, which must be sufficiently strong that the desired shade is obtained in fifteen minutes. This being effected, the sticks with the material are pushed to one end of the vat. Over the other end a few wooden bars are laid, and the sticks with the material are lifted out and laid upon them, which enables the vat liquor to drip off and return into the vat. When sufficiently dripped, the material on the sticks is taken away and left to become green. The hanks are then washed in warm water, after which the material is taken from the sticks to be whizzed and dried. The indigo shade obtained can be essentially brightened by treating the dyed material in water of 140° F., to which sufficient hydrochloric acid was added to give it a feebly sour taste. If the dyer has large quantities of sliver to dye, he can use a small crane for entering and withdrawing the material. This arrangement is of special advantage when the vat blue is to be shaded with acid dyes, in which case a bath of Glauber's salt, sulphuric acid and the necessary dye is used. Too strong a warning cannot be given against the use of vats containing lime for the dyeing of sliver. Trifling quantities of caustic lime will even attack the wool fibres to such a degree that it becomes dry and brittle, loses its elasticity and capacity for combing, and becomes perfectly unsuitable for spinning. The majority of the fermentation vats are frequently nothing but a solution of indigo white in a strong caustic lime fluid.

THE MILL FIRE DEPARTMENT.

A circular has lately been issued by a Boston insurance company which contains a very full outline of the organization necessary to an efficient fire department in a mill.

The excuses which are sometimes given for neglecting the organization of a mill fire department are very trifling. That a fire department exists to which many of the men in the mill or works belong, and which may be depended upon to assist in extinguishing a fire, may be true, but it has no connection with the subject under discussion. It might as well be brought forward as a good reason for not putting pumps or other appliances which depend upon individual action for their use into any mill. The town fire department and the men belonging to it in the mill or works will only know how to work the town apparatus. Other men should be chosen in every mill or works, who should be trained to operate the pumps and other appliances of the mill.

Instances have frequently been given in THE JOURNAL OF FABRICS where the time and money spent in equipping and drilling a fire company in the mill itself was more than repaid in one emergency. The department should be divided into two divisions. No. 1, the fire department proper, consisting of the chief, assistant chiefs, hose companies, etc. Division No. 2, composed of the overseers, second hands, etc., of the different departments of the mill. The officers should be chief of department—agent or general manager. First assistant—superintendent of mills. Second assistant—master mechanic. Engineer—chief engineer of mills. Assistants—assistant engineers of mills.

The assistant chief should make a weekly inspection of all pumps, and fire apparatus, such as hose, hose carriages and all fire tools; see that they are in good order and ready for immediate use, and report their condition. He has charge of the pipe and hydrant system, and makes each year at least two examinations and trials of all hydrants in the yard. The engineer should see that all fire pumps are kept in good order

and ready for immediate use. At the time of fire he should see that all rotary pumps are in gear, the steam pump ready for action, and direct its running. One of the assistant engineers should be assigned to each pump.

The number of hose companies depends upon the number of hydrants about the works and the number of men employed. Each company should consist of a foreman, assistant foreman, hydrant men, and four hose men. The hose men should be good heavy men and thoroughly accustomed to handling the hose. When the mill is very large, hook and ladder companies can be organized to great advantage. The second division should take charge of all the apparatus inside the mill. In time of fire, the overseers and their assistants should remain in their rooms to see that windows, fire doors, shutters, etc., are closed, and to do everything in their power to keep the fire from entering their departments by the use of fire pails, small hose streams, etc. In the room where the fire occurs, the hydrants and hose should be under the charge of the overseer until the arrival of the regular men of Division 1, who will then take charge. Division 2 will also do all they can to protect the stock and machinery from damage by water by covering it with blankets or any other waterproof material which may be at hand. In the card room, the laps themselves may be used to protect the card clothing.

Regular meetings of the department should be held and the men thoroughly drilled in the use of the apparatus so that they can quickly couple up the hose and bring the streams into operation. They should be accustomed to handling the hose on ladders and carrying the same up on to the buildings. By doing this, the men soon come to have confidence in themselves, and when a fire occurs they will work more readily and without the excitement that they would be under if they did not have this drill. It is of the utmost importance that the watchmen, who during the night time constitute the whole force on the premises, should be especially drilled in the use of the apparatus, and instructed what to do in case of fire.

MECHANICAL PRODUCTION OF SILK LUSTRE.

In recent numbers of THE JOURNAL OF FABRICS we have given the methods in use in Germany for imparting the appearance of silk to woolen and cotton fabrics, by means of chemical processes carried out during dyeing. There is also a mechanical process for producing like effects on cotton and wool and on union goods.

Silk is distinguished from other fabrics by its brilliant lustre, caused by the peculiar property of the silk fibre to strongly reflect rays of light. This is due to the particular shape of the silk-fibre, in that the shape of the fibre or thread is similar to that of a band of ribbon, whilst the section of all other sorts of fibres is more or less round. The rays of light are, therefore, with the common fibre, reflected, not by a surface, but by a line only, whilst, with silk, there is on each of the broad sides of the fibre or thread a reflecting surface, having a breadth of from 0·01 to 0·015 millimetres. As the cocoon-thread on being spun and woven is distorted, a great number of surfaces lying in different angles to each other result, producing the lustre by the rays of light being reflected from them.

If a web is exposed to slight pressure small surfaces are produced upon the fibres, and a slight lustre results therefrom; but if the pressure is increased, for the purpose of increasing the lustre, then the many small surfaces are practically turned into one large surface. There is then produced no lustre at all, but only a surface like that of a mirror, because all the surfaces are in one plane and reflect the rays of light all at a time. On the contrary, in a silk-web, the rays of light are reflected only by those of the many small surfaces, which by chance are in one plane, and are situated in the proper angle of reflection corresponding to the place of the eye; the said reflecting surfaces are, however, separated by a great many other surfaces, which form different angles with the former ones, and are also caused, in an ever-varying number, to reflect the rays of light as soon as either the web, or the eye, or the source of light is moved, or the direction of the glance of the eye is changed.

If, therefore, the lustre of silk is to be given to other parts of a fabric, it becomes requisite to provide the web with a great number of small surfaces, which are distributed not on one, but on several planes lying each in an angle to all the others, the angles being different ones. This may be made, for instance, by pressing the web to be improved, by means of a stamp or die, upon the working-surface of which the structure of silk-satin-web has been transferred by a galvanoplastic process. The manufacture of stamps or dies of this kind is, however, a very difficult one, and they are not durable. It is preferable to engrave a great number of small surfaces of the kind into a plate or roller, consisting of steel or other hard material.

The various surfaces produced by pressing the fabric may be so small that a millimetre may contain from 12 to 30 of them. The said surfaces need not have a breadth equal to that of a broad side of a cocoon thread, but it is an advantage if that breadth is somewhat greater, provided it is not so great as to be distinguishable by the eye. The small surfaces are arranged in parallel lines upon the surface of the plate, so as to represent parallel grooves, and in using the plate or roller care is to be taken that the direction of the grooves is parallel to that of the threads of the respective fabric or web.

After the stuff is taken out of the press, the differently inclined surfaces produced by that operation subdivide each into a number of smaller ones, as the relative position of the threads of the stuff becomes somewhat altered by the various folds to which the stuff is exposed. The lustre of the stuff is exactly that of silk, and even silk may be greatly improved by subjecting it to this process.

In order to make the artificial lustre more durable it is advisable to perform the process at rather high temperatures, such as is permitted by the quality of the stuff, and it may in some cases be exposed to steaming.

COMBUSTION.*

BY THOMAS WENSLEY, OTTAWA.

Combustion is the energetic chemical combination between the oxygen of the air and the constituents of the combustible, and the value of any fuel is measured by the number of heat units which its combustion will generate, a unit of heat being the amount required to heat one pound of water one degree Fahrenheit. The fuel chiefly used to generate the heat consumed by steam engines is coal and wood, the component parts of which are carbon, hydrogen and ash, with sometimes small quantities of other substances not materially affecting its value. The combustible is that portion which will burn, and, in the combustion of coal, carbon is the principal substance that unites with oxygen, and the air is the source from which oxygen is derived.

Coal has been divided into two primary divisions, viz., anthracite, or hard coal, and bituminous, or soft coal. Anthracite contains a very small portion of volatile matter, but is nearly pure carbon, ranging from 85 to 94 per cent., and burns almost without flame. The term anthracite is never applied to coal containing less than 82 per cent. of carbon. The usual components of soft coal are bituminous volatile matter, coke and ash, as a mechanical separation, but chemically the constituents of coal, though varying in quality as well as degree, are chiefly carbon and hydrogen gas, combined occasionally with a small proportion of sulphur and incombustible matter. The proportion of carbon in this coal varies; in good coal it is seldom less than 75 per cent. of the whole, sometimes considerably more. Not only do the different kinds of coal differ in their constituents, but coal from the same seam will vary considerably from the normal standard of that coal.

From a scientific analysis, by Professor Liebeg and other eminent chemists, it has been shown that in soft or bituminous coal there is about 80 per cent. of carbon, 5 per cent. of hydrogen, 10 per cent. of azote and oxygen, and 5 per cent. of ash, varying with the different kinds. The principal constituents of all coal, carbon and hydrogen, are united and solid in its natural state, and are essentially different in their character *and in their modes of entering into combustion.*

The theory of combustion is well understood by scientists, but in practice the art of burning coal economically, and of converting all its natural elements into heat and power, is but little understood. It is also a well known fact that carbon and hydrogen require certain quantities of atmospheric air to effect their combustion, yet, in practice, the means necessary to find out what quantity is supplied, is generally neglected and treated as though it was of no importance.

* A paper read before the Canadian Association of Stationary Engineers.

The bituminous portion of coal is convertible into heat in the gaseous state alone, and then only in proportion to the right mixture and union effected between them and the oxygen of the air, while the carbonaceous portion is only combustible in its solid state, and neither can be consumed while they remain united. To obtain combustion they must be separated, and a new union formed with the oxygen of the air. In combustion there must be a combustible and a supporter of combustion, which means chemical union, and oxygen is this supporter. In fact oxygen is just as essential in combustion as it is in the maintenance of life in the animal kingdom.

You all know from experience that on putting a fresh supply of coals into the furnace, they do not immediately increase the general temperature, but, on the contrary, become the absorbent of heat, the source of the volatilization of the bituminous portion of the coal; and until these constituents are evolved from it, its solid or carbonaceous part remains black, and at a comparatively low temperature. Now volatilization is the most cooling process of nature by reason of the quantity of heat directly converted from the sensible to the latent state.

On the application of heat to bituminous coal the first result is its absorption by the coal, then follows the liberation of its gases from which flame is exclusively derived These gases are composed of carbon and hydrogen, and the union is known as carburetted hydrogen and bi-carburetted hydrogen. Carburetted hydrogen by itself is not combustible, but must be united with oxygen, and notwithstanding the strong attraction which exists between them, they will not rush together or enter into chemical union, which we call combustion, until they have been raised to a certain temperature, and this temperature, according to Sir Humphrey Davy, should not be under 800 degrees Fahrenheit, since below that flame cannot be produced or maintained.

The first essential to effect the combustion of gas is to ascertain the quantity of oxygen with which it will chemically combine, and the next the quantity of air required to supply the necessary quantity of oxygen. Now while this may be well understood and correctly arrived at by an expert chemist in his laboratory, we know that in the management of combustion in the furnace the ordinary engineer can at best only approximately apply the exact laws of chemistry to the very imperfect conditions found at every furnace. It is important, however, that every engineer in charge of a steam plant should at least understand theoretically the analysis of the elements with which he has to deal in producing combustion, and the proportional part of each element entering into the same.

According to chemical analysis an atom of hydrogen is double the bulk of carbon vapor, but the latter is six times the weight of the former. (Atom in modern scientific usage is the smallest portion into which matter can be divided—the chemist's unit. In chemistry two atoms of hydrogen and one atom of

oxygen make a molecule of water.) Again, an atom of hydrogen is double the bulk of an atom of oxygen, yet the oxygen is eight times the weight of hydrogen. So of the constituents of atmospheric air, which is a mechanical mixture of nitrogen and oxygen, not in chemical union, but simply shaken up together. These constituents, nitrogen and oxygen, are mixed in the proportion of 79 parts of nitrogen to 21 parts of oxygen out of every 100, and by weight 77 lbs. of nitrogen to 23 lbs. of oxygen, or one pound of oxygen to every 3.3478 pounds of nitrogen.

To accomplish the combustion of six pounds of carbon, sixteen pounds of oxygen are necessary, forming 22 lbs. of carbonic acid gas, which will have the same volume as the oxygen, and therefore a greater density, and to accomplish the combustion of one pound of hydrogen eight pounds of oxygen are required. When therefore we know the proportions of carbon and hydrogen existing in coal it is easy to tell the quantity of oxygen, and consequently the quantity of air necessary for combustion.

As a general rule it may be stated that for every pound of coal burned in a furnace about 12 lbs. of air, or 150 cubic feet, will be necessary to furnish the oxygen required, even if every particle of it entered into combustion. But from careful experiment it has been found that in ordinary furnaces about as much more air will in practice be necessary, or about 24 lbs. per pound of coal burned, since, besides the air required to furnish the oxygen necessary for the complete combustion of the fuel, it is also necessary to furnish an additional quantity for the dilution of the gaseous products of combustion. Now one cubic foot of air, at a temperature of 40 degrees, weighs .08 of one pound, and it requires twelve and a-half cubic feet of atmospheric air to equal one pound in weight, and each pound of air contains 3.68 ounces of oxygen, and it will take 1,200 lbs. or 15,000 cubic feet of air for the perfect combustion of 100 pounds of coal. We thus perceive that each pound of coal requires 150 cubic feet of air for its perfect combustion, or in other words, for the conversion of its carbon into carbonic acid, and all its hydrogen into water, and it must be remembered that just in proportion as this proper quantity is deficient, combustion is imperfect and fuel wasted.

Air expands or contracts an equal amount with each degree of variation in temperature, and its weight and volume for any condition of temperature and pressure may be found by the following formulas, which are nearly exact:—

$$\text{Weight} = \frac{2.71 \times \text{Pressure in lbs. on the barometer.}}{\text{Absolute temperature.}}$$

$$\text{Volume} = \frac{\text{Absolute temperature.}}{2.71 \times \text{Pressure on barometer in lbs.}}$$

$$\text{Absolute temperature} = 460 + \text{temperature shown on thermometer.}$$

$$\text{Pressure in lbs on barometer} = \frac{\text{Height in inches.}}{2.0408.}$$

It is erroneously supposed by some that when no smoke appears at the chimney top, combustion is perfect; smoke, however, may be absent, yet the carbon may have only united with one atom of oxygen forming carbonic oxide (a colorless gas), instead of with two atoms forming carbonic acid, and consequently have only performed half the duty as a fuel of which it was capable, and this loss is constantly going on in all furnaces where all the air has to pass through a body of incandescent carbonaceous matter.

The air on entering from the ash-pit gives up its oxygen to the glowing carbon on the bars, and generates great heat in the formation of carbonic acid, and this acid, necessarily at a very high temperature, passing upwards through the body of incandescent solid matter, takes up an additional portion of carbon and becomes carbonic oxide. By the conversion of one volume of carbonic acid into two volumes of carbonic oxide, heat is actually absorbed, while the carbon taken up during such conversion is also lost. The formation of this compound, carbonic oxide, is attended by circumstances of a curious and involved nature, and is probably the cause that, in actual practice, so little is known about it. The direct effect of the union of carbon and oxygen is the formation of carbonic acid. If, however, we abstract one of its portions of oxygen, the remaining portions would be carbonic oxide, and it is equally clear that if we added a second portion of carbon to carbonic acid the same result will be arrived at, namely, have carbon and oxygen in equal proportions, as we have in carbonic oxide. By the addition of still another portion of carbon, two volumes of carbonic oxide will be formed, and if these two volumes of oxide cannot find the oxygen necessary to complete their saturating equivalents, they pass away but half consumed.

Another important peculiarity of carbonic oxide is, that by reason of its already possessing one-half of its equivalent of oxygen, it inflames at a lower temperature than the ordinary coal gas, the consequence of which is that the latter, on passing into the flues, is often cooled down below the temperature of ignition, while the former is sufficiently heated, even after having reached the chimney top, and is there ignited on meeting the air. This is the cause of the flame often seen at the tops of chimneys or the funnels of steamships.

If we could gather and retain the carbonic acid gas which is daily discharged by tons from the chimneys of our factories, we should still have all the carbon of our coal, but we could not do it, because it would take as much power to separate the carbon from the oxygen as they gave out in the form of heat in coming together, and here comes in one of nature's most wonderful and mysterious processes.

It is a peculiar function of vegetation that under the influence of sunlight, it can overcome the attraction which exists between the atoms of carbon and oxygen, appropriating the carbon to its own use, building it into its structure and letting the oxygen go free into the atmosphere, not with a noisy demonstration or prodigious effort, but quietly in the delicate structure of a green leaf moving in the sunshine.

When all the conditions belonging to the introduction of air to the two distinct bodies to be consumed, carbon and hydrogen, have been complied with, there should be very little difficulty in securing perfect combustion in the furnace. But as a rule, these conditions are not complied with, hence the great waste in fuel. If we would economize fuel, we must give attention, not only to the mechanical appliances, but also to the nature of the bodies we have to deal with, their constituent parts and chemical relations respectively, and as the laws of nature are inexorable, mechanical details must yield to those of chemistry.

Great strides have been made in improvements in the boilers and engines now on the market, but until recently scarcely any attention has been given to the grates and furnace, practically overlooking the fact that the furnace, in which the operations of combustion are to be carried out, is of the first importance, as it is here we have the real source of economy and power.

In regard to the proportions of the furnace, we have to consider the area of the grate bars for the holding of the solid fuel, and the kind best adapted to our purpose (some people think that anything will do for a grate that will stand up under hot fires), the size of the air spaces, and the means of keeping these air spaces clear of obstruction to the draught; then the sectional area of the chamber over the fuel for the consuming of the gaseous portion of the coal and the introduction of oxygen to this chamber.

The rule in practice to-day with our best fire-tube boilers, the horizontal return tubular, is to allow 15 square feet of heating surface per horse power, and by dividing the horse power by three, we obtain our grate surface in square feet, allowing 68 square inches of air space per square foot of grate.

Strictly speaking, there is no such thing as "horse-power" to a steam boiler, as it is a measure only applicable to dynamic effect. But as boilers are necessary to drive steam engines, the same measure applied to steam engines has come to be universally applied to the boiler, and cannot well be discarded. In consequence of the different quantity of steam necessary to produce a horse-power, with different engines, there has been great need of an accepted standard by which the amount of boiler required to provide steam for a commercial horse-power may be determined. This standard, as fixed by Watt, was one cubic foot of water evaporated per hour from 212° for each horse-power. This was at that time the requirement of the best engine in use. At the present time Prof. Thurston estimates that the water required per hour, per horse-power, in good engines, is equal to the constant 200, divided by the square root of the pressure, and that in the best engines this constant is as low as 150. This would give for good engines working with 64 pounds pressure, 25 pounds water, and for the best engines working with 100 pounds, only 15 pounds water per hourly horse-power.

The extensive series of experiments made under the direction of C. E. Emery, M.E., at the Novelty Iron Works, and published by Professor Trowbridge, show that at ordinary pressure, and with good proportions, non-condensing engines of from 20 to 300 horse-power required only from 25 to 30 lbs. water per hourly horse-power in regular practice.

The standard, therefore, adopted by the judges at the Centennial Exhibition of 30 lbs. of water per hour, evaporated at 70 lbs. pressure from 100° for each horse-power, is a fair one for both boilers and engines, and has been favorably received by both engineers and steam users. But as the same boiler may be made to do more or less work, with less or greater economy, it should be also required that the rating of a boiler be based on the amount of water it will evaporate at a high economical rate. For the purposes of economy, the heating surface should never be less than one and generally not more than two square feet for each 5,000 British thermal units to be absorbed per hour, though this depends somewhat on the character and location of such surface. The range here given is believed to be sufficient for the different conditions in practice, though a far greater range is frequently employed. Square feet of heating surface is no criterion as between different styles of boilers—a square foot under some circumstances being many times as efficient as in others—but when an average rate of evaporation per square foot has been fixed upon by experiment, there is no more convenient way of rating the power of others of the same style.

(Concluded in next issue.)

THE HANDS GROW OLD.

People often speak of some one's having an old face, or a young figure, and we are all familiar enough with the adage about "old heads on young shoulders," but we are not apt to think of hands as growing old independently of the rest of the body. That such is the case has, however, been established by Sir James Critchton Browne, the British labor student, who has made a long course of investigation in the English towns and rural districts. The actual amount of dexterity in the human hand has been measured with more or less accuracy, and its value in mechanical employments traced from youth to age. The high period of skill and endurance, this authority says, is from 30 to 40, the hand after that beginning to lose its muscular delicacy and its suppleness gradually.

Between the ages of 17 and 18 the hand of the boy grows into the hand of the man, and first becomes valuable from a commercial point of view. If a workman is temperate and industrious and continues to improve in his trade, his hand's dexterity increases until he is 30. After 40 the muscles do not respond nearly as readily and certainly to the orders of the brain, and the quality and quantity of the work done begins to fall off. While a man in especially fine health, and one especially dexterous, can often keep up his high degree of skill long past the age of 40, such a man is an exception. This comparatively early ageing of the hand is an interesting

and remarkable fact, as it is after 40, as a rule, that a carefully used brain becomes the most valuable. Practically no British statesmen of the highest rank are under 40; most of them are above 50, and often ten years older than that. In the trades, on the other hand, the highest paid workmen, with hardly an exception, are under the age of two score.

The scale of wages in the button trade, for example, is a good indication of this tendency of the hand grow old so early in life. At his very best, in his prime, a skilled button turner can make 6,240 ivory buttons a day on his lathe. For this he receives 45 shillings a week, or about $11.25. At 45 years of age it is only the exceptional man who can make more than 38 shillings a week, or $9.50. When the workman is 65 years of age he can seldom make more than 20 shillings a week, or about $5, this providing that he still enjoys sound health. Of course, this is only the case in the trades where one hand is used continually and systematically. A Sheffield knife forger, for instance, strikes something like 28,000 blows with his hammer daily. An enormous amount of muscular and nervous force is required for this, and it is no wonder that the strain on the nerve centres and the muscles becomes visible in a few years. In farming or the seafaring life, or some other vocation in which the energy is more evenly distributed over the entire body, the hand does not lose its cunning so early. Oftentimes it retains its skill until the faculties generally give way. It is the sedentary occupation that tells, and the only remedy for it is such exercise as will divert the nerve current from the already overtaxed hands.

THE BEAVER.

Now that it has been proposed to stock Hudson's Bay with seals and thus increase our supply of a fur which threatens to soon disappear from the world's markets, owing to the action, or lack of action, of the United States Government in respect to the sealing dispute, attention is called to the fact that another valuable animal, the beaver, is also disappearing. The cultivation of the beaver is a subject that has aroused a great deal of discussion at different times in Europe, and also, but to a less extent, in America. In Germany, France, and Russia, stringent laws have been passed at different times for the protection of this valuable fur-bearing animal, and various experiments looking towards their increase under artificial conditions have been made. The most extensive experiment was that carried out by the Marquis of Bute, near Rothesay, in Scotland. Here a considerable space was set apart and stocked with beavers. For some years they increased, but they finally died off, and the experiment was given up after a large expenditure had been made upon it. The only means apparently by which the beaver can be saved from extinction is the preservation of lagre areaswhere they can live in complete freedom, and under absolutely natural conditions. There is such a spot in the United States at the Yellowstone National Park, and there the beavers are still plentiful. Some of the Canadian provinces already have set aside large areas of land for the purpose of forming national parks—as the Algonquin, in Ontario—and these, no doubt, will prove a successful means of perpetuating our most widely-known fur-bearing animal, and one, too, which has played so important a part in Canadian history.

THANKS.

THE JOURNAL OF FABRICS this month sends out its annual reminder to its subscribers. For the promptness with which dollars and compliments are coming in we think it becoming to thank our friends at once, rather than wait till next year to do so. *The Monetary Times* says of our little effort:

"An ingenious and suggestive dun is offered by THE CANADIAN JOURNAL OF FABRICS in the following terms 'It is unnecessary to remind anyone familiar with the textile industries that the warp and the filling are both essential to the production of the fabric. In newspaper work, the warp threads are golden, and are supplied by the subscribers; the filling is a fine count of brains and ink. We are now drawing in our warp threads for another year's weave, and find among them some that are short. Can you aid in lengthening them?"

G. B. Dawson, of the St. Croix Woolen Co., Newport Station, N.S., writing from the Maritime Provinces, sends us payment of his subscription to December, 1898, and says:

"Believing that the *filling* is a *fine count* of brains and *ink*, I shall ask you to *draw in* this postal order as a part of the *warp* of golden *threads* for *three webs* (years) of the most cannie *cassimere*, from which may you *doff* bonnie returns."

FLAX CULTURE IN QUEBEC.

EXPERIENCE OF SIR HENRI JOLY DE LOTBINIERE.

In response to a request from this journal for the text of his recent speech before the Agricultural Committee, at Quebec, Sir Henri Joly de Lotbiniere writes:

QUEBEC, 11th December, 1895

To the Editor CANADIAN JOURNAL OF FABRICS

I am sorry not to be able to send you a copy of my remarks before the Agricultural Committee, on the question of "Flax," as they were delivered without notes.

Many years ago I started a mill (on my water power) for breaking and scutching flax. We had the Sandford & Mallory brakes, which proved very satisfactory. In those days, before the cotton factories were started in Canada, there was scarcely a farmer in our part of the country who had not his little patch of flax, which the housewife converted into linen for the use of the family, and they all understood well the cultivation of flax, not for the finest kind of linen, but for a coarser stuff for their own use. My mill ran for several years, and as I got one-third of the flax we dressed, it left me with a considerable quantity on hand I would have been glad had it been practicable to start a factory for converting it into linen, but, on further enquiry from importers of linen, I found that it could not be done, for reasons that you can easily appreciate, so I got the dressed flax converted into strong linen by hand, and it answered for sails for our schooners and boats plying between Quebec and Montreal. At the same time, I started the cultivation and dressing of hemp, with most encouraging results only the stays and standing rigging of ships began, at the time, to be manufactured out of wire instead of hemp, which spoilt the market for hemp.

Now there is a good market abroad for our dressed flax, and before the committee I tried to show the advantage of raising flax for the seed and fibre, and especially from my own experience, I attempted to show how easy it was to prepare the flax for exportation and how simple and inexpensive the machinery required for that purpose is. You have got a number of flax mills in Ontario similar to mine, and I hope to see a good many in Quebec before long. Our farmers much preferred the dressing of their flax at our mills to the old method of breaking by hand, which required the flax to be well dried over a fire, thereby often injuring the fibre. We dispensed with the fire and sent the flax through the brake without heating it, as I dare say you do in Ontario, provided it is not soaking wet. Of course if we can teach our farmers to rot their flax in the water instead of rotting it on the ground, the fibre will be much more valuable.

Believe me, yours truly,

H. G. JOLY DE LOTBINIERE.

Textile Design

WOOLEN TROUSERING.

Repeat once. DESIGN.

Repeat once. Draft.

PEGGING PLAN.

Ends

Warp:—1 Brown, 13 skeins } 5
1 White, " } times.
1 Red, "
1 White, "
1 Brown, " } 4
1 White, " } times.
1 Blue, "
1 White, "
1 Brown. " } 13
1 White, " } times.

48 ends in pattern.

Weft:—1 pick Black, 13 skeins.
1 " White, "

2 picks in pattern.

2,240 ends in warp: 34 ends per inch; 8½ reed, 4 ends in a reed; 30 picks per inch, 66 wide in loom, 56 inches wide when finished. 21½ ozs. cloth.

THE WOOL MARKET.

TORONTO.—There is not enough fleece in the market to make the business done worth talking about. While a few sales are taking place, it might be said that prices are nominal. We quote 24c. for fleece, tub-washed 22c. Pulled wools are not moving freely, in fact the market is almost stagnant. Transactions that have taken place have been on a basis of 21 to 22c. for supers, extras 22 to 23c. Foreign wools are steady and without any special features.

MONTREAL.—Business in the Montreal wool market still remains quiet. Prices, however, are well maintained. Stocks are low, but are considered sufficient for the demand. We quote prices as follows —Greasy Cape, 14 to 16c., Natal, 15 to 17c.; Canadian fleece, 22 to 25c., B.A scoured, 27 to 35c. In Canada pulled wool, 20 to 21½c. is quoted for supers, extra 23 to 26c.

At the recent London sales prices were practically unchanged and closed steady, a very large proportion of the offerings being sold The chief interest centered in full-grown staple merinos, the supply of which is said to have been very much short of last year. At the opening of the series it was estimated that the quantities available for disposal during the series was 48,500 bales Sydney, 35,300 bales Queensland, 35,300 bales Victoria, 17,300 bales South Australia, 200 bales Tasmania, 1,700 bales West Australia, 16,800 bales New Zealand, 24,400 bales Cape of Good Hope, together making a total of 179,500 bales, of which about 5,000 bales Australasian and 15,000 Cape and Natal were forwarded to the Continent and the North of England, thus leaving 159,500 bales new arrivals; to these were added the quantity carried forward from the previous series (*i.e.*, 10,000 bales), and the total available quantity amounted to 169,500 bales, as against 189,163 bales, which were available at the corresponding period of last year. Competition was brisk and Americans bought freely of the best lots, taking up 1,000 bales in the first three days. Medium merinos were readily sought and crossbreds sold at full previous rates. Cape of Good Hope and Natal wools were in steady request, occasionally lots were withdrawn, the limits not being reached. As the sales went on the higher grade wools strengthened, but inferior parcels and coarse wool realized lower prices than in the previous series.

A bulletin just issued by the Ontario Bureau of Industries shows that the total clip of wool in 1895 was 6,214,811 lbs. In 1894 it was 6,235,036 lbs., valued at $1,053,721. In 1893 the clip was 5,896,891 lbs., valued at $1,073,234. The average annual clip for thirteen years was 5,560,608 lbs., valued at $1,035,439.

WOOLEN CARDING.

Under this head I don't intend to say a word about which style of cards I think the best, or about the different counts of wire for the several parts; nor the kind of feed it is best to use for the various classes of goods, but wish to speak of how to make the best of the cards and feeds you have got. I have no doubt in many mills the weight fed on the first breaker is a mere matter of guess work. If the first breaker has a side drawing, and it happens to run through more stock than the second breaker and finisher can consume, either the first breaker must stand two or more hours per day till the other two parts catch up, or some of the weight is taken off. When the fault is discovered in this latter case, if the second breaker has a creel feed, you will be putting in thick and small ropings together, and however well you mix them you cannot get even yarn at the finisher, and if you alter the speed of the feed-board on the second breaker to suit the variation, it will only be guess work. Then, in the event of making no change in the weight on the first breaker, it must stand two hours a day to let the others catch up. By so doing you overcrowd your wire, or in other words decrease your carding space per pound, one-fifth. You might just as well have a first breaker four-fifths the size and run it full time like the other parts. I hold that every part in a set of cards, to be fully utilized and made the most of, must run all of its time. But some may ask how can we tell what weight to put on the first breaker to start with, so that it will do just enough and nothing more to keep the other parts going? I will try to tell you. We will suppose that all your 3 parts in the set have 60-inch cylinders all running the same speed. You are making one run yarn, have 60 threads on your finisher card, and a 9-inch doffer running 30 revolutions per minute. You will, from the 60 threads running at that speed, produce 4,500 yards per minut:; 9-inch doffer × 30 revolutions × 60 threads=4,500 yards. Now 4,500 yards of one run yarn will weigh 45 ounces; that will be the product per minute from the finisher doffers. It necessarily follows that if your first breaker cylinder runs at the same speed as the finisher, you must have your feeding machine drop on the feed board 15 ounces three times a minute, or 22½ ounces twice a minute, with a trifle of an allowance for what is thrown under the card or left in the wire in its passage through the set. To find out how to set your feed to drop at the right time, measure the space the feed board travels in one minute and divide into equal distances to suit. When once so arranged, whatever size of yarn you make, the weight per minute delivered from the finisher doffer will determine the weight to be fed on said spaces on the board of the first breaker. Another thing I would notice is the careless way some carders run their spool drums on the finisher. Men who have their wire in good shape and the work done first-class all through, sometimes undo all that their skill has accomplished by carelessness in running their spool drums. They have their belts in good shape all through the set, and having got the work done satisfactorily, they seem to think it does not much matter how it gets on the spool if it only gets there. This is a great mistake. It is as essential to have

your spool drums run steadily as any other part of the card. Sometimes a belt is made to run them from any scraps that may come handy; a few inches of one width and a few inches of another, and sometimes even worse than that. It is impossible with such truck to build your spools evenly. Sometimes the roping between the guides and the spools may be hanging down slack for some time, and then yanked up all at once. The result is an unevenly filled spool, and when it goes to the spinner some of the roping hangs down behind the rollers, while others are strained by being too tight, and every thread on the spool may have its turn in being stretched till it breaks behind the rollers or gets so slack it will get caught and go round the drum. Then again sometimes the carder finds that one spool on the finisher is winding on tighter than the other. He takes a bobbin of yarn in his hand and runs it on the pulley under the belt on the one drum till they appear equally tight. But it is impossible to permanently right things that way. When that fragmentary belt takes a different kind of fit, he may find himself called up to the spinning room to see the threads on his top spool coming so tight to the rollers that they are either stretched or broken, while those on the bottom spool are running in slack. When the two *can* be spun together you will find the yarn spun from the slack bottom spool is heavier than that from the top spool, which is running in tight, making uneven twitty yarns, in spite of the fact that it was all right on leaving the rub rolls. Belts on the spool drums should have as much care as belts on any other parts.—*Hugh Ballantyne in Fibre and Fabric.*

GREATER MANCHESTER.

In several respects Manchester is a unique city. It is the centre of the largest industrial community in the world. To a spectator on the roof of the Manchester Exchange, a circle of 30 miles radius would present, on any clear Sunday, when the factory chimneys almost, or wholly, cease to smoke, such a congeries of large towns, such a concentrated population, as can nowhere else be seen on the face of the globe. It has been computed that this horizon would include over 7,000,000 people, a larger number than a similar ring would comprehend if described with the Royal Exchange of London as centre. From Liverpool on the one hand, to Sheffield on the other, town after town, when the smoke clears away, meet the vision. They grow into each other. What were lovely hills and dales a couple of generations ago are now the sites of mills, factories and furnaces. Such is the pressure on space that ever and anon the towns seem to be climbing up the hillsides, as, for example, in precipitous Halifax.

It is all very well, for county and municipal purposes, to talk of Lancashire and Yorkshire and Cheshire, of Manchester, Oldham, Rochdale, Ashton-under-Lyne, Stockport, Staleybridge, and so forth; but the developments of industry set these artificial distinctions at defiance. It is, to all intents and purposes, all Manchester to a scarcely definable distance, east, west, north and south. When Nature grew these coal seams and evaporated these salt beds, millions of years ago, she was quite indifferent about man's boundaries. She provided the fuel, the iron, the salt for numberless industries, and centered on this field there is to-day a teeming, prosperous, energetic humanity, all things considered, without a parallel elsewhere.

It would convey an inadequate, as well as an incorrect, impression to suggest that Manchester is wholly concerned in cotton yarns and piece goods. Year by year it becomes a greater distributing centre also for woolens, worsted and silk goods, for raw silk and cotton, for iron, coal and chemicals. The educational programme for the city has been made correspondingly liberal and comprehenhensive. Manchester is now a seaport, with 100 acres of dock area and six miles of quay frontage, and accessible to vessels drawing as much as 24 feet water. The ship canal is already telling on the diversity of its industries, as well as on the value of property. Each week lately has shown a large increase in the return of business over the corresponding week a year ago, and the citizens are growing more and more sanguine of its commercial success.

Foreign Textile Centres

MANCHESTER.—The purchasing in the heavy departments which characterized business operations up to Nov. 1st has now fallen off, drapers being apparently satisfied with their immediate requirements. *The advance in prices for many staples forced buyers* into the market who would not otherwise have operated, and, as far as cotton goods are concerned, at present prices, the prospects of cheaper greys, shirtings and other goods are not promising, especially as the belief, even in Manchester, is becoming more general that the crop will not much exeed 6,900,000 bales. *In the woolen* sections the probabilities point to a demand for silk and wool mixtures for spring; mohair goods with bouclé effects have had a good run; and there has been quite a rush upon plaids. C. W. Macara, of Henry Bannerman & Sons, Ltd., has been re-elected president of the Manchester Cotton Association for the coming year. Two new directors have been added, making twenty-one in all. J. R. Barlow, of Barlow & Jones, takes a lively interest in the work of the association, and it may be mentioned that Egyptian cotton, which is chiefly consumed in Bolton, where Barlow & Jones' mills are situated, has been brought up the canal in very large quantities, the Egyptian trade having, in fact, been most successfully diverted. Up to the present very little American cotton has come direct to Manchester, but the efforts to encourage the trade continue unabated The ship canal has contended from the very beginning with the competition of the older ports, but the forces of attraction focussed upon the port of Manchester are so powerful that success is bound to come. A number of prominent manufacturers and others connected with the cotton trade have been busily engaged in London in connection with the protest against the India cotton duties. The delay in forwarding to the proper quarter the document submitted to the India Office on July 10th is looked upon as scandalous. The Indian Government only commenced to make inquiries on October 30th, nearly four months after the documents expressing the Lancashire case were lodged with the London authorities, although it takes little more than a fortnight for the conveyance of the mails between London and India. Lancashire has now to await the reply of the Bombay mill owners, and as the latter are enjoying the benefit of the protective incidence of the duties, they are not likely to hurry themselves over the matter. Sir James Westland, the Indian Finance Minister, instead of being at his post when a matter of such importance lies waiting for consideration, has gone to Upper Burmah to seek new fields for taxation, and Sir William Hunter, who writes the column on Indian affairs in the *Times*, is allowed full control of that organ's columns to air his strongly-marked Anglo-Indian prejudices. There are 20,000 operatives out of employment in the cotton trade, and Mr. Whittaker estimates that Lancashire during the first nine months of the year has suffered a loss of £2,000,000 owing to the Indian duties, while the value of Indian mill shares has advanced to the extent of millions of rupees from the same cause.

HALIFAX.—There is more disposition to purchase wool, and prices are firm and hardening. In English wools there is a better demand for lustres, cross-breds are more inquired for and merino tops are bought more freely. The last are realizing an advance The home trade for yarns continues very good, export rather weak. Lustres are receiving more attention at rather lower prices. In the piece trade serges for dress purposes are in request.

BRADFORD.—There are several distinct causes which would lead one to expect the Bradford wool market to be quiet, as in addition to the continuance of the disturbed state of Eastern Europe, the London wool sales have not yet sufficiently established a standard of values to induce new business of any importance to be put through, and in case of the merchant houses all orders are being deferred until stock-taking is completed, except in the case of goods urgently wanted. There is, notwithstanding the above influences, a more confident tone manifested among holders of fine wools, and a large number of buyers went to London for the sales who would be prepared to operate extensively if they were only

satisfied as to the political outlook, and we may look for prices hardening In crossbred wools there is also more inquiry, and some further transactions are reported in pure lustre wools for the United States at top prices, and it may be noted that, notwithstanding the depression in the prices of nearly all other classes of wool, pure lustres have practically not given way at all. There continues to be also a considerable amount of quiet buying in mohair and alpaca, and one of the leading merchants in these classes says that if the recently increased rate of consumption of these bright materials goes on, the supply in merchants' hands will be practically exhausted before the new clips begin to arrive in May next. The enhanced prices of mohair and alpaca seem to have checked the trade in fine bright serges for lining purposes for the United States, but should the improved trade continue on the other side, we may expect American buyers to very shortly commence operating again in these goods. Although, of course, the warehouses present a somewhat quiet appearance, immense quantities of bright goods are lying on manufacturers' hands, ready for delivery the beginning of December as soon as the stock-taking is concluded. This feature of the trade is much more evident this year, as makers commenced to manufacture spring goods fully three months before their ordinary time for doing so. There is no particularly novel feature in the bright dress goods trade, except that a taste appears to be developing for more elaborate designs in jacquards in preference to the very neat patterns which were so much wanted at the end of last summer In very fashionable circles pompadours are sure to be wanted, as well as stripes and checks. It is, of course, getting very late for the home trade in winter dress goods, and the weather has now for some weeks been too open for these lines to move freely, but it must be remembered that there are some months before it will be possible for really summer dresses to be worn, and stocks of winter dress goods are this year unusually small in both the wholesale and retail. Although the yarn market has been quiet lately, spinners are still fully employed, and the fact of a revival being felt in the demand for pure lustre and mohair weft yarns for the continent, shows clearly that makers are receiving new orders for bright goods there. In the worsted coating trade new orders have of late been arriving slowly, but the fact of the American manufacturers opening out the new season's trade with an advance in prices of from 10 to 15 per cent., has created a better inquiry for these goods on this market, and some new business is already reported at slightly reduced rates.

ROCHDALE.—A moderate amount of new orders are being placed. Manufacturers are still busy, and will be so for some time on orders already received There is no change in prices, and the London wool sales will have little effect on the market The mills are working full time, and stocks are now reduced to so low a point that there is every probability of machinery being well employed during the greater part of the winter.

LEEDS.—Although business is rather quiet, prices are upheld. There is not the least falling-off in the production of first-class worsted, nor of union worsteds, for which the ready-made clothing firms are good customers. A few lots of winter assortments have been cleared out at fully former prices. Blue and black friezes have risen in price because of an extraordinarily large shipping order. Curl serges, matelassés, sealskins, and union shirtings sell satisfactorily Demand for covert coatings is larger than usual, and for scotch and fancy tweeds generally there are plenty of customers both at home and abroad. Large quantities of flannels in special patterns are offered at prices from which the makers allow no concessions. Blankets are very active, particularly colored. All the ready made clothing factories are in full swing on account of both the present and next season, and also on account of colonial orders.

HUDDERSFIELD.—The woolen and worsted cloth manufactures this week show rather a falling off as compared with the month past. The termination of the winter trade makes a good deal of difference, but producers of goods for that season are not at all slack of employment, because some who are usually large buyers for America are placing conditional orders in view of the winter of 1896. Orders for spring cloths have flowed in more largely than ever both to home trade and shipping merchants. The run is chiefly upon fine and medium fancy worsteds, vicunas and serges. At the same time serges of a lower grade and low-priced tweeds are ordered freely by the ready-made clothing firms. The shipment of cloths to Canada and the United States for the spring season is nearly completed.

DUNDEE.—The makers of looms and spinning frames in this district are all very busy, their order books being full of Indian business for months to come The Glasgow strike already tells on the demand for Forfarshire goods. Drapers cannot be expected to buy linens while the wages of thousands of their customers have ceased to be paid The deplorable and far-reaching injury done by these disputes and the loss to workers in other trades can hardly be overrated.

BELFAST. — The market continues very firm throughout. Manufacturers as a rule are well supplied with orders and will only book further ahead on their own terms. Yarns are steadily advancing, and weft lines are now firmly held at 3s. 1½d. in the range, a rise of 3d. since September 1st. The demand at the moment is well sustained, and prices are likely to go higher. For brown power-loom goods there has been a moderately brisk demand, and in the coarser sets considerably more might have been done had manufacturers cared to book. They are so full of orders for tow-made goods that they are quite unable to deliver in reasonable time, and prefer to refuse orders so that they may catch up with their work. Damasks are going off very fairly, and housekeeping goods generally are selling well. There is a better inquiry for handkerchiefs, and cambric cloth is in good request. Hand-loom linens are meeting with their full share of attention Prices are firm, and are certain to remain so, owing to the increasing difficulty year by year of getting competent weavers. The younger people do not take to the looms, and as the old folk die off the production gradually gets less. Bleached linens for home consumption have been more inquired after. There is practically no alteration to report on export account, the volume of fresh business keeping up fairly well. Taking all around, the market is in an extremely healthy condition, and the outlook for the coming year is very cheerful.

LYONS.—The raw silk market is quiet, and what business is done is in small lots. Prices are fairly firm, but when holders are anxious to sell they can only do so by making concessions. The figures registered by the Lyons Silk Conditioning Works for the week ending November 14th, give a relatively large total—139,917 kilos, against 119,064 kilos for the corresponding week of 1894. But that total does not represent actual transactions of recent date. In it are included deliveries of Asiatic silk resulting from previous transactions. Two principal causes—besides the one that the large buying previously done for European account has naturally led to a reaction—may be made responsible for the present stagnation. One of these is the political situation. An article of luxury like silk is likely to feel very quickly the financial strain resulting from a clouded and uncertain political situation. The other cause is the condition of affairs in America, which deprives the silk market of the strong support it would have received from the United States had fall business there been as good as it has been in Europe. But with all this, and with a few weeks of actual stagnation, prices have stood the test well. While here and there some weakness is seen, no sensible decline has occurred. Buyers from Paris have been in this market, and have operated sufficiently for ready delivery to keep the movement of goods from stock on a fair scale. Further orders for spring delivery have been placed for Paris and London account, and buyers from America are beginning to arrive and will make their presence felt. But the feature in the situation as far as spring business is concerned is that manufacturers have too much to do and cannot make deliveries on new orders until after the first quarter of 1896. The looms are provided with work ahead for several months, and there is more anxiety on the part of manufacturers to obtain looms than for weavers to obtain work. Printed goods of all kinds have received much attention for spring, and warp-printed effects will undoubtedly find good consumption.

Plain, printed, changeable and striped taffetas are in good demand. Piece-dyed fancies sell in large lots. Black and colored damasks retain favor Among the shades which are considered fashionable in Paris are maroon, marine, bleuet, old gold and dahlia. The ribbon market is active, and a good demand is reported for fancy ribbons. Black and colored satin ribbons sell well. Plain velvets are in demand for ready delivery, and some orders for future delivery have also been received.

CREFELD.—The close of the fall season approaches, and it is felt in the lessened demand for goods for ready deliveries. Wholesale distributors report a moderate and decreasing reassortment demand. The season on the whole has not been bad, fall consumption having been fair. Manufacturers also experience a decline in the demand for goods for ready delivery. But this could be naturally expected at this stage of the season, and it in no way influences the manufacturing situation, which remains good. Manufacturers have enough orders to execute for next season to keep their looms well employed for some time to come In the placing of spring orders there is no activity at present. But this is not due to any unfavorable conditions Buyers have placed orders for spring earlier than is usually the case, and the present quietness is only the consequence of earlier activity. In previous years, when the outlook was less hopeful, buyers delayed placing spring orders until about this time or later. This year they have anticipated. Production is active in nearly all branches. Tie silks, however, form an exception, the order season having closed and little business being now done in these. Dress and trimming silks, umbrella and parasol goods keep the looms busy. In ribbons a good business has been done for spring delivery The demand from the cloak trade keeps up fairly well for ready delivery and winter stuffs, but is not brilliant. For next season business has been so far limited to small lots for sample purposes. In linings there is some demand for serges and merveilleux. In fancy linings, plaids and figured goods in medium-sized effects find buyers. Business in velvets is not brisk, and prices are not very remunerative.

ZURICH.—The raw silk market is very quiet, the uncertain financial situation discouraging buyers. Prices, therefore, are rather nominal, but not changed. The silk situation in itself is not bad, as the heavy consumption of raw material, which has been the feature for the last twelve months, seems to be assured for several months longer.

OLDHAM.—It is reported that some branches of the local textile machine-making trade are getting a little slacker. The damage of fire at the Wood End Mills, Shaw, is stated to be about £3,000, and not £20,000, as previously reported. Quite a number of twist mules are stopped at various mills in the town, owing to the unprofitable state of trade, and they are being stopped at other firms. Short time has been resorted to at some concerns.

NOTTINGHAM —The little spurt which has lately characterized the market has played itself out, and quietness reigns once more in the Nottingham lace market A fair number of home and foreign buyers have come and gone, but without leaving many orders. Shipping orders, in fact, are coming in very slowly, perhaps because no very startling novelties have as yet been produced in fancy millinery laces to create a special demand, and current styles have had their day. Valenciennes laces, edgings and insertions hold a good position in comparison with other goods. Oriental laces, English embroideries and combinations of muslin and guipures are next in order. Brabant, Bretonne, Maltese and Torchon laces are only in dull request, and production has been curtailed. Some shipping orders have been placed for crochet and American laces, but the warp goods, tattings and Irish trimmings have fallen off, and machinery is not fully employed. Everlasting trimmings and Swiss embroideries are in limited request for various markets, but there is no encouragement for the production of novelties. Honiton braids, cotton and linen purls and point lace beadings are in steady request. A few novelties have been offered in silk Chantilly and Bourbon laces, but they do not appear to have met with any phenomenal demand. Though there is less doing in ruchings and frillings, there has been expansion in the demand for collarettes, lamp shades, caps, aprons and other fancy goods. Falls and veilings are moving in good quantities. There are fears, however, that this branch of the trade has been much overdone, and the means of production now are much in excess of the actual demand. French productions are extensively imported into the home market Bobbin-net and plain goods are fairly satisfactory there is an active export demand for special qualities, and this keeps prices firm. On the other hand, certain goods are comparatively neglected and the output is restricted, which means that some of the machinery is standing. Heavy foundation nets are dull. Competition is very severe in the lace curtain window blind and furniture lace branches. The output is rather large, and will have to be curtailed.

LEICESTER.—In the yarn market deliveries under old contracts are very heavy, and users are compelled to concede advances on all new business. Lambswool yarns are in strong demand, while fancy and cashmere yarns are in fair request. There has been another renewal of the demand for hosiery goods, and repeat orders are larger than usual, while stocks have never been so completely exhausted. Elastic-web specialties sell very freely.

KIDDERMINSTER.—There is nothing to report in the carpet trade except a steady increase in business. Manufacturers could no doubt fill themselves if they cared to do so at bottom rates, but the present price of yarn prohibits last year's rate for carpet. All Brussels looms at work in the town are now fairly busy, and the Axminster trade, which was lagging a little, is now in a better position. A short time ago an arrangement was made between the manufacturers and weavers as to the conditions on which overtime should be worked in the mills. This agreement is not satisfactory to some of the firms. The yarn trade, after a lull, is rather more active. The quietness appears to have made no difference at all to the price of wool or yarn, and wools used in the carpet trade are very firm, with an upward tendency. Yarns are a little dearer. Spinning mills are still very busy.

SOUTH OF SCOTLAND.—The mills interested in the south of Scotland woolen trade are as a rule well off for work. Orders are now being completed, so that if repeats do not come in a quiet time between seasons is anticipated. The uncertainty in the wool market is disturbing the future prospects of manufacturers at the present time, but it is generally thought that the price of wool will be maintained during the sales. First samples for next season are being fairly well taken up.

OBITUARIES.

THE LATE R. L. GAULT —The death of Robert Leslie Gault, to which we made a brief reference in the November issue of THE JOURNAL OF FABRICS, was one which profoundly moved the social and business worlds of two continents Mr Gault was widely known as a partner in the firm of Gault Bros., Montreal, and wherever he was known in Canada, England and on the continent of Europe, all were proud to call him their friend Mr Gault was born in Strabane, Ireland, in 1831, and came to this country in 1842, and was educated privately He commenced his commercial career in 1846 with the firm of John Torrance & Co., and after remaining with them for some time, engaged in the wholesale grocery business. In 1857 he joined his brother, A. F Gault, as a member of the firm, in the management of which he has ever since taken a prominent part. Mr. Gault devoted a large part of his time and money to the advancement of the cotton mills industry He was a large holder of manufacturing stocks, being a director of the Dominion Cotton Mills Co., the Canadian Colored Cotton Mills Co., the Montreal Cotton Mills Co., the Trent Valley Woolen Co., and the Canada Coal and Iron Co. He was for years a member of the Board of Trade and president of the Wholesale Dry Goods Association. The funeral took place from St. George's Church, Montreal, and was one of the most impressive ceremonies that has ever taken place in that historic city The Very Rev Dean Carmichael read the service. The pall-bearers were D. Morrice, G. W Stephens, J F C. Smith, R. H. MacDougall, Mayor Villeneuve, James O'Brien, J. C. Gibbons (London, Ont.).

and James Rodgers. The chief mourners were: A. F. Gault, Reginald Gault, D. M. Morrice, jr., H. Gault, L. Gault, Ernest Gault, Percy Gault, Arthur Gault, W. Finley, Dr. Finley, A. Gault, A. Finley, Dr. and Charles Blackader, Drs. Ibbotson, Skelton and Prof. Adams.

S. C MARTIN.—Samuel C. Martin, proprietor of the Speedsville woolen mills, Preston, Ont., died suddenly on Nov. 28th. Mr. Martin was spending an evening at John Cutler's residence After the company had got tired of cards a dance was proposed. While a dance was being arranged, Mr. Martin, who had sat down in a chair, suddenly fell to the floor. It was quickly seen that something serious was wrong and he was carried to the open air. Mr. Martin was dead before the doctor arrived, never having regained consciousness. Deceased was the son of John W. Martin, Esq., of Waterloo township, and was well known throughout the riding. He has been a director of the South Riding Agricultural Society for several years, and had also been vice-president. He was also an officer of the Preston Light Horse Association. Mr. Martin was a very popular young man—being only in his 38th year—and was a successful business man. Since he became proprietor of the Speedsville mills, although visited once by a disastrous fire, he has worked up a good business, which was steadily increasing. He was married some years ago to Miss Schleuter, a niece of W. C. Schleuter, of Preston, and leaves her and one child to mourn his loss.

W WILSON.—W Wilson, formerly manager of the Dominion Cotton Company's mill at Kingston, whose resignation and departure for his old home in England we chronicled in the October issue of THE JOURNAL OF FABRICS, died at his son's home in Nelson, Lancashire, England, recently. Deceased was born in Colne, England, and was sixty-nine years of age in October. When a boy, about nine years of age, he entered a cotton mill in England, and was in the business from that time until recently, when he resigned the superintendency of the Kingston mill. He was a self-made man, and secured the education he had by attending night schools. To him was due great credit for the success of the cotton mill at Kingston, Ont., in which he held stock when the institution was owned by local capitalists. When the company determined to sell the mill to the Dominion Cotton Mills Company, Mr. Wilson strongly protested against the deal. He was a Free Mason, and a member of Silent Temple, Burnley, England. He was also an Oddfellow in England many years, and was the only man in Burnley who was Grand Master of the Oddfellows twice. He was a member of the Church of England, and in politics a Conservative.

LITERARY NOTES.

The Orillia *Packet* is to be complimented on its fine souvenir number, which, besides views of Orillia as it stood a mere hamlet in 1854, contains portraits of 70 of its prominent citizens. No paper in Ontario stands higher in moral tone than the *Packet*.

A new song, which would make a very appropriate Christmas gift, has just been published by the author, G. W. Johnson, of the Upper Canada College, Toronto. Mr. Johnson is the author of the well-known volume of verses, "Maple Leaves," but he is more widely known as the author of the song, "When You and I were Young, Maggie," which for years after its first publication in New York, about twenty-five years ago, held sway as the most popular song and chorus in Canada or the United States. Mr. Johnson's new song, entitled "Loved and Lost Awhile," has a melody and simplicity which seem likely to make it as famous as his first delightful piece, as it appeals to the heart at once. Mr. Johnson, as is well known, is a Canadian by birth.

The Christmas number of the *Century Magazine* is a thing of beauty both inside and out. Turning from its exquisite cover to its contents, we find among the contributors such names as Prof. Sloane, Benjamin Kidd, Rudyard Kipling, Frank R Stockton, and Mrs. Humphry Ward, while among the Christmas illustrations are some splendid reproductions of Tissot's wonderful pictures of the life of Christ, which are now the talk of the world of art. Altogether, a study of the contents of the *Century*, compared with other cheap periodicals, will convince any thoughtful reader that character and quality are of far greater moment than mere price. The literature of the *Century* occupies a high plane of its own, while we regret to note that the contents of some of the cheap contemporary magazines has become positively debasing.

The *Canadian Churchman* has produced a most creditable Christmas number, with a handsomely designed colored cover. "The Squire and His Daughter on Christmas Morning," and the "Ringing of the Christmas Bells," with a portrait of Bishop Dart, of New Westminster, B C., are among its illustrations. Mr. Wootten is to be congratulated on his production.

The *International Art Printer*, Arthur M. Rutherford, Owen Sound, Ont., is a venture which is worthy of support. Canadian typography stands very far up in the list already, but we expect to see it further improved through the influence of the new publication.

The *Canadian Almanac* (The Copp, Clark Co, Ltd., Toronto,) reaches its forty ninth edition in its issue for 1896. The special features are. "Forms of Government throughout the World," by Dr. Bourinot, and "The Canadian Flag," by E. M. Chadwick; the County and Municipal Directory, the Ontario Law List, Customs Tariff, Clergy List, Post Office List, Directory of Government officials, schools and colleges, etc., are all corrected to date.

The *Canadian Shoe and Leather Journal*, Toronto, is out with its seventh illustrated spring trade number. The matter is excellent, the illustrations good, and typographically nothing is left to be desired. While expressing unqualified approval of the *Journal*, we must dissent from one thing which it claims. THE CANADIAN JOURNAL OF FABRICS, in its special Jubilee number, published in June, 1887, led the way for other trades journals in the issuing of special illustrated numbers, so that we cannot yield that proud pre-eminence which it claims to our contemporary, much as we would like to do so. Age before beauty, comrade.

The Statistical Year Book of Canada for 1894 is a most ponderous tome. It would be a great pity, however, if anyone were deterred from reading it on account of its forbidding aspect, for inside it everything is to be found. The compilation reflects infinite credit on Geo. Johnson, the statistician, and it is very doubtful if any one else could fill his difficult position as Mr. Johnson does. Recently Mr. Johnson was elected a fellow of the Statistical Society. It is pleasing to see Canadian ability acknowledged and honored abroad.

The December number of *Business* is strong in its department of Practical Accounting. The announcement is made that the Institute of Chartered Accountants for Ontario is responsible for the editorial management of this important department, and the present issue contains a valuable paper on "Mortgages and their Covenants," by W B. Tindall, a member of the council of the institute. The frontispiece portrait of Hon. W. E. Sanford, of Hamilton, Ont., adds to the attractions of the number. The J. S. Robertson Co., 86 Bay st., Toronto, are the publishers.

The *Canadian Magazine* has passed through the experimental stage in which so many other Canadian periodicals have died. It has emerged into the full sunshine of success, instead of passing into oblivion and bankruptcy, as they did The Christmas number, now out, presents to its readers the work of a number of the best known men in Canadian literature. Those who are not so well known suggest the saying of the "meenister," in J. A. Cooper's sketch of the author of the Maple Leaf, "Ye'll be weel ken'd yet afore ye dee." The December issue contains a number of noteworthy articles J. H. Long, of Hamilton, writes of "The First Canadian Christmas" in a well-illustrated article, while Charles Gordon Rogers contributes a clever Christmas poem, which is also illustrated. The history of the Castle St. Louis, Quebec, is told by J. M. LeMoine: that of the U. E. Loyalists is rendered charming by the facile pen of Chas. G. D. Roberts; J. G. Bourinot treats of "A Gentleman-Adventurer of the Old Regime," in a delightful paper. W. W. Campbell's poem entitled "Ode to Silence," is a most perfect piece of work. Of a different class are the contributions by Jean Blewett, "Kit," J. Castell Hopkins, Dr. Ferguson, Dr. G. Archie Stockwell, etc. These writers contribute fiction or

talk of some leading topic of the day. Dr. Ferguson's article on the Christian Scientists is specially opportune. An article which will interest every patriot is the one on "Canada's National Song; its Author and Origin," by the editor, John A. Cooper. The story, "Adele Berthier," illustrated by F. H. Brigden, is also worthy of special notice. While the *Canadian Magazine* has thus distinguished itself with a high-class Christmas number, it announces better things to follow. The January number will contain the first half of a story by C. C. Farr, with illustrations by A. H. Hemming, one of the leading artists on *Harpers'*.

Textile students and teachers, and indeed the trade generally, will be interested in the announcement that Richard Marsden, F.S.A., Hon. Consulting Examiner to the City and Guilds of London Institute, has just published a new work, "Cotton Weaving, its Development, Principles and Practice." Mr. Marsden is the editor of the *Textile Mercury*, and one of the leading authorities on textile subjects in England.

The military encampment held last month in Hamilton was quite a novel celebration and entertainment, and not the least noteworthy feature of it was the historical souvenir compiled by Miss M. J. Nesbit, assisted by Miss F. L. Davis. It makes a pamphlet of 64 pages, very neatly printed, and among the 22 items of the table of contents are a poem on Hamilton, a sketch of Dundas, a "Legend of Webster's Falls," the "Indians of 1812," the "Battle of Stoney Creek," "Waterdown and its Early Settlers," "Hamilton of ye Olden Time," "Training Day in 1819," and a poem, "Chrysler's Farm," the last named by J. W. Bengough. Within these pages are some really valuable historical nuggets, and Miss Nesbit and Miss Davis will have the satisfaction in years to come of reflecting that they have produced a work which will be known and valued when the occasion which brought it into print shall have passed out of mind save as it is recorded there.

SHUTTLE THREADING.

The advantages that would arise from the use of self-threading shuttles have been much discussed. The term, though often used, is a misnomer, as it suggests that all the weaver has got to do is to lay a cop down on the breast beam and put the shuttle beside it, when by some mysterious or unaccountable means the weaver immediately finds the shuttle threaded and ready for being placed in the shuttle-box, says a writer in *The Textile Manufacturer*. What the term is meant to convey is that the yarn can be passed through the shuttle eye without the weaver having to use her mouth for the purpose. The reason why we advocate the adoption of some means whereby the shuttle may be readily threaded without the use of mouth suction, is that very grave lung and throat diseases are contracted by the weavers by the present method of threading. This is more especially the case in the fancy-woolen manufacturing districts, and also in those cotton manufacturing districts devoted to the production of colored goods, though the evils are quite bad enough where white goods are the staple production. The graver and more frequent cases of disease occur in weavers weaving colored goods, because in addition to drawing into the throat passages and lungs the fly or loose fibres on the yarn, they also inhale the loose powdery substances composing the dyes used in dyeing the yarns. These are certainly very good reasons why the present practice should be abolished; but so strong has the habit of weavers become, and so quick are they in threading a shuttle by the old means, that it would be merely a waste of time, trouble and ingenuity to devise anything which would not accomplish the task quite as readily, or nearly so. In the past many inventors have devoted themselves to what we believe to be idiotic notions, good and humane though the intentions of the inventors were. These took the shape of simply-arranged suction appliances, which were either attached to the breast beam or had to be picked up by the weaver. Others invented pickers or hooks of special construction, but here again the weaver had to pick up the appliance. It is no wonder, therefore, that such appliances as these have never made any headway. Experience in this line of invention has, however, brought about a better condition of things, and the patents for the so-called self-threading shuttles take the form of means placed within the shuttle, and in direct connection with the eye of the shuttle. Most inventions of this class have emanated from America, though a fair number have been patented in this country. Considering that this class of shuttle is so extensively used in America, it is really surprising that its use has not extended to England. There are, however, indications that this state of things will be broken down in the future, for a Bradford firm are just introducing an American shuttle which has a very simple threading appliance attached to it. In the end of the shuttle which contains the feed eye, but in the front of it, is cut a narrow groove or recess, and this groove acts as a channel to guide the thread to a twisted copper wire so ingeniously arranged that the mere looping of the thread over the wire and a slight backward pull are sufficient to bring the yarn up through the feed eye. The operation is so easy that a cop can be replaced and the shuttle threaded inside three seconds. It may be mentioned that the shuttle also contains a device for altering and adjusting the tension on the weft, which is so simple that the weaver can alter the "drag" to suit the requirements of the cloth without the intervention of the overlooker The necessity for shuttles of different tension is also thus obviated The cost of the invention will not add more than a couple of cents to the price of the shuttle, and its simplicity and effectiveness will no doubt be instantly recognized by the trade. In the interest of the weavers it is to be hoped that a device of this character will be generally adopted, and so obviate the evil effects to which we have referred.

ANILINE BLACK ON HOSIERY.

The materials to be dyed are boiled out in the usual manner with soda, and afterwards worked in a weak bath of acetic acid in order to neutralize any remaining soda, they are then rinsed and hung in a warm room until wanted for dyeing.

For dyeing, two solutions are made.

SOLUTION I.

33 lbs. aniline salt
33 " " oil
33 " hydrochloric acid (18° Bé)

Mix all well together, and, when the temperature has fallen considerably, add a mixture of 33 lbs. chlorate of soda, dissolved in 11 gals. of water.

SOLUTION II.

Dissolve—

11 lbs. copper sulphate.
3½ ozs. bichromate of potash
½ pt. sulphuric acid (66° Bé.)

in such a volume of water as will give a gravity of 4° Bé

For use, solution 1 is diluted to 8° Bé., and 1 qt of solution 2 is added with thorough mixing Into this bath the dried articles are immersed and well worked for about ½ hour, after which they are lifted out and allowed to drain, and are finally centrifugated The hosiery is then subjected to the action of oxidation for about 2 to 2½ hours in a suitably constructed chamber, each piece being placed on a board. After oxidation, they are worked for a quarter of an hour in a bath of bichromate of potash –3 per cent on the weight of the material—the temperature of this bath being kept at about 100° F This finishes the dyeing process proper, the subsequent operations consisting of rinsing, and washing with soap, soda, and a little ammonia, followed by a final rinsing and dyeing.

If the final operations are faithfully carried out there will be but little color left in the goods, which will show itself on rubbing. This is the one great drawback with much of the "fast-black" hosiery now on the market.—*Textile Mercury (Eng)*

A PATENT has been granted Amos Abbott, of Waterville, Me. upon a folding machine. This machine takes the cloth from a roll, passes it over a first cone, thence through an upright rack, making a fold, then onward to a second cone and finally through the horizontal machine, from which it drops to the floor in four folds It can take the material from 500 broad looms, doubling widths, from 42 to 108 inches.

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.

A glove factory is spoken of for Georgetown, Ont.

Geo. Howe has bought the Brussels woolen mill for $1,500

Paris, Ont., has a factory for the manufacture of hammocks.

Jas. Kincaid has left the Dominion Cotton Mills Co. and gone to Webster, Mass

The Montreal Cotton Co. are placing a pair of new twiners in their mill at Valleyfield, Que.

The felt boot factory, one of the leading local industries of Elmira, Ont., is working overtime

The weavers in the St. Croix cotton mills, St. Stephen, N.B., have had their wages advanced slightly.

Kingston Oil Cloth and Enamel Cloth Co., Kingston, Ont., shipped two car loads of oil cloth to Montreal, December 10th.

The Hanover Felt Boot Co., Hanover, Ont. (Snyder & Mayer, Berlin, Ont., proprietors), reports business in a flourishing condition.

The directors of the Goderich Knitting Company are James Clark, George Acheson, E. Downing, R. C. Hays, and C. A. Humber.

The building of the paper and pulp mill No 1 at Sault Ste. Marie, Ont., is completed, and the public have been admitted to look over the premises

The Hawthorne Mills, Carleton Place, Ont., were closed down for a short time, whilst the engine and machinery were put in thorough repair for the winter.

The binder-twine shop at the Central Prison, Toronto, started work on the 9th, under the care of Mr. Connors, the new contractor for the industry.

A pipe leading from the boiler to the steam chest in the Rosamond Woolen Co.'s mill at Almonte, Ont., blew out the other day, causing a day's shut down for repairs.

Geo. Upton, of Alliston, Ont., has added several new machines recently to his woolen mill, and has just placed a dynamo in position to light the mill with incandescent lights.

The Auburn Woolen Company, Peterboro, Ont., has been granted exemption from municipal taxation. The Peterboro Lock works are also included in the exemption.

G. McKenzie, of Wingham, Ont., offers a free site to anyone who will erect a flax mill in that place. The mill to be equal in capacity to the mills in Brussels, Ont., or Blythe.

Wells Bros. are about to erect a woolen mill close to the Quebec and Lake St. John Railway station, at Chicoutimi. Fifty hands will be employed, and the town will vote a bonus.

The employés of the St. Croix Cotton Mill, St. Stephen, N.B., had a holiday on the American Thanksgiving, and also on the Friday following, owing to the presence of sawdust in the wheel pit.

The Dominion Cotton Company's mill at Moncton, N.B., was the scene of an accident on Nov 27th, which caused a close down of a week or so. The cylinder burst, but fortunately no one was near enough to be injured.

Considerable damage was done to stock in the cotton mill of Wm. Parks & Son, Ltd., St. John, N.B., not long ago, by reason of water poured on it to put out a fire which started in the dry room. Beyond the damage by water, there was very little loss.

A. J. Syer, woolen manufacturer, Wyoming, Ont., has assigned to J W. Smith. Prompt payments have not characterized Mr. Syer's methods of doing business, we believe, and little surprise is expressed at his suspension.

Knitting mill owners will be interested in the announcement from Ottawa, that silk in the gum, or spun, when imported by manufacturers of silk underwear to be used in their own factories in the manufacture of such goods, has been declared free of duty.

There was a serious explosion in the Universal Knitting Co.'s Mill, at Woodbridge, Ont., on the 18th ult. The manager, Mr. Dawson, Jas. Stone and W. W. Smith, were taking sulphuric acid from a large cask, the bung flew out and all three were frightfully burned.

A dividend of three per cent. is what the Montreal Cotton Company, Valleyfield, Que., asks its shareholders to accept for the quarter just closed. Of this one per cent. represents the profits of a speculative purchase of goods, and two per cent. the profits of the manufactory proper.

Le Quotidien reports that D. Vestel, a Belgian manufacturer, and O. Talbot, of St. Michel, Que., appeared before the Agricultural Committee at Quebec on the 6th December, on behalf of a new system of manufacturing linen, which they claimed would be very profitable to the farmers. They would establish a factory if the interest on $20,000 was guaranteed. The committee have deferred action for further information.

The Taylor Hydraulic Air Compressing Co. are putting in a plant at the Magog Print Works, Magog, Que. The shaft is being sunk, and it is expected that this entirely novel motor will be in operation on a commercial scale before very long. If the large motor gives the results which are to be expected from the tests made by means of small ones, a revolution is coming about which all users of power will do well to post themselves.

What might easily have been a fatal accident occurred in the worsted department of the Rosamond Woolen Co.'s mill at Almonte, Ont., December 11th. A shaft coupling broke, and a large pulley, weighing between six and seven hundred pounds, fell on a reel, reducing it to scrap iron. A pipe belonging to the fire system was smashed and the room flooded. A girl working at the reel had a very narrow escape.

The flax mill men have been making trouble for themselves and the mill-owners by striking. At Atwood, and the Livingston mill, in Stratford, the mills closed down. The men were put on piece work at one cent per pound, for scutching, which they considered too little. The management claimed that a good man could earn $1.50 per day, at that rate, and that it was fairer than an all round wage. After some time the men returned to work at the owners' terms.

C. E. Morgan, of the Northey Mfg. Co., Toronto, has tested the new Underwriter Fire Pump which that company has put in the Canada Colored Cotton Mill, Cornwall, Ont. The new pump, which weighs five tons, is similar to those being put in McDonald's tobacco factory, Montreal, and the big paper mill at Sault Ste. Marie, Ont. A section of the mill fire brigade was called out, 40 pounds of steam turned on, and with 100 pounds water pressure, the pump forced four streams through 1⅛-inch nozzles to a height of 120 feet, or as high as the flag staff on the tower of the mill. The pump has a capacity of 1,000 gallons per minute. The Northey M'f'g. Co. are a Canadian firm and make a specialty of pumps.

JAPAN has determined to supply her own wants. It is stated that only one-fourth of her requirements are now imported, as against 67 per cent. six years ago. Even more striking is her determination to get rid of European help in the actual work of production. Since the date, now four years ago, says the Bombay *Gazette*, when the foreign mill managers all received notices on one day that their services would no longer be required after the expiry of the notice, not a single man of western birth has been engaged in the cotton mills, and the half million old spindles at work are entirely under indigenous direction. There are 2,100 miles of railway open, and 400 miles more under construction; but the only foreign assistance in their working is that of a solitary Scotchman, whose ties to the country have been strengthened by his marrying a Japanese girl.

PERSONAL.

Arthur Devitt, of Peterboro, Ont., has accepted the position of superintendent with the Slingsby Manufacturing Co., Brantford, Ont.

Charles Jackson, of Lousdale, R.I., has gone to Windsor, Nova Scotia, to accept a position in one of the large cotton mills there.

Richard Chalk has severed his connection with the Dominion Cotton Mills Co., Magog, Que., and left for New Jersey on Wednesday.

R. A. Proud, who has held the position of boss weaver in the Mississippi Woolen Mills, Appleton, Ont., has gone to Ottawa, where he intends to reside.

H. Kemp, who succeeded Jas. Hall in the carding department of Cornwall woolen mills, has resigned his position and has been succeeded by a Peterborough expert.

Woolen manufacturers in Canada will hear with much regret of the death of J. A. Humphrey, of J. A. Humphrey & Son, proprietors of the Moncton Woolen Mills, Moncton, N.B.

J. S. Wallace, who represented Samson, Kennedy & Co. on the road till the smash-up, has accepted a similar position with S. F. McKinnon & Co., wholesale dry goods and millinery.

S. R. Marden, who has been manager for P. Jamieson, clothier, Toronto, for the past four years, has gone to St. Kitts, as manager of the St. Catharines Clothing Manufacturing Company.

Emma Starnamann, a weaver in the Brodie Mills, Hespeler, Ont., was struck on the top of the head by a shuttle flying from a loom one day not long ago, and a severe wound inflicted.

A bale of cotton fell upon Hubert Peyrus, an employé of the Hochelaga Cotton Mill, Montreal, on Dec 2nd, seriously injuring him. He was removed to the Notre Dame Hospital, where he died.

Wm. Parks, of St. John, N.B., spent a few days in Montreal this month. He reports a slight improvement in prices of cottons, but no marked increase in sales. This will come later, however, as a rise in prices invariably acts as a check until the dealers' stock runs low.

J. St. Geo. Dillon, of Bellhouse, Dillon & Co, Montreal, and Dillon & Co., New York, intends leaving early next month for Spanishtown, Jamaica, to visit the works of the West Indies Chemical Company, whom his firms represent in United States and Canada.

D. S MacInnes, of the Royal Engineers, son of Senator MacInnes, of Hamilton, Ont., formerly one of the shareholders in the Canada Cotton Mills, Cornwall, Ont., has been ordered to accompany the Ashanti expedition. Mr. MacInnes is a graduate of the Royal Military College, Kingston, Ont.

A painter named Robt. Sinclair had a narrow escape in the Kingston mill of the Dominion Cotton Co. on Dec. 1st. He fell from a considerable height on to a rapidly moving belt, but was rescued in time to escape with a number of bad bruises and scratches. His clothing was completely torn from his body.

We are requested to give publicity to the following paragraph from the *Boston Journal of Commerce*: "Any one that could give any information regarding R. W. Turner, 5 feet 8 inches in height, light complexion, light hair, sandy side whiskers, late manager of the Stormont Cotton Co., Cornwall, Canada, that might lead to his present whereabouts, would confer a great favor to his family by addressing B. F. Brook & Son, Listowel, Ont."

James Hall, the father of the Cornwall Mechanics' Institute, who for many years past has been connected with the Cornwall Manufacturing Company's woolen mill, Cornwall, Ont., has gone to Almonte, Ont, where he has secured a good position. J. G. Ranse-Lausen, formerly in charge of the weaving department of the same mill, has gone to Marcellus, N.Y. Another report states: "Jas. Hall, lately overseer of the carding department in the Cornwall woolen mill, has gone to the Paton Mfg. Co.'s mill at Sherbrooke, to fill a similar position.

John R. Smith, of Hinsdale, Mass., who was boss finisher in No. 2 mill (Elliot & Co.), Almonte, Ont., until it closed about five years ago, was a candidate for political honors in Massachusetts on Nov. 5th, having been chosen by the state convention, at Pittsfield, as candidate for Representative to the State Legislature on the Prohibition ticket. Mr. Smith declined the nomination, but they would not take a refusal, so he went to the polls, and had the honor of polling the largest vote ever given in that district on his ticket, and lost the election by but 263. In the no-license towns he ran away ahead of his ticket.

THE INDIA-RUBBER INDUSTRY OF DUTCH GUIANA.

The caoutchouc, or india-rubber, is produced in Dutch Guiana under different species, the most important of which is "balata" or "milk of the bullet tree," the export of which is attaining considerable proportions, and will, it is believed, be very productive for a time only, as there is no forest conservancy law in the colony. Persons who are granted tracts of land for the gathering of this product are uncontrolled in their method of drawing the milk, which results in trees being totally destroyed to get the greatest amount of milk by the quickest and most inexpensive method. The district where the largest quantity of "balata" trees are known to exist in the colony is that bordering on the Correntyne river, known in Dutch Guiana as the "Nickerie district," and large tracts of land have been given to an English firm to collect balata. Balata is treated by the manufacturers simply as a superior kind of gutta-percha, and therefore its name disappears when manufactured; nevertheless, balata is distinctly different from gutta-percha, and this is manifested in some of its physical characters—for instance, it is somewhat softer at ordinary temperature and not so rigid in the cold. Besides the bullet tree, there are trees or plants known as the *Tonckpong*, which gives a valuable rubber, and again *Bartaballi* and *Bushrope*, to which collectors do not appear to have given a name. The india-rubber balata industry, although carried on in the colony of Dutch Guiana in a desultory way for a long time, has never until quite recently assumed sufficient importance to cause the local government to legislate upon it. As yet the law only lays down the regulations under which concessions are granted, and does not deal with the supervision or treatment of the trees, or the method of extracting the milk. Caoutchouc or india-rubber is yielded both by trees and vines. Those already mentioned are, as far as it is known, the principal ones in the colony, and the method of collecting the milk is by cutting down trees, by incisions, and by circling the tree. In each case there is no protective law, and the trees are generally ruined. The chief port of export is Demerara, and as yet no export duty exists, but as the production increases it is expected that it will not escape taxation. Nothing has been done to cultivate the plant, neither does the soil seem to favor its growth except in some peculiar circumstances.

KHORASAN CARPETS.

The chief sources of supply for these goods are the localities of Meshed, Birjand and Turshiz. All Khorasan carpets are "piled" carpets, or "kali," a word that is not applicable to any other kind of floor cloth. The different kinds are known sometimes by the different patterns and colors of which they are composed, but usually only by the names of the places where they are produced—such as Kaini, Meshedi, Baluchi, Turishizi. Those of particular localities have always some distinction or superiority over those of other places, and the carpet industry is in a more flourishing condition in some places than in others. Though they are woven all over Khorasan, not only in the towns and villages, but also in the tents of the nomad tribes, a large proportion are made for the use of the people themselves and not for trade. At present carpets of fine quality are manufactured for trade in the two districts of Kain and Turshiz, but good carpets are also made in Meshed. For about ten years past traders have been in the habit of giving instructions to weavers on the subject of carpets to be exported to foreign countries, and these are said to fetch better prices.

In Kain the authorities and leading men are fond of carpets, and as they themselves give instruction to the weavers, a fine class with good patterns and colors is turned out. All the different classes of carpets are made in varying sizes. Large ones measure up to 40x16 feet, and small ones from 5x2½ feet up to 6x3 feet. A good quality of carpets measuring 10x3 feet, and even smaller, are woven by the nomads, and especially by the Baluchis. All native dyes used in the manufacture of carpets are obtained from vegetables Aniline dyes imported from Europe were used formerly in Meshed, but were discontinued when it was found that the carpets containing them did not sell well. Carpets of inferior quality made at Birjand contain anilines, but those of better quality which are made to order do not. All parts of Khorasan where carpets are made produce wool, but in places such as Meshed, Turshiz and Kain, where they are made for trade, a portion of the wool required is obtained from the neighboring districts. There is not much difference in the quality of the wool produced by the different districts of Khorasan, but that of the Baluch tribes is said to be the best. The reasons given for this superiority are that most of their sheep are white, and that the Baluchis wash their wool better than other tribes. But Khorasan carpets are not made entirely from wool. The woof is of wool, while the warp is cotton. The pile is entirely of wool, because wool is more durable than any other material. In ancient times silk was occasionally used for the pile, and even now carpets can be made with a silk pile if specially ordered. The looms used for weaving in towns are always put up indoors, those in the country sometimes indoors and sometimes out of doors. But carpets of the better quality, even in the country, are usually made indoors to save them from the dust. The weavers in the towns are entirely men and boys, those in the country usually women. As far as is known, there is no difference in the methods pursued by the ancient and the modern weavers, and although old carpets are occasionally seen of superior quality to any of modern production, there appears to be no "lost art."

FILLING BRUSHES.

There is no part of the work in any part of the mill but, if discussed so that all could understand, would require many pages of "whys" and "wherefores," sometimes leading to personalities. What are brushes for? The loom fixer's object in using brushes is to steady the yarn as it comes from the bobbin, and prevent filling-kinks in the cloth, a difficulty not easily overcome on some weaves or combination of weaves, or with very fine filling-yarn. Every fixer uses brushes to suit his fancy, and so long as he accomplishes the desired result, even though different from all others, for his use it is the best. What effect has it on mispicks or broken picks? If the yarn is free from nubs and slugs, and the brush is just sufficient to steady the thread and not strain it, then it will not cause the thread to break If, on the other hand, the brush fills the shuttle-eye to such an extent as to make it difficult to draw the filling through it, it has a tendency to break at the least obstruction, such as a knot, for instance Supposing, however, you are on a class of goods where slugs or waste-bunches on the filling, if woven in, would damage the goods; then we sometimes call them slug arresters, and they do not work to perfection unless the thread breaks. For woolen, that is, carded yarn, a brush in front of the eye will do very well for a time, but owing to the use of the hook in drawing in the filling, it soon becomes worn out, and either lets large bunches of waste go into the cloth or causes kinking It may not for the whole width of cloth, but certainly will on the sides, and more on that side having the longest slack thread when shuttles start to cross I have tried quite a number of contrivances, but have not seen anything that goes ahead of a good yarn brush, with 3-16 inch hole through both sides of shuttle, about half an inch from the eye towards the bobbin Draw the yarn through both sides, then draw up a little inside the shuttle; this done, cut from bottom up, leaving about one-quarter uncut A bunch directly in front of the eye has a tendency to make cockly goods, in that with a rigid brush the tension is all right until the bobbin is partly empty, when the tension, "owing to adhesion to bobbin," increases until empty. That the three inches of cloth woven with slack filling will be unlike the next three woven with taut filling, goes without saying, in fact, is a thing well known to every boss weaver and fixer; if not, it should be. This extra strain on the yarn would not, however, cause light and heavy places sufficient to be seen otherwise than by uneven shrinkage, which might, on large plaids, be a damage, as the plaids or checks would not be uniform. These things cannot be put into five words, nor lines, that all may understand; yet the whole thing, "cause and effect," could be shown in a few minutes.—*Fibre and Fabric.*

COMING COLORS.

Upon opening the new color cards for 1896 their brightness is absolutely appalling to any one expecting subdued effects—if such could be thought of after the colors of the present season. One card gives the nasturtium, or orange-red shades, the foremost place while the other accords this position to coral pink, which deepens to a fire red. There is no doubt of the success of brown and green All of the former are golden in effect and the latter come out strong in yellow and bluish tints, and two clear, bright shades—Moskowa and Ozof—that are handsome alone or in combination.

The combination fancy must not be lost sight of for a moment, as these shades are created with a view of putting from two to five together This idea is what makes the list of shades so wonderfully beautiful and artistic. They are vivid, yet so soft and perfect that they do not glare or appear crude. The shade Roi, for instance, is a startlingly bright cherry, yet, on account of its exquisite effect, it will not shock the quietest taste. Violet shades may continue to be well thought of by those in the trade, as they evidently are by the experienced makers of these color cards, which are indicators of the coming tints which will rule in fashion, and consequently guides to the manufacturer and merchant. Changeable samples are shown on the Syndicate card in bright effects. In buying blues this spring merchants will look carefully at all shades and then take bright navy, the lighter French blue and torquoise, as the favor for the color is now on the decline. Above all, be prepared for a high-color season next spring and summer.—*Dry Goods Economist, New York.*

DYEING NOVELTIES.

A group of exceedingly fast cotton blacks has been quite recently put upon the market, under names of Direct Blue Black B, and Direct Deep Black T and R. The large consumption of these products throughout Europe and America is proof of their excellent qualities. A full, lustrous, blue-black on cotton is produced with 4 to 5 per cent. of the B shade, which has great fastness to acid, alkali, ironing and perspiration; fastness to light fully equal, if not better, than logwood. Half-wool dyed with 5 per cent. color in a short liquor, gives equally good results—long boiling being, however, absolutely necessary. Direct Deep Black T and R have also excellent covering properties, the R shade having a reddish tone overhand. Dyers will be pleased to hear that a new member nas been added to this important family of dyestuffs, called Direct Deep Black G. This new color possesses properties, if anything, slightly better than the other brands. Its covering properties on half-wool are excellent, and, on account of its low price, has met with great demand. The latest of all blacks for cotton is Benzo Chrome Black N, which, with an after treatment of chrome and blue-stone, gives a deep lustrous black unsurpassed for fastness to light, acids, akali, and washing. Diamond Black N G is a clearer and bluer shade than the already well-known fast color Diamond Black. Sulphon Cyanine and Sulphon Azurine are blues very fast to light and milling, and absolutely fast to alkali. By using Fulor Chrome the "dyeing operation," *i.e.*, mordanting and dyeing, may be done in one bath. This is of especial value in dyeing alizarines and alizarine cyanines; one bath only being necessary, a great deal of labor and time may be thus saved. Shades so produced are quite as fast as previous Bichromate mordanting, only slightly greener in tone. For full

particulars, samples, instruction books, etc., apply to Dominion Dyewood and Chemical Co., sole agents for Farbenfabriken Vorm Friedr. Bayer & Co., Elberfeld, Germany.

THE NEWEST CARPET FABRIC.

The great interest shown in the new carpet fabric which the Lowell Manufacturing Company are shortly to place upon the market, is well justified by the promise of what the fabric will be. It has been referred to as an Axminster, which designation is not entirely appropriate, for it has features different from any Axminster heretofore made.

One of these differences is that the fabric, while of high pile, will not mat down, and is said to be more solid to the tread than other fabrics. Another important feature is the greatly enlarged scope of design and color over ordinary makes of Axminster. Much finer figures and color outlines can be produced than heretofore, which, combined with the generally rich appearance and exceptional durability of the fabric, will certainly place it in the front rank as a first-class carpeting.

The contract made between the Lowell company and the Crompton Loom Works for the control and building of the looms has given additional impetus to the machinery manufacturing interests of Worcester, Mass., as shown by the following article published in the Worcester *Gazette* on the 28th ult.:

"Some weeks ago the *Gazette* announced exclusively a great business deal by which the Crompton Loom Works entered into a contract to give the sole English rights to the use of their perfected Axminster looms to the two great firms of Richard Smith & Sons, of Kidderminster, and John Crossley & Sons, of Halifax, England. Before and since that time negotiations have been pending for a similar transaction with a firm in this country, and early this month the second deal was effected. This gives the sole American rights to the use of the loom to the great Lowell Manufacturing Company, whose works are located in the city from which it takes its name, and which is undoubtedly the largest concern of its kind in the country.

"The Crompton Loom Works has for some time been shipping two of these large and complicated looms each week to the English firms, and as the American order is nearly equal to the other two combined, this output will have to be doubled. It is estimated that it will take at least two years to complete the three contracts, which have necessitated the occupation of an extensive new shop on Cambridge street and the employment of a large extra force of men.

"Some idea of the extent of the transaction may be given by the statement that the deal disposing of the English rights was considered the largest loom transaction upon record, and that the addition of the later arrangement will practically double the shipments.

"The contracts include a number of special machines for each loom, which are necessary in the different preliminary processes of winding the yarn upon the spools and setting the pattern, and drawing the yarn through the combs, and the several finishing processes, so that, considering the complicated nature of the loom itself, a shipment of four looms a week means a great deal.

"The Axminster is the biggest and most expensive loom built at the Crompton works.

"The Crompton improved Axminster loom, which is the subject of these two great deals, was perfected but a year or two ago, though the work was begun by the late George Crompton a number of years before his death. It is believed that its use will be of great moment to the carpet trade. It turns out a much finer grade of carpet than the old Axminster, at the same time offering heretofore impossible opportunities to the designer, and attaining a high rate of speed with the best results.

"The loom turns out a product of more yards a day of its closest and finest weave than has been attained heretofore, and the nature of the product has never been excelled in the history of pile fabric weaving.

"The loom in operation is steady, accurate and extremely sensitive. The mechanical methods employed to produce the fabric are on lines that are unique, and the work of the loom appears to the uninitiated almost human.

"The history of its development covers a period of some eighteen or twenty years, for it is at least that length of time since Mr. Crompton began his experiments with the object of perfecting the pile fabric loom. After his death the work was carried on in the same direction by the Crompton Loom Works, and, as stated above, it was but a short time ago that the works produced what they were satisfied to consider the perfected machine.

"Before Mr. Crompton's death, Mr. Smith, of Smith & Sons, visited this country, and as a result of his inspection of the Crompton Axminster loom several machines were shipped to him in England. Last December, Mr. William Smith, of the same firm, and Mr. Bird, of Crossley & Sons, were both here, and as a result of their inspection of the perfected work the deal involving the English rights was arranged."

Shipments of looms to the Lowell Company have already commenced, and the work of placing them in operation is being rapidly prosecuted.—*Carpet and Upholstery Trade Review.*

DIAMINE ROSE

Wm. J. Matheson & Co., Ltd., dyestuff dealers and manufacturers of New York, Boston, Philadelphia, Providence, U S A., and Montreal, P. Q., announce that they will be glad to send samples of their new Diamine Rose, which is a new and valuable addition to the series of Diamine colors manufactured by Leopold Cassella & Co. The following is a description of the properties and method of application of the new dyestuff:

Cotton.—In pale shades, Diamine Rose yields on cotton exceedingly bright pinks, which possess an excellent fastness to light and washing. It may be used for dyeing and padding as well as for printing pale shades, and as an addition to the various discharges for Alizarines produced by means of oxidizing agents.

Dye cotton with the addition of ½ per cent. soda, 2 per cent. soap, and 5 per cent. Glauber's salt, for from ½ to ¾ hour, from 140 deg. F. to boiling temperature.

Diamine Rose possesses the valuable property to dye level very easily, and therefore may be used for shading also in boiling baths.

For padding on cotton, dissolve 2½ to 3½ ozs. Diamine Rose BD in ½ gallon boiling water, and add this solution to 22 gallons water, in which have been previously added 7 to 14 ozs phosphate of soda, and 2 to 4 lbs. white dextrine.

For discharging Diamine Rose in pale shades, use the ordinary Tin Crystals discharge.

Cotton and silk mixed goods are best dyed with 2½ per cent. phosphate of soda, 2 per cent. soap and 10 per cent Glauber's salt, very uniform dyeings being obtained in pale shades

Diamine Rose is suitable for dyeing wool, as well as for printing tops or woolen piece-goods, yielding shades fast to washing or light. It is dyed with 10 per cent. Glauber's salt and 2 per cent. acetic acid. For printing tops the following proportions will be found suitable. ⅛ to ½ oz. color, 3 gills water, 14 ozs gum thickening, 5½ ozs. British gum, boil together; after cooling down add 3½ ozs. acetic acid, 8½ deg. Tw. Steam for ¾ hour without pressure.

For printing woolen piece-goods Diamine Rose BD can be recommended for pale, as well as for darker shades. Suitable proportions are the following: ⅛ to 1 oz. color, 1 pint water, 11 ozs. British gum, boil together; after cooling down add 3½ ozs acetic acid, 8½ deg. Tw.

Silk is dyed in a soap bath weakly acidulated with acetic acid. The dyeings are not only fast to washing, but also resist water very well.

THE London seal sale was concluded by the offering of 27,000 Northwest coast seals by the Hudson Bay Co, making the total 82,000 skins, against 136,000 skins last year The figures show a falling off in the catch of the Northwest coast of 54,000 skins, and in the total catch of 65,000, as compared with the figures of 1894.

FINISHING SERGES.

Under the head of serges, we note quite a great variety of goods, ranging all the way from a four-ounce dress serge to a twelve and fourteen-ounce serge, suitable for trousering. Being known by the name of serge cloths, it by no means signifies that the finishing process is the same on the various grades of cloths. On the contrary, the process differs with the style, and what would be good treatment for one kind would not answer for the rest. We will confine ourselves in these lines to that kind of cloth usually designated as four-ounce worsted serge.

As the goods come from the loom, they are taken to the burling tables and carefully looked over, so that all bunches and unevenness may be removed. They are then taken and sewed together in sets of six or eight pieces, and sent to the singeing machine The usual method is to use a gas singer for this purpose, and one run should be amply sufficient. From the singer they go to the washer, and at this point great care must be taken to properly cleanse them As they are usually piece-dyed goods, it will be at once apparent how necessary it is to get them clean. The soap used on them should be of excellent quality, and this is the more to be recommended as the amount required is not very great. An olive oil soap should be used by all means, and if an olive oil potash soap can be procured, so much the better, for the feeling of the goods will be greatly enhanced thereby. The body of the soap may be very light, and the strength should not exceed 1½ to 2 degrees B. After the goods have been properly scoured, they are taken to the rolling machine, and are nicely rolled up on wooden rolls A crabbing at this stage is often of great benefit, and should be given at any rate. The modern appliances for this work, and the operation itself, are so well known that it is not necessary to enter into a description of the same at this point. Suffice it to say that the tension should not be excessive, but due care must be exercised not to have wrinkles or creases. The heat of the water should not exceed 180 degrees to start with, and after the piece is rolled on the first roll, increase slowly to the boiling point, and boil until the required lustre is obtained, which varies with the tastes of the buyer. The goods are then reversed and given the same treatment, so that both ends receive the same amount of work. Again roll the goods on wooden rolls and let them remain until perfectly cold, when they are ready for the dyer. As the dyeing usually detracts somewhat from the lustre previously obtained, it may be well to give the goods another crabbing after they are returned from the dye house, but, of course, this can better be determined by the necessity of the goods under treatment. They are then ready for the dryer, and from there may go at once to the press. Shearing should not be necessary, and will not be if the singeing has been properly performed, and if goods do not look close enough, it is well to see to it that the next lot is singed closer, which will be the best way out of the difficulty. The process may not meet the requirements of every individual case, but on medium quality of goods it will be found to give satisfactory results at a minimum cost.—*Ex.*

WASTE.

Waste in a woolen mill is a very common thing. The first place where it is made is at the wash box. The wool always will lose considerable by being washed, which cannot be helped, but a little careful work here will save some. Greater waste, however, is always in the card room; the spinning room comes next.

We will take each room and see what we can do to make our waste pile as small as possible. In the first place we will commence with the stock or wool ready to put on the first breaker. Let it run for at least say half a day. Then clean your shaft under the cylinder, and have that fed on with the stock again, and if you have large lots, clean your shaft about every five hours, and take the waste back to the feed boxes and have it run through again with the stock, putting in a little at a time, and after it goes on the second breaker, take the waste from that shaft every day once, and the finisher also. Have this done in the morning, and then you have all your waste at the feed box at once, and you can tell about how much to put into each feed and allow no roving to be thrown under the cards to mingle with the dirty card waste and to go to the duster. Take all roving which cannot be run through the cards at once back to the feed box, and use it up there at once, and you will find that when the week is over the waste from a set of cards run in this manner will be much smaller than if run with the waste on the shaft until it touches the cylinder, then picked off and put with the other waste under the card, and all dusted at the end of the week when you have more waste than yarn, as the saying goes. *Every pound* of waste saved in a card room means just so much more yarn, and so much more yarn means so much more cloth, and at the end so much more profit. In the spinning room much waste can be saved We must go into the details as to how the waste is made, and how it can be remedied. The waste is almost all of it made by carelessness or unskilled help, and some, of course, is made by bad roving and bad spools made in the card room, for which the spinning room cannot be held accountable, but the operator should not run the machine too long when there are any number of ends down If she cannot get all the ends pieced up in at least four or five stretches, then the carriage should be stopped when that number of stretches has been taken, and all the ends carefully pieced up. If it is not done carefully one-half of the ends put up will break again, and every end that breaks will make waste. Some will say, "not much," but it is a fact, nevertheless, that every end that breaks down makes some waste, and for every stretch that it remains down, there is just so much waste added to the total, so that the best way to keep the waste pile as small as possible is to piece every end up as soon as possible after it is down, and do not run the carriage too long with ends down, for when there are once four or five ends down at one time all along the whole length of the carriage, it is better to stop the machine and piece them up and make a new start. Operatives will often deliberately watch the machine till there are a considerable number of ends down, rather than trouble to piece them up as they broke. This should never be allowed.

TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the values, in sterling money, of the imports of interest to the textile trades from Great Britain into Canada, for the month of October, 1894 and 1895, and for the ten months ending October, 1894 and 1895:

	Month of October.		Ten months ended October.	
	1894.	1895.	1894.	1895.
Raw wool	£ 3,014	£ 883	£ 11,092	£ 7,907
Cotton piece-goods	13,611	16,775	353,244	372,194
Jute piece-goods	7,990	8,556	81,117	84,876
Linen piece-goods	5,819	8,753	97,077	125,576
Silk, lace	26	246	27,887	20,519
" articles partly of	1,177	1,660	35,162	32,547
Woolen fabrics	9,810	13,839	235,597	211,048
Worsted fabrics	18,677	30,776	410,857	478,448
Carpets	4,555	5,584	147,916	151,469
Apparel and slops	23,235	27,108	263,475	310,994
Haberdashery	4,353	7,606	135,635	131,004

QUITE an interesting claim is made by Dr Klimsch, of Vienna, in the manufacture of resin soaps. According to the explanation of this new process, the longer the operation of grinding or kneading, or the more thoroughly the several ingredients of resin soap are mixed and pressed, the less is required of the binding agents, the fact being that, during the process of mixing and grinding, a spontaneous heating of the material occurs, which favors the union and enables superior hard resin soaps to be produced The particular advantages obtained by this method, as set forth by M. Klimsch, include the suppression of every kind of boiling and the usual preparation of liquor; an almost dry, odorless, easy and rapid operation; the possibility of producing on a very large scale a cheap, white and colored, hard resin soap of any kind and for any uses, soaps quite free from water, and thus unchangeable during transit and storage, and dissolving well, even in cold water

THE FABRICATION OF NAMES.

Some forty years ago, a gentleman spent more time than we should be inclined to spare for such a task in collecting an authentic list of English surnames, and classifying and arranging them. They were afterwards published in a small volume bearing the title of "The Book of Many Names," with the motto: "There is an arbitrary name, whereunto the idea attacheth." In looking through the book one is struck by the extraordinary variety of sources from which names have been selected. Some are grammatical or even alphabetical, as we have such as Gee, Kay, and Tee; some are derived from the vegetable kingdom, as Holly and Rose, or Almonds and Berry; others from the mineral kingdom, as Jasper and Lead. There is a long list of names which might be described as "household words," for it includes such names as Chambers, Parlour, Cushion, Bannister, &c., &c. Some of the most curious lists, however, are those grouped round trade designations, of which the following maay be taken as samples:—"Draper: Silk, Ribbon, Hose, Lace, Cotton, Needles, Braid, Remnant, Hanks, Wool, Sellers, Buyers, Shirt, Buttons, Good Cheape Rayment, Shall Loseby Butt Will Shew Large Bales, Cheap Goods Sells, Fair Price Irish Lawn, Look Sharper Youngman, Aske Madams Whatmore, Tell Gentry Eye Sendds Parcell Allfree, By Ower Porter." A few of these names we have never met with elsewhere, but the author vouches for the genuine character of each and all.—*Warehouseman and Draper.*

CHEMICALS AND DYESTUFFS.

Most lines have advanced owing to navigation being closed. Business is fairly quiet, as is usual at this season of the year. The following are current quotations in Montreal:

Bleaching powder	$ 2 25	to	$ 2 50
Bicarb soda	2 25	"	2 35
Sal soda	0 70	"	0 75
Carbolic acid, 1 lb bottles	0 25	"	0 30
Caustic soda, 60°	1 90	"	2 00
Caustic soda, 70°	2 25	"	2 35
Chlorate of potash	0 13	"	0 18
Alum	1 40	"	1 50
Copperas	0 70	"	0 75
Sulphur flour	1 50	"	1 75
Sulphur roll	1 50	"	1 75
Sulphate of copper	4 00	"	5 00
White sugar of lead	0 07	"	0 08
Bich potash	0 10	"	0 12
Sumac, Sicily, per ton	65 00	"	70 00
Soda ash, 48° to 58°	1 25	"	1 50
Chip logwood	2 00	"	2 10
Castor oil	0 06½	"	0 07
Cocoanut oil	0 06½	"	0 07

THE SILK INDUSTRY IN GREAT BRITAIN.

The silk industry of Great Britain is not, like the American, French, German and Swiss silk industries, confined within one or more districts which can rightfully be called the silk centre of the country. Coventry and Spitalfields have lost, to a certain extent, their predominance as silk manufacturing centres, although the silk industry still exists there, while Macclesfield is eclipsed by its American rival, Patterson. Some localities in England, Scotland and Ireland retain the special trade for which they have become famous, as may be seen from the following list of places where silks are manufactured and the class of goods produced: Coventry—plain and fancy ribbons; Congleton—piece silks, handkerchiefs, velvets and ribbons; Derby—galloons, elastic tissues; Tideswell, Derbyshire—handkerchiefs and mufflers; London (Spitalfields)—plain and figured satins, damasks, etc; Sherbourne, Dorsetshire—piece silks, trimmings; Sudbury, Chelmsford and Haverhill, Suffolk—millinery silks, crêpes; Yarmouth—gauzes and crêpes; Leicester and Nottingham—silk tulles, gloves, hosiery; Norwich—crêpes; Macclesfield—handkerchiefs, mufflers, piece silks, damasks, brocades; Leek—sewing and embroidery silks, threads, fringes, buttons, galloons, handkerchiefs, damasks; Manchester—piece silks, passementeries, braids and galloons; Rochdale, Bradford and Halifax—plushes, velvets and piece silks; Glasgow—piece silks and handkerchiefs; Dublin—plain and fancy poplins.

SAMSON, KENNEDY & CO.

On December 10th E. R. C. Clarkson was appointed receiver of the business of Samson, Kennedy & Co., and another step was taken in the most-talked-of failure the trade has seen for many years. The firm has done a large business, the annual turn-over often amounting to a million dollars, and in 1894 it was $1,200,000. Had this business been done at anything like a living profit the position of the firm would have been high, but the capital was small and their enormous business was carried on regardless of expense, much of it being done, it is said, at an advance on manufacturers' prices of from 2½ to 3 per cent., which, of course, did not cover the cost of handling. The losses are largely distributed among the Canadian manufacturers, as S., K. & Co. handled domestic lines extensively. Many of our Canadian mills have lost their whole season's profit, and many of them are fortunate if their season's profit amounts to so much. The Dominion and Colored Cotton Mills Co. are said to be creditors to the extent of $102,000, D. Morrice & Co. guaranteeing the account; Penman Mfg. Co., Paris, Ont., $35,000; Merchants' Mfg. Co., Montreal, $12,800, Alex. Ewan & Co. guaranteeing the account; Yarmouth Duck and Yarn Co., and Montreal Cotton Co., $23,000. There are many smaller accounts ranging from $5,000 down. The feeling in the trade seems to be against an extension, and the business will probably be wound up in January. See list of creditors in another column.

The United States court has just rendered a verdict for the plaintiff in the sum of $9,000 in Atlas Knitting Company, of Amsterdam, *vs.* Hart Brothers, of Chicago. It is alleged that Hart Brothers ordered seventy cases of goods, and after the goods had been made up cancelled the order. The goods were sold by the makers at a loss of $9,000. The decision will be learned by knit goods manufacturers with great interest.

The Ottawa Trading Co. has been incorporated to carry on wholesale and retail business in dry goods, boots and shoes, furs, gents' furnishings, and ready-made clothing in the Dominion of Canada. The incorporators are . Olivier Latour, lumber merchant, Oscar McDonnell, journalist, Pierre H. Chabot, merchant, Albert H. Chabot, clerk, all of the city of Ottawa, Ont., and Louis N. Champagne, advocate, of Hull, Que.

In the Dominion Waterproof Co. *vs.* Mitchell, Justice Armour dismissed the case without costs. The Waterproof Co. claimed that they had exclusive control of a process for the manufacture of celluloid linen by means of transparent celluloid. A. B. Mitchell, under a patent granted April, 1895, claimed that the process was covered by a patent granted to Sanborn Bros. & Kanouse in 1878. The question of costs will be settled by the Court of Appeal.

C A Dekks & Bro., tailors, Toronto, have assigned. It is expected the assets will cover the liabilities.

It is said that $20,000 represents both assets and liabilities of W. J Gillies, dry goods, St. Mary's.

There was a $20,000 fire at Amherst, N.S., on December 1st. A. D. Taylor's dry goods store contributed largely to the blaze.

Three carloads of raw silk, valued at over $300,000, crossed at Prescott the other day *en route* from China to New York.

Sir H G Joly de Lotbiniere delivered a discourse on the culture of flax before the Agricultural Committee at Quebec, December 6th.

Geo. S. Wright, formerly of Griffen & Wright, dry goods, St Thomas, Ont., has taken an interest in the dry goods business of Jos Mickelborough, and will remain in St. Thomas.

The Twist and Sewing Silk Mfg. Association of the United States advanced the price of silk 5 per cent. on pound goods, 200 yard goods, sewing silk, and button-hole twist, on Dec. 2nd.

John Towers, of Shanghai, China, represents a big silk firm, and has his headquarters at Vancouver, B C During a recent trip east he has had quite a lot to say about the advantages to Canada of closer trade relations with China. He says that the best means of securing trade is to send in samples and work it up. The presence of a Canadian commissioner would be useless.

The commercial travellers of Ontario are making an effort to better the condition of the hotel accommodation in the country generally Many of the hotels in country places are unfit for habitation, they complain, and the Government was expected to assist in improving their sanitary condition. The Provincial Secretary, Hon Richard Harcourt, when waited on by the representatives of the association, declined to appoint an inspector, as they wished, but pointed out that much could be done through the local boards of health, to whom special instructions will be issued on the subject.

Selling too low is not good business at any time, it does not pay to-day, and cannot be profitable to-morrow. Those who have hitherto sold that way have disappeared one by one—they ought not to be leaders, and cannot be, unless they are followed. There need be no doubt on one point: those who follow in one particular will follow in detail.—*Hat Review.*

Among expenses that Canadian manufacturers are spared is that of purification of the water used in their mills for washing, dyeing, etc, before discharging it into the drains. The Rivers Pollution Act in England occasions considerable expenditure for this purpose. A new process is described in a recent issue of the *Textile Mercury*, by which large quantities of water are cheaply clarified by means of quicklime and sodium carbonate in settling tanks.

In one of the leading journals of Montevideo the following advertisement appeared recently, "A very rich young woman would like to marry a young man of good family If necessary, she will pay the debts of her future husband Send answer, with photograph, to I P., at the office of the *Journal*." The inserter of this announcement is no other than a merchant tailor, who has just set up an establishment in Montevideo. By this plan he procured photographs of many undesirable customers.—*British Columbia Commercial Journal.*

Controller Wallace has approved the findings of the Board of Customs which were reached during its last session held at Ottawa last month. The rulings, where they affect the textile trades, are as follows. Okum, felt, 17½, beta naphthol, 20, single spun silk, colored, 20, jute cloth, woven in part with colored jute yarn, 20, baskets and skips containing cotton yarn, dutiable at same as if empty, leather leggings, cotton lined, 25, cotton canvas gun covers or cases, 32½, turmeric, ground, free, paper boxes, plain, printed on, ornamented or labelled (not including boxes covered by item 352), 35; collodion, 20; soapstone packing, 22½; carbonate of potash, 20.

THE SAMSON-KENNEDY STATEMENT.

The receiver, E. R. C. Clarkson, has prepared an approximate statement of the affairs of the suspended firm. The outlook for the creditors could hardly be worse, and at present fifteen cents on the dollar is thought to be more than they will receive The stock, which has been appraised at something less than $300,000, will be offered for sale *en bloc*, and a prominent Toronto retailer is mentioned as the probable purchaser.

DIRECT LIABILITIES.

Canadian and United States creditors	$310,264 00
English creditors	116,725 00
	$426,989 00

INDIRECT LIABILITIES.

Canadian Bank of Commerce, paper under discount	300,000 00
	$726,989 00

ASSETS.

Stock in trade	$210,000 00
Book accounts, good	37,652 00
Book accounts, doubtful	11,535 00
Warehouse, cost $20,000, less bank claim	10,000 00
Manitoba Land and Souris Railway	21,043 00
Bills receivable	3,811 00
Provident and Commercial Land Company	3,686 00
	$297,727 00

CANADIAN CREDITORS.

James A. Cantlie & Co., Montreal	$ 3,169 83
Slingsby Manufacturing Co., Brantford	4,261 96
Kingston Hosiery Co., Kingston	1,683 45
The Forbes Co., Ltd., Hespeler	4,818 67
Paton Manufacturing Co., Sherbrooke, Que.	2,235 14
James H. Wylie, Almonte	3,663 77
Hood Hosiery Co., Toronto	799 25
Millichamp, Coyle & Co., Toronto	1,726 18
D. Graham, Sons & Co., Inglewood	1,314 00
White-Allen Co., Toronto	483 85
Jones & Co., Toronto	190 40
Ed Schultz, Son & Co., Montreal	5,831 57
Merchants' Manufacturing Co., Montreal	12,855 29
Brush & Co., Toronto	145 20
A. H. Sims & Co., Montreal	3,358 75
Eagle Knitting Co, Hamilton	7,466 51
T. E. Braime & Co., Toronto	147 71
Telfer Manufacturing Co., Toronto	674 08
James Stanbury & Co., Toronto	1,274 98
Standard Shirt Co., Ltd., Montreal	3,146 12
Canadian Colored Cotton Mills Co., Ltd., Montreal	60,958 31
Dominion Cotton Mills Co, Ltd., Montreal	41,681 25
William Algie, Alton	4,338 18
James Edwards, Toronto	$ 329 49
Montreal Suspender and Umbrella Co., Montreal	1,073 03
Montreal Cotton Co., Valleyfield	23,487 43
H. B. Claffin Co., New York	1,007 58
I. B. Kleinert Rubber Co., New York	858 88
Wm. Parks & Son, Ltd., St John, N.B.	1,100 00
James Lockhart, Son & Co., Toronto	4,359 11
J. A. McIlroy & Co., Toronto	54 95
Canada Haircloth Co., St. Catharines	1,023 25
Penman Mfg. Co., Paris, Ont.	34,822 21
Joseph Simpson, Toronto	8,201 00
Standard Woolen Mills Co., Toronto	703 93
Trent Valley Woolen Mill Co., Campbellford	8,797 15
Brodie & Co., Hespeler	1,540 88
Granite Mills, St. Hyacinthe, Que.	7,838 64
S. Lennard & Sons, Dundas	1,722 47
Hermann H. Wolfe & Co., Montreal	1,202 30
Gutta Percha and Rubber Mfg. Co., Ltd., Toronto	354 75
Galt Knitting Co., Ltd., Galt	1,853 07
Kerr & Co., Toronto	205 81
Central Agency, Montreal	3,356 80
Robert Henderson & Co., Montreal	4,648 75
Belding, Paul & Co., Ltd., Montreal	5,477 18
Paris Wincey Mills Co., Paris, Ont.	5,671 53
J. Walshaw, Bolton	2,639 87
Wm. Clark, West Flamboro	1,195 16
R. McRoberts, Toronto	1,545 00
Other creditors	19,794 51

ENGLISH CREDITORS.

Foster, Porter & Co., London	$ 4,166 61
Dent, Allcroft & Co., London	2,542 52
Chas. Senior & Co., Bradford	1,502 65
Pool, Lorimer & Tabberer, Leicester	1,291 30
Wm. Nimmo, London	1,066 44
The Michau Co., London	1,472 37
A. & S. Henry & Co., Bradford	7,729 72
Cook, Sons & Co., London	4,215 91
Henry Delafon, Paris	4,958 47
W. Klaar, London	2,922 62
Toms, Steers & Toms, London	2,156 87
Tootal, Broadhurst, Lee Co., Manchester	2,711 03
Beattie, Wilson, Knowles & Co., Manchester	18,220 94
York Street Flax Spinning Co., Belfast	4,069 11
Stewart, Moir & Muir, Glasgow	2,472 48
Wm. McLaren, Sons & Co.	3,363 64
I. & R. Morley, London	14,861 94
Thomas Adams & Co., Nottingham	2,939 47
Midland Lace Co., Nottingham	1,682 38
Messrs A. C. Samson, Bournemouth	2,060 98
Henry S. King & Co., London	5,100 00
Other creditors	26,338 24
Total	$116,728 04