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THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, AUGUST, 1899.

No. 8.

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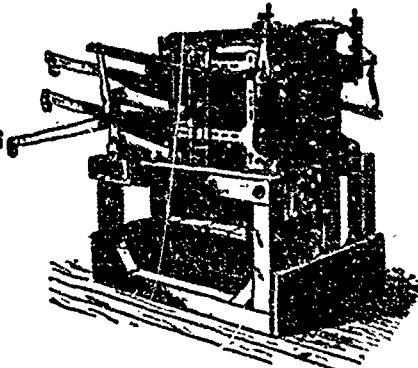
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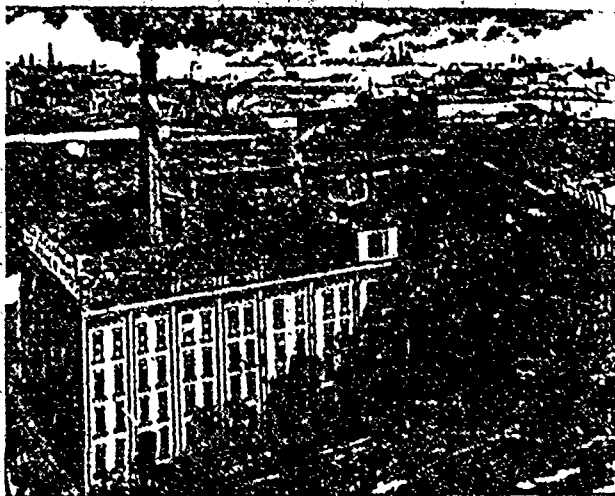
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Editorial.

THE COTTON CROP.

There is this year a reduction in the cotton acreage estimated at from 3.20 to 4.50 per cent. The poor prices of last year have not had so great an effect on planting as might have been supposed, because there appears to be a profit in five cent cotton, and of late years, even on the poorer lands, through more general and intelligent fertilization and cultivation, the productivity of the soil and the yield per acre have been con-

siderably increased. This has entailed no increased expense aside from cost of additional fertilizers and more labor in the picking season. Much of the later annual additions to acreage had been in the richer lands where, entirely without fertilization, a large product per acre is secured. Those lands are consequently now a much more important part of the whole area in cotton than they were a few years ago. In other words, they have come to be the factor in production that rules price. This has proved so because the very character of the development acted to enlarge the yield of the staple on the acreage planted; to consequently cheapen the average cost of production; and to thereby compel the planter cultivating the poorer lands either to go out of the business or to devise means for making the cost of his crop less. The condition of the plant is somewhat later, but otherwise about equal to last year. There has at no time in recent years been so much complaint of defective seed as in 1899.

The Washington weather bureau's weekly summary of crop conditions for the week ending August 7th, says: "While rust and shedding are quite generally reported, the condition of cotton over the central and eastern portions of the cotton belt is somewhat improved. In portions of Louisiana, Arkansas, and over the greater part of Texas, rain is badly needed, and the condition of the cotton is less promising than at the close of the previous week. Picking has commenced in central Texas and over the southern portions of the central and eastern districts, the first bales having been marketed in Alabama and South Carolina."

The first new bale of Georgia cotton, for the season of 1899-1900, arrived at the New York Cotton Exchange August 4th, and was sold for 6½ cents a pound, basis midland uplands, as against the open market quotation of 6⅞ cents. Stoddard, Haserick, Richards & Co's Egyptian cotton market report of August 9th, says: "The market remains quiet with the irregular demand usual at this time. On account of the limited selections in Alexandria some buying has had to be done on the Liverpool market. There has been some operating by Americans in new crops, the prices of which remain firm. The premium for October shipment is higher than paid last year, indicating an expected delay in the picking."

THE GROWTH AND PREPARATION OF FLAX.

BY H. R. CARTER.

(Continued from last issue).

Flax steeped in running water is invariably of a light color; the "white" or lime water of the County Down has also this effect; however, this flax is usually hard, and without much spinning quality. In Ireland steeping in running water, at one time practiced to a small extent, has been abolished, owing to the injurious effects which the flax water has upon any fish which may be in the river. For the same reason, the light-colored Baltic flaxes are becoming scarcer year by year. In the year 1887, Messrs. Van Mullen and Deswarte made an attempt to copy the action of the river Lys by artificial means, with the object of avoiding any contamination of the river. After numerous experiments on a small scale, they established, near Harlebeke, in Belgium, under Government control, a rettery, capable of dealing with a quantity of straw under the new system. The plant consisted of eight water-tight tanks, placed in series, and communicating one with another by means of sluices. Each tank was also in communication with a feed and run-off pipe, the former supplying water from the river Lys and the latter discharging into a small stream on a lower level. From this description it is easy to realize how a gentle and continuous current of water was made to circulate in one direction through the straw in the tanks.

This system had some advantages over the natural Lys steep. (1) The water could be freed from all impurities by filtration or decantation before it came in contact with the flax; (2) the water, which improves up to a certain point, could be employed over and over again until it began to lose its fermenting power; (3) the water could be run off any particular tank to allow of its being emptied and refilled with flax straw, thus avoiding the difficulty and danger of getting the "ballons" or crates into the river. The results of the Government experiments at this time showed that the same flax, part steeped in the river and part in the tanks, produced fiber of equal quality, while the latter showed a gain of 6 per cent. in yield of fiber.

In 1894, Messrs. Loppens and Deswarte, of Neerpelt, Belgium, brought out an improved method of flax retting. It differed in several essentials from the previous one. The principles upon which they work are as follows. In order that the boon may become very brittle, and the fiber a clear yellow color, with a fresh smell when dry, a natural or normal and not a putrid fermentation must take place in the straw. In order that this result may be effected, the matter dissolved out from the stems must not remain in contact with them, but be replaced by fresh water. The flow of water should only be sufficient to replace the water saturated with the vegetable matter, since too strong a flow of

water washes away the "glit" or gummy matter, which gives strength to the fiber, and which, if removed, produces "water-slain" fiber. To carry out these principles they employ retting tanks with perforated false bottoms. The flax straw to be retted is built into the upper portion, the sheaves being placed vertically, and kept down by boards and crossbars. Both the inlet and outlet pipes are placed in the lower portion of the tank. All being ready, the tank is filled with water. As fermentation proceeds, the water in contact with the straw becomes saturated, and falls by gravitation in the form of heavy juice to the bottom of the tank, where it is drawn off as often as necessary by the retter in charge. Flax retted on this system is said to be equal in quality to flax retted in the Lys at Courtrai, loses less weight in steep, and gives a better yield in scutched fiber.

As before remarked, the Courtrai system is peculiar to the district. The flax industry in Courtrai is in the hands of factors whose whole business is to buy the flax straw on foot from the farmers and subject it to the subsequent steeping and scutching processes. This division of labor ensures more skill being brought into operation, which, with the natural advantages of the water, produces a fiber pre-eminent for its excellence. Courtrai flax is not necessarily grown in the immediate neighborhood; but good straw is often brought from other parts of Flanders, France, and Holland, to be steeped in the Lys. The best qualities of Courtrai are of a nice cream color, the poorer qualities inclining to a browner shade. The method of manipulation under the Courtrai system, briefly described, is as follows. The flax, when pulled, is stooked the same day, without being tied in "beets," in a long hollow stook. When partially dry it is tied in beets, which are built into rectangular piles, called "hedges," poles being placed underneath the pile to keep the flax from getting damp. Poles are also placed vertically at either end to support the pile. Both the top and ends are thatched with straw to protect the flax from sun and rain. When the flax is so dry that no danger of heating may be anticipated, it is removed to the store, where it remains until steeping-time the following spring. The removal of the seed takes place prior to retting. It is not accomplished with the "ripple," as in Ireland, but thrashed on the floor like corn, with flat-shaped mallets. The "beets" are then tied into bundles and packed in crates or "ballons" upon the river bank. These crates are usually lined with straw to keep the flax from contact with the sides, the straw also serving to protect the flax from the dirt and scum carried down by the river. When packed, the crates are slid down into the river, moored fast, and submerged with stones below the surface of the water. Fermentation is only allowed to reach a certain stage, when the crates are withdrawn and the flax set up on end in hollow cones in the fields to dry. The second steeping often takes place at once,

but sometimes a considerable interval is allowed to elapse before it is again placed in the crates and submerged in the water, it being considered that the quality is improved by storage between the first and second steeping. One of the tests before described is relied upon to indicate the proper degree of retting. The "ballons" are then hauled out of the water and the flax again put up on end to dry. When dry the flax is sorted by an expert, the over-retted flax being kept by itself, and the under-retted or "hard" again exposed to the action of the water.

There is another method of rendering the separation of the fiber from the straw easy. We mean the system of "dew-retting," as practiced in the districts surrounding Archangel, St. Petersburg, etc. Where this system is in vogue the flax straw is spread out upon the fields and exposed to the action of the sun and rain for a lengthened period, the duration of which depends upon the weather. This system seems to render the coloring matter difficult to remove, and consequently yarns made from fiber treated in this way will not easily become the desired color when boiled.

The "water" and the "dew-retting" systems are the only methods which have stood the test of practice. Attempts have been made at various times to introduce methods by which the desired results should be accomplished in a shorter time; but one after another has failed either to effect the ready separation of the filaments from the boon or to produce fiber equal in spinning quality to that separated by the older methods. The first of any importance was that of Shenk in the early part of the present century. He, recognizing the fact that the time required by the retting process depends to a large extent upon the temperature of the water, and that a high temperature hastens fermentation, determined to substitute water, heated and kept at a given temperature under cover, for the irregular action of out-of-door dews. He found that by keeping the water at a temperature of from 80° to 90° F. the retting process was completed in 60 or 70 hours. The fiber produced by this system was said to be quite equal in apparent quality to that obtained in the ordinary way; but it did not work out to its appearance, yielded badly, and was, in consequence, not favored by spinners. Shenk's process was tried on an extensive scale in Ireland, England, and on the Continent. After a few years' trial the system proved a failure in Ireland. It was more successful in England, however, and may still be carried on to a small extent.

Another system which has come and gone is that of Watt, which came out shortly after Shenk's, from which it differed considerably. By Watt's process the straw was placed in a closed chamber, having a condensing tank in its upper portion. Steam was introduced down below and condensing upon the cold tank dropped down over the flax straw. Retting by this process usually took 10 to 18 hours. When retted, the straw, while

still wet, was rolled and broken by rollers, and then dried and scutched. The fiber produced by this process was said to look well, but did not work out to its appearance. It is questionable if any hasty or forced process can produce fiber equal in spinning quality to that obtained by the older and slower method. During the retting process fermentation decomposes the gummy matter called pectose, which unites the flax fiber to the woody part of the stem, transforming it into soluble pectine and insoluble pectic acid. The former is washed away; the latter although softened, if not removed by mechanical means, or washed off by a rapid current in the water, remains attached to the fiber. It is this substance which binds the individual filaments of the "reed" together, and which constitutes the gummy matter always more or less present in flax, and which, when softened by the hot water in the spinning process, assists in binding the individual fibers of the thread together, thus adding considerably to its strength. The scutching process, by which the flax fiber is separated from the woody matter which composes the stem of the plant, is effected either by hand or by power.

Hand scutching, now almost extinct in Ireland, is frequently practiced in Belgium. Unlike the Irish, the Flemings never dry their straw in the smoke of the fire, a process which may facilitate the scutching, but renders the flax hard and dry, evaporating as it does the natural volatile oil of the fiber.

Just previous to scutching the boon is broken up as short as possible by rolling or by beating the flax stems with a mallet. Traces of the old method of rolling the flax are still to be found in the country parts of Ireland, in the shape of a large round stone fixed upon a long pole, the free end of which rests upon the ground. A horse was attached to the pole and the wheel pulled round in a circle, the flax straw being spread in its track and crushed beneath its weight. Of more recent date is the flax-breaker, composed of heavy rollers coarsely fluted, which work in pairs, through which the beets of flax straw are passed. An improvement on this breaker was brought out some years ago by the Fiber Machinery Company, Limited, of London. Its object was to prevent the flax straw being crushed or nipped at regular intervals, as in the older breaker. To effect this object five pairs of finely-fluted rollers were employed. A feature of the fluting was a variation in the pitches of the flutes upon the same roller, the roller working with it being fluted and placed in gear to correspond. Davison's breaker, brought out in 1892, consisted in a pair of feed rollers which passed the straw onward through three sets of vertical slotted plates. Between each set of plates and beyond the last set were rollers which carried the straw forward. The vertical plates reciprocated vertically to the extent of an inch or so, the odd numbered plates always moving in an opposite direction to the even numbered plates.

Motion was communicated to the plates by means of side bars moved by eccentrics.

When effected by hand, the scutching process consists in taking a handful of the broken straw, hanging it through a notch in an upright board, and striking it repeatedly with a sort of wooden knife until the fiber is free from straw or shove.

When the scutching is done in the power-mill, wooden or light metal blades attached to a horizontal revolving shaft take the place of the wooden knife of the hand scutcher. In order that these scutching blades may do their work properly, with a minimum of waste, they must have a certain amount of flexibility, so that the blade may yield before a large "strick" and not cut it away. Flemish mill scutching is usually accomplished in four successive operations by two workmen. The effect of the last or "finishing" turn in the mill is to split up the fiber, and in this point lies the failure of several of the so-called improved scutchers which have been brought out.

(To be continued).

WET LUSTERING.

Wet lustering has only recently been introduced into practice on a large scale, and the machines suitable for it are chiefly of modern construction. Formerly dry lustering was almost exclusively practised, and, as a rule, was only used for goods of superior quality, rendering the complicated and lengthy finishing process for fine goods still more complex and tedious. Even to-day no really simpler process of finishing broadcloths is known, and those who want to produce very good results in this line must not mind time, labor, and expense. For such stuffs dry lustering is still an important factor in the process of improvement. It is true, however, that with the comparatively high price of broadcloths, the complicated finishing process pays, says a Continental contemporary:

The case is different when medium, fine, or inferior stuffs are being treated; then, in consideration of price, the finishing process must be considerably simplified. Of late, however, very high requirements from inferior goods are exacted as regards solidity, elegance of appearance and feel, and it becomes the task of the finisher to satisfy these demands within the narrow compass of the low quotation of prices—that is, with limited facilities and means. Such a means is the wet lustering. An older kind of wet lustering was, and is still, partly employed in fine cloth finishing, especially for fine piece-dyed goods. It is different, however, from dry lustering only in the fixed medium employed—water in the one and steam in the other—and is rather still more complicated than the latter; for in this older wet-lustering operation the material was likewise first dried, sheared a few cuts, brushed, twice hot-pressed, wound up and placed into boiling water instead of the

steaming box, as is done in dry lustering; after unwinding, the material is put for a short period in the washing machine and rinsed with a solution of fuller's earth.

With this kind of wet lustering the good properties of boiling water, as a fixing medium, are appreciated. The material receives a pleasing lustre and fine, full feel, and it is probably only the greater complexity of the process, as contrasted with deep lustering, which prevents its more extensive application.

Wet lustering is now mostly applied in a materially simpler form, which renders its use practical for inferior and cheap goods. The material is wet immediately after the longitudinal gigning, and, after laying, entered into the boiling water.

As regards the effect obtained by wet lustering, it is evident that hot or boiling water must act upon the wool fibers nearly in the same manner as steam, since in the former the two most important factors of lustering, heat and moisture, are likewise present. In dry lustering higher degrees of heat may be employed, as the steam can be given any desired pressure, the temperature rising with the pressure of the steam. This, however, is probably only resorted to in very exceptional cases where a high gloss is required. Usually, only low degrees of pressure are employed—up to $1\frac{1}{2}$ atmosphere at the most. On the other hand, in wet lustering the other factor, moisture, naturally predominates. The wool fiber is softened, and consequently becomes plastic and assumes a greater gloss. The grain of the lusted material becomes more solidly fixed, the cover smoother, the gloss brighter. The lustering effect is still heightened by the so-called chilling, or fixing, which consists in treating the material emerging from the hot water directly with cold water. The wool fiber becomes more quickly rigid in its position, and thereby the gloss and the solidity of the grain are further increased.

A valuable factor in wet lustering is its cleansing action upon the material. All contaminations, especially residual soap, soda, earth and dyestuffs, are loosened by the boiling water and removed by the subsequent rinsing or passage through cold water. The material gains in cleanness whereby a better appearance and more pleasing feel is obtained. Owing to this cleaning effect, the wet-lustering process is particularly adapted to the previous finishing of piece-dyed goods, since stains, clouds, dark selvages, etc., occur not infrequently in piece-dyed cloths as a consequence of impurities and residues which remained in the material in the course of manufacturing.

The process is also available for wool-dyed cloth goods, not less than for piece-dyed stuffs after dyeing, after they have been rinsed and laid. For meltons, cheviots, serges wool-dyed, as well as piece-dyed, wet lustering is very beneficial. Broadcloths are likewise improved by a bath of boiling water as first sponging. With goods which have no grain their special character must be taken into consideration. Stuffs with a very

closely-covered surface, or such as are to have the fullest possible feel, must not be wet sponged, as unteasled goods become thinner in feel by this manipulation.

Wet lustring is also a good means for removing washing folds, creases, etc., from the unteasled material. By simply beaming up smoothly and laying them down for a few hours in lukewarm water, goods without folds are obtained, and this method is frequently employed in finishing chevots, meltons, and serges. Another advantage of wet lustring is that the durability of the material is less impaired than by the treatment with dry steam.

One more feature to be considered in employing the wet-lustring process is the fastness to water and sponging, or rather fastness to boiling of the colors; dyestuffs which bleed or change the color when treated with boiling water must be avoided from the start. Most of the natural dyestuffs—indigo, also logwood, fustic, sanders, and others—are sufficiently fast to boiling; also most of the alizarins, anthracene and anthracene acid dyestuffs, and analogous products. Generally colors which are not fast to boiling show also less fastness to fulling. Several products which are exclusively employed for piece-dyeing are also somewhat degraded by wet lustring, such as brilliant black, naphthol black, and naphthylamine black. This is prevented, however, by adding to the water-bath some Glauber's salt and sulphuric acid.

The oldest and most primitive application of wet lustring consists in winding the goods as they come from the teaseling machine or laying machine upon rollers, wrapping the rolls in some covering material, and laying them down in boiling water. Usually a winding apparatus is attached to the teaseling machine, which automatically performs the winding operation. The winding roller or beam is placed upon the front drawing roller, by which it is driven, its trunnions working in sliding bearings, so that it can rise with the increase of its circumference. When goods are handled which require winding with different tension a special cloth winder with tension-regulating device is employed. The rolls are entered into the boiling vat, which is filled with hot or boiling water, in such a manner that they do not touch each other, and only rest on either side upon their trunnions, as otherwise press stains or water stains are apt to be produced. The best plan is to hang the rolls upon an iron frame, which can, by some hoisting apparatus, be lowered into and lifted from the boiling vat. After four to six hours the rolls are lifted from the bath, unwound, and rinsed for some time upon the washing-machine with clean, cold water, eventually with the addition of a solution of fuller's earth. Then it is well laid with old teasels or wet brushes, and afterwards dried.

According to the amount of lustre required, the material is wound loosely or solidly (the former giving

more lustre, the latter more body), left for a longer or shorter period in the boiling vat, cooled more quickly or more slowly, etc. In general, however, the material should not be wound too firmly, because it loses thereby in handle, becoming thin and parchment-like, and because it takes too much time before the boiling water penetrates all parts of the roll, which is necessary for the prevention of an uneven lustring effect. For the promotion of the quicker penetration of the boiling water hollow perforated copper cylinders are preferable to wooden rollers.

With the more general introduction of the wet-lustring method the desire grew more and more urgent to replace the old methods of beaming and immersion in boiling water, which consumed time and labor and caused all kinds of trouble, by a simpler, more expeditious method, ensuring better guarantee for the prevention of damages and difficulties, to attain which purpose special continuously-working machines were found to be the best and most suitable means. The type for such a machine was furnished by the crabbing machine, which is used in finishing worsted goods for the important scalding or fixing operation. This machine serves for similar purposes as those intended for wet lustring. With the worsted goods the object is partly to fix the threads of the tissue so that they permanently remain in the position assigned to them by the weave, and do not change it, partly to limit the shrinking and felting capacity, so that the stuff in the subsequent washing shall not shrink so much and the surface not be felted. In the case of wool-yarn goods the intention is likewise to obtain by the treatment with boiling water a fixation of the tissue but at the same time to cover the grain.

Scalding or fixing machines modelled after the crabbing machine, are to-day in use in various forms for the wet lustring of wool-yarn fabrics. The way of operating with these machines is simpler, and the result is a better one than with the old boiling method. The simplest form of such scalding or fixing machines is that with one trough and two rollers. The material passes over a stretching or tentering apparatus into the scalding trough, which is filled with boiling hot water, and is then smoothly wound upon the lower of the two rollers, which are placed one above the other. In winding it must be seen to that selvage falls exactly upon selvage, and that the selvages are neither too thick nor too long, so that they do not stand out too much over the cloth. The roller bearing the material, and which dips with about one-half of its thickness into the liquid, is then, according to the desired effect, for a longer or shorter time run in the boiling water under the pressure of the upper roller, which is regulated by weighted levers or springs. The operation being ended, the hot water contained in the trough is let out, the trough filled with cold water, and the material in unwinding passed through the cold water, the so-called fixing bath, to be eventually rinsed upon the washing machine.

The modern boiling or scalding machines mostly have two receptacles, one for boiling and the other for fixing, whereby continuous working is rendered feasible. As a rule, these machines are very efficient quantitatively and qualitatively, and are therefore gradually adopted to replace the old boiling method.

A special kind of wet lustring consists in treating the wet material emerging from the teasing or laying machine with steam, which is called compound or mixed lustring or sponging. The object and effect of this process is nearly the same as those of the boiling or scalding. There are also special apparatus and machines built for the so-called compound sponging process. The simplest apparatus of this kind consists of an iron frame with break rollers on both sides, upon which the wet material is wound up, or the pieces are, as before described, wound on rollers directly from the gigning machine, and the rolls placed into the apparatus. The frame carries in the middle a horizontal lustring cylinder for full width, which rotates during the lustring process, and is therefore provided with a revolving steam feeding device. Under the lustring cylinder is placed a wooden trough to collect the blow-off water of the steam, or to be filled with cold water for washing and fixing the lusted material running off from the cylinder. The material is, in the usual manner, wound from the more or less weighted cloth rollers upon this lustring cylinder, and there may be two pieces wound on at the same time, one from either side, or a piece and a doubler. The steam enters through the rotary steam feeding device with tight-fitting stuffing box into the cylinder and the material. The operation must be continued at least until the steam has blown all water out of the material and passes freely and uniformly out from all parts of the stuff, and the covering material. This point being reached, the lustring process is ended, and the pieces are unwound, and from the cylinder run into the washing machine or through the cold water in the receptacle underneath the lustring cylinder. Or the lustring cylinder may be connected with a reservoir, from which cold water can be forced, after the steam has been shut off, by its own pressure or by a force pump, into the cylinder and through the material wound upon it. This method produces a higher lustre, but also a harsher feel, while by hot unwinding and soaping or passing in cold water a milder gloss and softer feel are obtained.

There is also a combined apparatus for scalding and mixed lustring, consisting of a tub with two rollers similar to the scalding or fixing machine. The material is passed through the tub, which is filled with boiling water and is washed upon the lower roller, which is made to revolve in the boiling bath as long as circumstances may require; thence the material is run upon the upper roller, which is provided with a brake, and from it to the lustring cylinder at the far end of the apparatus, and treated as required with steam or with water.

—At the fourth series of sales in Liverpool of East Indian wools and other low grades, there was a pretty good muster of the home trade, with the usual few Continental buyers, and some orders from the United States for qualities under 6d. The tone of the bidding was quiet, but steady, and prices on the whole show little change, as compared with May currency. A decline of $\frac{1}{4}$ d. to $\frac{1}{2}$ d. per pound on one or two lots of best white Joria, was more than counterbalanced by an advance of $\frac{1}{4}$ d. per pound on clean middle yellows, suitable for France, which are scarce this time. Coarse whites ruled somewhat irregular, but all other descriptions of whites, yellows, and grays are practically unaltered.

THE DESIGNING AND MAKING OF CARPETS.*

The branch of design respecting which I have undertaken—somewhat rashly perhaps—to say something this evening, is one that has peculiar limitations in addition to its difficulties, and in consequence many designers who have done much in other branches to forward the modern art movement, have either totally neglected this, or taken it up with less conspicuous success. As what I have to say is addressed to practical designers, I have not thought it necessary to give details on points that must be familiar to them in designing for other things, but simply to explain what is more or less peculiar to carpets.

Many writers on the principle of design have given us excellent pronouncements as to what a carpet should be and should not be; they have given us instructions how a carpet design should be planned and colored, but, in most cases, they entirely fail to note that a carpet is but an accessory to a scheme of decoration that is invariably pre-arranged or pre-existent. It is very easy to say that a fine old Persian carpet is "perfect;" so it is, very often, viewed per se, or in a Persian interior, or with balancing harmonies all round; but view the same carpet laid in a Louis XVI. salon, and I ask if anyone with an unwarped sense of decorative fitness would not long for the pearly tints and easy grace of an "Aubusson." The fact is that the first thing a carpet designer has to consider is not the carpet itself but its surroundings, and the part it will have to play in harmonizing and unifying the rest of the room. Seldom or never is the carpet the starting-point or key-note of the decorative scheme of a room; and in working with due regard to this fact, a designer will find that many principles which he would cordially subscribe to as necessary to be observed to produce an ideally perfect carpet, have to be neglected or modified. Of course, if a carpet designer has a free hand to design a carpet, unhampered by other decoration, as in the case of a room panelled in deep-toned woodwork, a room which would depend on the carpet for color and for completion of its artistic effect, then may he embody in it to the utmost of his ability all the qualifications of a perfectly satisfactory carpet. But, unhappily, such rooms and such conditions are all too rare. We have to remember that in ninety-nine rooms out of a hundred, as I have said, the key-note of the decoration as regards style, quality, and color is decided in the work of the decorator and furnisher, and the possibilities of the carpets must be dependent to a large extent on their work. In many modern English rooms, with wall-papers in excessively light color schemes and patterns of very slightly conventionalized forms, a carpet with the qualities of the fine Oriental examples would seem to be incongruous, as would a Beethoven Sonata substituted for one of the numbers of the "Geisha." I take it, then, that the

*A paper read before the Society of Designers, London, on May 21st, by F. J. Mayers, of Kilderminter.

its requirement of a carpet as far as we are concerned, is that it should harmonize with its surroundings. The consideration of this takes precedence of principles applicable to a carpet viewed by and for itself, on the broad principle observed in all branches of art, that details must be subservient to the "ensemble."

Coming now to the special requirements of a carpet and the general principles of design applicable to it, we find that it differs from all other decorations in the fact that it is always seen obliquely and in perspective, and that it should be pleasing—I do not say look the same—viewed from any part of the room. Everything else has its right way up. The most elementary and obvious way of making a carpet seem correct, viewed in any direction, is of course to build the design on a radiating plan. This, however, seldom proves as satisfactory in practice as in theory. Designs on this principle have an unfortunate way of recalling one's early efforts at school of art, for one thing; then in counteracting a "line" in one direction they generally succeed in creating lines in every direction, some of which cut the lines of walls and furniture at very unpleasant angles. The designs of William Morris and Mr. Voysey for carpets woven in breadths have often been criticized on account of their straight bisymmetrical build, but I must frankly say that when made up and laid they are generally perfectly successful, and, in spite of their not conforming to the teachings of Owen Jones and Dr. Dresser, they are really beautiful and suitable designs. So that I have come to the opinion that the success of a carpet design is but slightly dependent on its build. The adoption of the straight build by no means implies that the design must have an apparent tendency to run in the one direction. If it does, of course the criticism that it is a misapplied wall-paper design may be justified, but it would be easy to select scores of designs bisymmetrical in build, yet free from this objection. I may say regarding the "repeat" of designs, that the drop match is always preferable to the straight match whenever it is practicable.

With this little introduction I will note some of the limitations imposed by the various processes of manufacture. In all cases in which art has to be applied to industrial products, it is essential to practical and artistic success that the artist should be able to think and express himself within the limitations of each particular "metier." I propose therefore just to summarize the chief varieties of carpets, and very briefly to explain their characteristics and the mode of their production.

Commencing with the highest grade, we have first of all what William Morris called "real carpets," by which he meant wholly hand-made carpets. To this class belong the carpets of India, Persia and Asia Minor. Widely different varieties are made in the different districts, ranging from coarse makes with less than 16 points or tufts to the square inch, to as fine a pitch as 700 points to the square inch. In most cases the carpets are made with a "pile" or velvet surface. The loom used is a very primitive arrangement, consisting simply of two horizontal beams or rollers fixed at top and bottom of two upright supports. Around the rollers the warp threads are wound and stretched. The pattern is formed by knotting wool, silk or cotton, as the case may be, around the warp threads. After each row of tufts forming the pattern is tied in, a simple arrangement permits the weaver to draw forward every alternate thread of the warp, while the weft is passed between them. The row is then beaten down firmly with a heavy wooden comb.

Carpets without pile are woven from the back, the wool of each color in the pattern being wrapped round the warp where required, and then passed at the back to the place where it next appears, or cut off if the interval is considerable. Except from the point of view of the wholesale importer, the Eastern

carpet industry is not what it was. Most of the designs now produced in the East are traditional—wearisome repetitions devoid of individuality or vitality. The reverence the public has for the productions (good, bad or indifferent) of Eastern looms is quite touching. The Oriental weaver may be as careless as he or she may please—their mistakes give "character" to the carpets. The beams of their looms may sag with the tension of the warp and so produce carpets that no persuasion will induce to lie flat—and the retailer will assure you that that is one of their special charms. They may use the most hideous colors that dyes can produce, and even then fail to appease the Western hunger for their wares. And all because two and three centuries ago their ancestors made carpets that weave a magic spell round us even yet. But of these I will speak later.

Hand-made carpets, however, are by no means solely produced in the East. This is one of the fictions dear to the ordinary writer on carpets, who cannot think of a European carpet except as the production of the power-loom. As a matter of fact, I believe that as large a quantity of hand-made carpets are produced in Europe as in the East. There is little difference in the way the small tufts of yarn are put into the carpet in the European makes—they are not actually knotted as in Eastern carpets, but in many respects European hand-made carpets will compare favorably with any Eastern carpets now made.

(To be continued).

COATING THREADS OR FABRICS WITH SILK.

The beauty and lustre possessed by silk have long made it the object of imitation in inferior wares. The earliest attempts in this direction were based upon the idea of coating some cheaper yarn or fabric with a film of silk which had previously been rendered liquid by dissolving the waste cocoons or threads in some suitable solution. This method never proved successful, and the attempts in that direction were in time suspended owing to the concentration of attention, first on artificial silk, and later on the process of mercer lustring, says a writer in *The Textile Manufacturer*. Recently, however, the old process has attracted the attention of a Berlin chemist, who has shown his faith in the original theory by developing and perfecting a new method of coating materials with silk. The silk is first dissolved by placing the waste yarns, cocoons, or fabrics in an alkaline solution which is kept at a suitable heat. The yarns or fabrics which require coating are soaked in this solution, and after being hydro-extracted are treated in a concentrated bath of alkaline bicarbonate or are hung in chambers and subjected to the influence of gases containing carbonic acid. These latter may be obtained from the washed products of combustion. The carbonic acid or alkaline bicarbonate combines with the alkali of the silk solution, converting it into an alkaline carbonate, thereby depositing the silk from its solution on to the fiber. After drying the silk on the fiber, the alkaline carbonate is lixiviated by warm water, a portion of which is rendered caustic again by the addition of lime, and serves for dissolving fresh quantities of silk, whilst the other portion is converted by the passage of carbonic-acid gas into alkaline bicarbonate, and again used as a bath for the precipitation or deposit of the silk on to the fiber, or the solution of bicarbonate is heated and carbonic acid expelled from it, which gas may likewise be employed for saturating the alkali and separating the silk. A more definite description of the process is as follows: The silk is dissolved in a caustic lye of 35 to 40 deg. Be. The proportional amount of silk dissolved may vary, as the degree of concentration has no influence in the result of the process. The yarns are put three times through this and freed from superfluous solution by pressing or centrifugal action, dried, and then brought into a large bath of 10 deg. Be. of bicarbonate of soda.

put through from a quarter to half-an-hour, washed, and dried. For finer yarns a quarter of an hour is sufficient, thicker ones longer; after rinsing the yarns must be well separated and disentangled. The manipulation of woven fabrics is analogous; they are drawn through the lye by means of suitable machines, then by rollers are freed from superfluous solution, dried, brought into the 10 deg. Be. bicarbonate bath, and pulled through it for a quarter of an hour or longer, according to the thickness of the stuff, till entirely neutralized. After this they are dried on stretching frames.

SILK WEAVING HINTS.

The first cost of material is an important factor in silk weaving, which causes, or should cause, special attention to be given to anything which in any way tends towards the reduction of damage, or the furthering of perfection in the cloth. The Textile World, in treating of this matter, gives a few hints which in ordinary everyday working may do a little towards overcoming some troubles in silk weaving.

When the warps are delivered to the weaving department (speaking of a broad-silk plant), the chances are that the person entrusted with such delivery will, when arrived at his destination, take the beam off his shoulder, and instead of laying it down gently, he will let it slide off his shoulder quickly, and plant it upright upon the floor. Now this might ease the man's shoulder a fraction of a second ahead of what might have been the case otherwise, but at the same time it does, or at least very often does, the warp irreparable injury, as through the jerk of putting the warp upon the floor in an upright position the many layers of silk on the beam will shift their place, and when weaving the warp will not come off straight behind the cross-roads but stick together and have the appearance of being crossed. Very often the weaver or the warper will be held responsible for thus crossing the warp, whereas in reality it was simply due to handling the beam carelessly.

The twister who gets the warp after it is delivered to the weave room will often do the same thing, and loom fixers should have their eyes wide open to prevent such maltreatment of warps. The rule is that a silk warp should always be kept in a horizontal position from the time it leaves the warping mill until the beam has been emptied of silk.

The better a loom weaves, the less work a weaver has to do, and the better will be the cloth produced. This is easily understood, for the less cause a weaver has to put her hands into the silk, the more ends wrong, or soil them, the less cause for defect will she give. Therefore it should be every loom fixer's supreme ambition to have the looms under him in the very best shape, which means good cloth, good production and good pay. If a warp weaves badly and all ordinary means have been tried without success, the books should be examined to see if the same lot of silk is running all right in some other loom, so as to cause no doubt as to its actual weaving capabilities. The loom should then be examined and it should be noticed, for instance, whether the front and back beams are in their proper position, if the eyes or mails of the harnesses are at their proper height, that the reed in its back stroke is clear of the front of the harness, that it is not rusty, that it has a little side play, and lastly, that the shuttle race is perfectly smooth.

It is often a good thing to run the loom a short time without shuttle so as to relieve any doubt as to the shuttle or picking motion being the cause of the trouble. The shed may also be closed and the harness thrown out of gear; if the shuttle is run in this manner on the top of the whole warp it will soon be evident whether the fault lies in the shedding motion or the shed itself. In many cases an experienced loom fixer can go straight

to the evil, but the foregoing is a systematic way of proceeding in infrequent cases where professional skill seems baffled.

Cleanliness is a very important matter in silk weaving. Silk takes dirt very freely and holds on to it with more tenacity than other fibers. For this reason it should be handled as little as possible when of a white or light color, and in many mills quite extraordinary measures are taken with that end in view. As every loom fixer will make it his business to keep his working tools under lock and key, so should he make it a point to keep all oil cans out of the weaver's reach. Though it might increase his labors a little, he should attend to the oiling of the looms in his section himself, and always wipe the oil hole dry after oiling. Looms need very little oil as a rule, and any superfluity thereof only increases the danger of either soiling the silk directly, or of the weaver having his hands greasy most of the time and soiling the silk. The cranks of the drive-shaft by their continuous, rapid and circulating motion, are a chief source for throwing out dirt and oil, and it is said that they will run just as well without being oiled at all, when properly adjusted.

Almost equally dangerous are the oil holes on the connecting rod of the side dobbie, or in fact on any part that has more than just a rotary motion around its own axis. When weaving white or light colored silk, the warp and cloth should be covered with sheeting or paper, which can be practically done without much trouble or expense. In every weave shed there is more or less draught which will carry fine particles of dirt and oil and deposit them on the silk, unless the same is well protected as already suggested. The use of wax or soap or any thing else on silk warps, in order to improve their weaving qualities, should never be tolerated, as they will always show in the cloth in the shape of stripes or spots. Dirt and oil when on the warp can be removed quite easily with borax soap or coconut butter and benzine, but when in the cloth it is almost impossible to take out spots without leaving traces behind.

DYESTUFFS.

A New Dyestuff.—Hematin A in powder, manufactured exclusively by the British Dyewood & Chemical Co., England, can be used with advantage to replace logwood, chip or extract. Shades may be produced from the faintest tints to the darkest navies. One objection to the use of logwood, chip or extract, is the drying out, and of course inconsistent results follow. Hematin A in powder is of uniform strength and identical results each time of using are insured. Method of application is the same as logwood. It is comparatively low in price, and it occupies such small bulk in comparison to the various forms of logwoods, that in shipping to distant parts there is a considerable saving in freight.

New Artificial Dyestuffs.—Diamond Black 2B (patented) To the already large family of Diamond Blacks, the Farbenfabriken Co., of Elberfeld, have recently added the above Diamond Black 2B, well adapted for hosiery and knitting, and especially for piece dyeing. Good results either as a self color or in combination with the deep brand, Diamond Black F, for bright black shades in one bath (after treatment with chrome), may be obtained. Write for shade card No. 746, 1899. Pluto Brown N B and G G. These colors resemble Pluto Brown R and are especially suitable for cotton dyeing. Also adapted for loose cotton dyeing, yarn or piece goods, and are extremely fast to acids. By after treatment with Benzo Nitrol developer full brown shades are obtained fast to washing. Refer to shade card No. 745.

Latest Shade Cards.—Black on paper, dyed in the pulp, No. 738, 1899, shows three good shades of black produced with paper Black T, Coal Black B and Orange 2B. Benzo Nitrol Black B and T, on cotton yarn, No. 742, 1899, contains a range

of eight blacks, four of which have been developed with 5 per cent of Benzo Nitrol developer. Half Wool Skirt Edging, dyed in one bath, No. 744, 1899. This card is composed chiefly of benzo and sulphon colors; forty very suitable shades are shown. Pluto Brown R, NB and GG on cotton yarn, No. 745, 1899. The above colors are shown in 4 per cent shades, before and after developing with Benzo Nitrol developer. Diamond Black JB, on knitting yarn and cheviot, No. 746, 1899. Three shades are given with and without Diamond Black F. Being much bluer than the latter it is admirably suited for dyeing dark navy shades.

Katigen Yellow Brown GG, Patented.—The method of dyeing this new Katigen dyestuff is very simple, yet it possesses excellent properties. It dissolves very readily in boiling hot water, with the addition of an equal quantity of sulphide of soda, and dyes cotton in a boiling bath, containing 25 to 50 per cent. common salt. Katigen Yellow Brown GG exhausts very well and produces even shades of a fine catch tone which are very fast to acids, and extremely fast to milling. This color is also very fast to light, rubbing, perspiration, ironing and stoving. It is an excellent self color or combines well with Katigen Black Brown N. On account of its low price and excellent fastness to all agents it should meet with considerable attention.

Thiazole Yellow R (Patented).—The older brand, Thiazole Yellow, will hereafter be known as Thiazole Yellow G. The new brand, Thiazole Yellow R, does not differ in properties from the older brand, the fastness to alkalis, and light, etc., being exactly the same. The only difference between the two dyestuffs is, that the shade of the new brand is not quite so greenish, although just as clear. Thiazole Yellow R is a true cotton dyestuff, and is adapted for the production of sulphur yellow shades on cotton in all branches of manufacture, as well as for half silk and half wool, and further for shades on wool fast to milling and stoving. Method of dyeing: For a very full shade use $1\frac{1}{2}$ lbs. Thiazole Yellow R, 15 lbs. Glauber's salt, $\frac{1}{2}$ lb. soda for every 100 lbs. cotton goods; boil one hour, lift and rinse.

Alizarine Cyanine WRN paste.—Alizarine dyestuffs have, in course of time, come very much to the front, and are now being more and more used as the shades produced with them are marked by their extreme fastness. Alizarine Cyanine WRR and WRB produce excellent navy blues and are often used. Alizarine Cyanine WRN paste possesses all the well known qualities of WRR and WRB and its shade lies between these two colors. It is specially adapted for producing fast navy blues, and any depth of shade may be obtained by darkening with Alizarine Blue Black B. Can also be used to advantage in fashion shades. Pattern cards now ready.

Phenylamine Black T and 4B.—These two new wool blacks are inexpensive colors. Owing to the general downward tendency in prices of wool blacks, these colors should meet with some demand. They are especially adapted for piece dyeing. The 4B brand shows a fine bluish black shade over hand, whereas with the "T" brand a deep black is obtained, both being of good fastness to rubbing. They penetrate evenly and their fastness to shrinkage (steaming) is good. They are fairly fast to light. Owing to the fastness of the 4B brand to washing, it should be employed for knitting yarns. Both colors are admirably adapted for hat dyeing, producing fine useful blacks, and standing the various operations which hats have usually to undergo in finishing.

For any of the above, apply to the Dominion Dyewood & Chemical Co., Toronto.

—Three methods are in use for cleaning wool before dyeing—
—with acid, with alkali, and with bichromate. The best alkali

is ammonia, and it usually works better than acid. The acid most commonly employed is oxalic. Bichromate gives excellent results, and removes old spinning oil which has become rancid and many other impurities which make level dyeing practically impossible. The goods are boiled for about an hour with $\frac{1}{4}$ per cent. of bichromate and $\frac{1}{2}$ to 1 per cent. of sulphuric acid, then dye with an acid dye. The ammonia process is usually employed for yarns.

SPRINKLERS IN STOREHOUSES.

In the Boston Manufacturers Mutual Fire Insurance Co.'s report for June, President Edward Atkinson says: Attention is called to the numerous fires which have occurred in June and to the effectiveness of the service by which they have been extinguished, with a total loss to this company of less than \$20,000, diminishing our dividends by only two points. We cannot compute constructive savings; we cannot say what the damage, for instance, in the Globe yarn mill would have been except for the two sprinklers, which put out a fire caused by lightning, in which there would have been great delay under any other conditions. Except for the sprinklers the damage could not have failed to have been very heavy, even if the mill had not been destroyed. In the case of the cotton house of the Tremont and Suffolk mills, this cotton house had been constructed with heavy party walls, but the end was unprotected, having in view a further extension. It was boarded up. The large stock of cotton suddenly put in, filling this house, rendered it necessary or expedient to put up a light wooden shed for excess cotton, twenty-five feet distant, in which the fire originated. The speedy destruction of this light wooden covering and the great efficiency of the Lowell fire department, and the good work of the mill fire brigade rendered the dispersion of the bales of the burning cotton and the extinguishing of the fire, in detail, comparatively easy work, as will be witnessed by the small amount of the loss and the large salvage. The excessive heat of this fire, at its first outbreak, made it nearly impossible to approach within a hundred feet of it. The wooden end of the cotton house was twenty-five feet away. The heat passing through the cracks or thin boarding started the sprinklers, which were on a dry pipe system, before the boarding had taken fire in any considerable measure. Mr. Thomas, the agent, reports that he was on the spot within less than five minutes after the private alarm had been given, which preceded the public alarm, when he witnessed the operation of the sprinklers in this cotton house. Reference may be made also to the fire in the cotton house of the Dwight Manufacturing Co., well managed and well saved, where, in the judgment of the inspectors, little or no loss would have occurred had the sprinklers been in position. Reference may also be made to the considerable loss in the works of the George H. Gilbert Manufacturing Co., where sprinklers were under agreement, bringing to a conclusion very heavy expenditures which have been made on these works during the last two years in more important places. Reference may also be made to the very numerous instances of the successful working of sprinklers even in this one month. These and other facts will call the attention of all members to the expediency of making immediate contracts for sprinklers in all storehouses. The time to put them in is now, when there is little or no stock in the way. We have called attention to this defect in the safeguards, from time to time, during the last three years; but, considering the large expenditure met by our members in remodeling hydrant systems and in bringing the standard of sprinklers in the factory proper up to 100 per cent., we have delayed pressing the matter until more favorable business conditions have arrived. The losses on storage are now, in ratio to the losses on protected factories, out of all due proportion. It has been proposed to double the rates on storehouses, pending protection;

but that proposal has been deferred, it being thought best to precede it by urgent pressure for full protection, as we did in securing the complete protection of the main mills and works, which took many years. It was not until within the last three years that we began to drop the risks which either could not be suitably protected, or which the owners did not see fit to protect. That is the proposed course on storehouses. We urge every member to act at once. Renewal at present rates or rejection of the risk will depend on conditions at the expiration of the policies in the year 1900, when more positive action may rightly be demanded by those who have protected their storehouses, if any then remain unprotected where sprinklers can rightly be called for.

Foreign Textile Centres

MANCHESTER.—Holidays in the weaving departments of the cotton trade interfere with production. There has been a remarkably large exodus of operatives and others this season to the various pleasure resorts on the coast and in the Isle of Man. Buyers of cotton goods continue to find manufacturers extremely firm, no matter how obstinate may be the attitude of some of their foreign customers. The spinning sections are also in a healthy condition, the finances of the limiteds being in a more satisfactory condition than has been the case for some time past. There have been few features of importance or interest to note in the cotton markets recently. It is a long time since such a spell of fairly good business took place without its having a highly stimulating effect upon mill building. Little of this, however, has as yet occurred, says *The Textile Mercury*. Perhaps half-a-dozen mills throughout Lancashire floated during the past two years would be the full count. It would almost seem as if bitter experience was bearing fruit in a crop of discretion. The same may almost be said of the weaving districts. Though all the looms are now well under engagement there is little if anything said about extensions. The time for them may soon come in both departments, but evidently it is not yet. The pressure upon this country to extend has undoubtedly been relieved by the considerable extensions upon the Continent and in the Far East. In India, China, and Japan, it would seem, however, that multiplying the means of production has been overdone, and a pause seems to have occurred. In the meantime our home companies, especially in the spinning division, are, we believe, carefully utilizing the present prosperity in improving the equipment of their establishments, so that when the present prosperity declines they may be in a good condition for turning out their productions at the lowest possible cost. In doing this they are acting wisely, and those who are neglecting it must be considered to be doing otherwise. The Manchester Chamber of Commerce has been somewhat exercised in its mind about the short-reeling of cotton yarns, and the fiasco of its prosecution of a Scotch firm for the offence. The spirit in favor of forcing a legal decision upon the point is growing.

LEEDS.—Recently serges of all grades, mixture twills, and fancy tweeds sold well for immediate consumption. Makers, especially of the latter, are well employed. Higher prices are the rule all around, and there is not much difficulty in getting them from merchants and shippers. The higher ranges of prices for fine worsted coatings are thoroughly established; but on the part of some manufacturers there is hesitation after booking forward orders at current quotations, because of doubts as to whether the stocks of wool in reserve are sufficient for early requirements. Minor cloths and any other cotton warp goods are held heavily by producers, so that there is not

much chance of improvement in prices. Some purchases were made of wool vicunas, Oxford suitings, black diagonals, and fancy trouserings by foreign, London and provincial buyers. It is rather early for winter orders from the Continent, but such orders are now coming through regularly from Eastern Europe. Presidents and naps are secured when offered. It is surprising to a few of the larger makers to find that already they must work overtime. The mantle and costume cloth trades show some improvement, and prices are steadier. The turnover of covert coatings is quite an average, and values are firm. The blanket trade is moderately good, but the foreign market for rugs is very quiet. Worsted yarns are in good demand at full quotations, especially for the super qualities.

HUDDESFIELD.—In Huddersfield business is generally good, and although the United States trade in fine worsteds and woolens seems to be returning, there are some slight signs of improvement even in this department of the market. In the Yorkshire flannel trade business is for the moment quiet, as buyers are hesitating about placing further orders at the advanced rates which makers are obliged to insist upon for all better quantities.

BRADFORD.—The London Colonial wool sales series having been brought to a close the course of prices have been remarkably even from the commencement, when a rise of from 5 to 7½ per cent. was established for merinos, and a fall of practically the same percentage in the coarser class of crossbred wools, as compared with the previous sale. All sections of buyers have retained their interest in fine merinos throughout the sales, and probably German, French and home buyers have taken up about their usual share of this class of wool offered, but the Americans only acquired about 2,000 bales throughout the series, although all this was of a fine character. As compared with the quotations ruling in Bradford at the time the London sales opened, the prices cannot be considered to have more than confirmed the rates of our local market, but in the last ten days both topmakers and spinners have been able to command better prices for both tops and yarns made from fine colonial than was possible before the sales opened. For the benefit of buyers of fabrics composed of merino wools it may be noted that a year ago, although a rise in prices had set in some weeks before, the price of 60 merino tops in Bradford was 20½d. per lb., whilst to-day their quotation is 27½d. to 28d. per lb., at which holders are very firm. The fact that no very great advance has been established for merinos since the commencement of the recent sales in London has been advanced as a reason why a retrograde movement may be expected to set in; but stocks in both spinners and topmakers' hands are certainly not large, and that both spinners and manufacturers have, as far as possible, been keeping out of the market rather than buying in such a way as would force prices up beyond a legitimate level. Manufacturers both in this country and abroad, says *The Drapers' Record*, are finding it extremely difficult to establish a basis of prices for the new spring buying season which gives them advances equivalent to that of raw material, but all makers seem agreed that only on this advanced basis can the business for next season's dress goods be put through. In such goods as fine worsted coatings for men's wear practically the whole of the advance in fine wools has already been conceded by those buyers who have fixed up their ranges for the 1900 season. The prices of the coarser kinds of crossbred colonial wools were certainly some 7½ per cent. lower than at the previous sales, and this decline brings them back to practically the lowest point reached this year, which was lower than had previously been known. There has, however, been no further fall in this market; in fact, there are distinct indications of a desire to buy at these reduced prices by several very large consumers, and there is undoubtedly a very large business being

done in thick two-fold yarns made from low crossbred wools both for this market and the Continent. There is a better enquiry for pure lustre English wools, and also for all classes of fine down wools, and some of the cheaper kinds of home-grown wools are being taken readily at very bottom prices. Both raw alpaca and mohair are quite firm, and spinners of mohair yarns are not only busy for the present time, but have booked heavy weights of these yarns on home account for several months' delivery ahead. Spinners of merino yarns are finding that users are gradually bringing themselves to believe in the reality of the advance in prices, and in some instances some heavy weights of fine crossbreds and merinos have in the last few days been actually arranged for. The demand for two-folds for the Continental export trade is dull generally, but there is a very large business doing in thick numbers to the woolen manufacturing districts of Germany and Austria. Manufacturers are generally well employed, and the production of the Bradford looms continues to be large, although, no doubt, a good deal of the work now going through is at prices arranged before the greater part of the advance in raw material had taken effect. Makers of such goods as cashmeres, worsted Italians, and fine coating costume cloths, are finding it difficult to obtain the full proportionate advance for these goods where the fact of their being largely composed of fine makes the rise look very large, but where old makes cannot be sold, these are being substituted by new ones where the advance is present just the same, but is not so distinctly in evidence. Foreign manufacturers of fine wool fabrics are asking advances equal to, if not in excess of, the demands of the British makers. Although the advance in mohair is not as great as that of fine merino wool, still the raw material and mohair yarns are very considerably up so that a distinctly higher level of prices must rule in bright fabrics, as well as in fine soft wool goods. There seems to be ground for the belief that the tendency in favor of wearing tweed costumes, which has been noticed for the coming winter season, will become more defined in the spring of 1900.

ROCHDALE.—At the flannel market recently new business for the home trade was in very small dimensions, but some orders are still coming forward for export, although the bulk of them have now been placed. This early arrangement of orders is of considerable assistance to manufacturers, as it has enabled them to work to order, when otherwise they would have been aiming at a blind mark and working to stock until late in the year. Prices are very firm indeed, and for some descriptions of flannel there is an upward tendency.

KIDDERMINSTER.—The delivery of carpet is still rather better than usual, and no stock is being made. Enquiries for large orders for next season are about, and the probability is that the slack interval between seasons will be shorter than has been the case for some years. The yarn trade shows little change. Some stocks have been cleared at very low prices, but, on the whole, the price of yarn in a regular way is firm. Spinners are rather better off for a good many markets, and are less and less inclined to make carpet yarn until they can see a better return.

NOTTINGHAM.—Lace and curtain yarns, although nominally unchanged in value, are only in languid demand this week. There is a steady demand for suitable qualities of net yarns. Hosiery cottons are slow of sale, but merino and cashmere yarns are in strong request, and prices are firm. There is no change in the bobbin net trade. The machinery is well engaged, and there are no stocks. Business in the fancy millinery lace warehouses is languid.

LEICESTER.—The hosiery industry is in a healthy and active condition, and the expansion in trade is in both home and export branches. Canadian, Australian and Indian orders are above the average. The yarn market is in a healthy

condition, and the heavy deliveries are well maintained with a strong tendency in quotations. The stocks all round are small and even in low worsteds, where the competition has been excessively keen, prices are very steady on a low basis. Cashmere yarns of both French and English production sell very freely indeed at full prices, and lambs' wool and fancy yarns are very firm. Cotton yarns are steady.

KIRKCALDY.—Trade in this district has seldom been in such a flourishing state as during the first six months of this year, the linoleum and linen industries especially.

BELFAST.—A well sustained demand characterizes the various branches of the market and though the half-yearly period of stocktaking interfered with business the general turnover has been above the average. Owing to the July holidays practically nothing has been done in local circles recently, says the correspondent of *The Dry Goods Economist*, New York. Production of yarns and cloth will be trifling, but this will add to the strength of the market. Prices at the moment are very firm, and in the coarse end particularly the tendency toward an upward movement is well marked. Yarns have met with a regular consumptive, if not brisk, demand during the past two weeks and enough has been done to keep stocks in check. Spinners are well supplied with forward orders for medium and coarse sorts, and in prices are very firm. The range of line wools is quoted at 3s., and no doubt will be higher before long. Brown power and hand loom linens in the various widths and weights have changed hands regularly, and fresh business added to that on hand will keep producers well employed. Tow goods and unions were bought freely and demand has every appearance of stability. Damasks and housekeeping goods have gone steadily into consumption and tendency is toward improvement. Dress goods have been very active, but the season is about over. Drills have met with substantial support and stocks trifling. Brown handlooms remain unaltered. Sellers, however, are rather stiffer to deal with and any spurt in demand will undoubtedly mean higher rates. White goods for home trade have sold in sorting-up fashion pending completion of stocktaking. General export trade is quite satisfactory. With the Continent, as usual at this time of the year, things are quiet. The demand from the United States, Canada and Australia is more than sustained. Cuban trade is expanding by leaps and bounds, and no appearance of check in same.

LYONS.—The Lyons raw silk market has been less animated lately. The offers from the producing districts became more numerous, which seemed to have a reassuring effect on the buyers who showed themselves less anxious to secure supplies in advance at the high figures asked by the producers. The volume of deals was therefore smaller, but the prices remained unchanged owing to the great firmness of the holders. It is recognized now that the cocoons have been paid too high and that it will not be possible to realize a profit on the raw silk unless a further advance can be obtained. Unusual resistance on the part of the holders against any efforts to lower the prices again is therefore anticipated. The trade is inclined to believe that the conditions of the market are such as to justify their attitude, but increased caution is shown by the manufacturers, who seem now to watch further developments more calmly. It is conceded that stocks are very low, but shipments of new silk are beginning to arrive from the Chinese ports, which will soon be reinforced by arrivals from other districts. A real scarcity could therefore be only of short duration and no nervousness can any longer be detected, even on the part of those mills which are inadequately provided with raw materials. A steady market, based on sound conditions, is looked for during the near future, equally free from the dangers of a sudden rise or fall in the value of silk. The deals during the week were without any special interest. European greges were again

principally sought, among which French grades predominated while with regard to Asiatic silk the attitude of the market appeared undivided. Japans received little attention, while in Cantons and Chinas a fair number of bales were sold.

MILAN.—The Milan market has been calmer than usual, and the volume of deals has been somewhat disappointing after the animated buying during the month of June. There were no American orders. Some demand appeared, however, and although the purchases were generally small, it could be observed that the mills are not sufficiently provided with raws to abstain altogether from buying. The prices remained firm despite the failing demand, and it does not seem as if materially lower prices can be looked for. The Piedmontese districts also report a quiet week, with few transactions at regular prices and little disposition on the part of the mills to place large contracts for later delivery. The attitude of the market has become hesitating and from its present tone it appears that violent fluctuations need not be apprehended during the near future.

ZURICH.—The raw silk market has been quiet, but prices ruled firm, with the exception of Japans, which showed some weakness. The mills received little encouragement for further operations, as the fall trade is rather backward owing to the difficulty regarding the prices and the absence of any new leading styles, and the volume of deals fell therefore below the average. The present lull is, however, not expected to last long, as few contracts for later supplies have been concluded so far. There is no decided tendency of the prices, but materially lower figures are not anticipated.

CREVELD.—The market recently has been rather quiet. The demand for goods from stock was only moderate, while no important new orders can be expected before the old ones, which are now in the looms, have been delivered and something more positive is known regarding the tendency of fashion. The activity in the mills is good, especially as regards power-loom work, the field which they cultivate becoming broader every season, to the detriment of the hand looms. Still there is no lack of work for the latter, and the present season compares favorably with the corresponding period of last year, despite the difficulty encountered on account of the higher prices. The prices are moving gradually upward and few complaints are heard. Few novelties have appeared. The bulk of the orders calls for plain goods, in addition to which better brocaded styles are sought for front inlets on dresses. Taffetas still predominate, aside from satin duchesse, merveilleux and moires. The fancy silks which receive most attention are damas, broches, armures, stripes, and again plaids in large designs. Necktie silks and umbrella silks have been rather quiet lately. The velvet trade continues in excellent condition and is, in fact, better than it has been for years. The scarcity of goods is becoming more pronounced as the season advances and many lots from stock have cleared lately at satisfactory prices, which only a few months ago looked anything but desirable. Both plain and fancy velvets are sought. There is no longer any doubt that the season will be a really good one. The demand for plushes is steadily increasing. Mills producing these fabrics are provided with orders for some time to come.

SHOT EFFECTS.

Not all diamine colors are equally well adapted for the production of shot effects; some are most suitable for the purpose and should be dyed with a larger quantity of soap than is usual for solid shades, in order to tint the silk as little as possible. Also dyestuffs of other groups may be used if the dyeing is conducted with proper care, i.e., keeping the baths more alkaline and lowering the temperature. The goods are dyed

with the additions for the two-colored effects; then they are well rinsed and thereupon the silk is topped with the suitable acid dyestuffs with addition of sulphuric acid, at a temperature of about 120 deg. F. Care should be taken not to use too much acid and to keep the temperature of the bath sufficiently low, as otherwise the acid may cause some of the dyestuff to go off the cotton and tint the silk; it is best to work at a temperature of about 120 deg. F. with addition of about 3 oz. concentrated sulphuric acid per 10 gals. dye-liquor.

If in shot effects the cotton is to be dyed bright and full shades, this is best achieved by dyeing with diamine colors first and then topping with basic colors as per the following method: Bottom the cotton first with the suitable diamine colors, then dye the silk and then treat the pieces for about 2 hours in a cold tannin bath (about 8 oz. tannin per 10 gals. water), then rinse once and pass through a tartar emetic bath (about 3 oz. per 10 gals.), rinse thoroughly and dye the cotton to shade with basic colors in a cold bath, to which some muriatic or acetic acid has been added. Should the silk become a little dull after this process, this may be remedied by a slight soaping. After dyeing rinse well and raise with acetic acid.

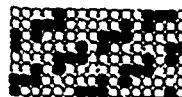
Effects much in favor are designs composed of black cotton and light or colored silk. Best suitable for this purpose is Diamine Black BH, pat., diazotised and developed. Dye in as concentrated a bath as possible at about 160 deg. F. with about 6 lbs. Diamine Black BH, pat., 1 lb. Diamine Sky Blue, pat., ½ lb. Diamine Orange DC, pat., per 100 lbs. of dry goods; and an addition of: 6 oz. 8 drs. soap, 4 to 5 drs. soda and 16 oz. Glauber's salt per 10 gals. liquor.

After dyeing, rinse well in a bath containing 6 drs. soda and 3 oz. soap per 10 gals. water, diazotise in a fresh bath with 4 lbs. nitrite of soda and 12 lbs. muriatic acid (per 100 lbs of dry goods), rinse thoroughly and develop with 13 to 16 oz. Phenylene Diamine (93 per cent.) with addition of 1 to 2 lbs. soda. These two operations have to follow each other as quickly as possible, also care has to be taken that the diazotised goods are not exposed to direct sunlight or heat, which might cause unlevel dyeings. The silk is then cleaned as far as possible by hot soaping and dyed at about 120 to 140 deg. F. with acid dyestuffs and the addition of sulphuric acid. After dyeing, rinse as usual and brighten. W. J. Matheson & Co., Ltd., sole agents for Leopold, Cassella & Co.

Textile Design

WORSTED SUITING.

DESIGN.



DRAFT.

Shafts. 1. 5. 2. 6. 3. 7. 4. 8. 1. 9. 2. 10. 3. 11. 4. 12
Warp.

6 ends white	} 15 times	2-48s worsted
6 ends lavender		
6 ends white		
6 ends red		

FILLING.

3 picks white	} 19 time	2-48s worsted
3 picks lavender		
3 picks white		
3 picks red		

15½ reed, 8 in a reed, 56 inches finished 15 to 16 ozs.—Ex.

TEXTILE INDUSTRIES IN JAPAN,

The United States Consul at Hiogo, Japan, has recently forwarded to the State Department a very interesting report concerning the textile industries in Japan. Much of the information that he sends seems to be obtained largely from a recent report to the British Foreign Office on the textile industry of Japan, which is regarded as more representative of the present conditions than the report made by Robert P. Porter to the United States Government a few years ago. The estimates of the cost of labor given by Mr. Porter are far below the present standard of wages. The cost of labor in many trades has more than doubled since his report was written, and this position has greatly enhanced the cost of production.

The manufacture of textile goods in Japan is not confined to certain localities, but extends by means of hand looms all over the country. The spinning wheel was formerly in general use, but during the last twenty years it has been almost wholly displaced by spinning mills using machinery. More than 1,000,000 spindles are now thus operated, 47 mills in Japan producing last year an estimated yield of 650,000 bales of yarn of 400 lbs. each. Present returns show that more than 200,000 bales will be shipped to China during the current year, and the home demand for counts averaging 10's will be nearly supplied by the remaining 450,000 bales. Only one of the spinning mills in Japan has imported the machinery necessary for spinning the higher counts above 30's. The Nippon mill, of Osaka, has done this, but so far has probably not made a success of it. Higher counts are steadily imported from England, and in greatly increasing quantities, to meet the home demand. When mill hands with greater skill are to be procured in Japan, the spinning of the higher counts will increase more rapidly in order to supply the domestic market and the demand from China and Korea. Increasing demand for the higher counts of cotton yarn explains the rapidly growing market for American cotton, from which it is produced. It would be well for American cotton producers to note this fact, with a view to educating a sufficient number of Japanese workmen to become expert and teach others, in order to extend the sale of American cotton from which the higher counts are made.

Many of the large class of persons formerly employed in spinning by hand are now engaged in weaving textiles on hand looms. It has recently been computed that more than 600,000 hand looms are in use in Japan, and it is stated that they employ 800,000 women and 50,000 men. As these hand looms are generally operated in private houses, giving a home character to the work, it can readily be seen why such slow progress is being made in the introduction of power weaving machinery. The hand looms now in use are called "battan," and are an improvement on those formerly used. They cost about \$250 gold each, and take up little room in a house, while a power machine would require a separate building, and with the necessary power would cost, say, nearly \$250 gold. The hand loom will produce about half as much as a power loom, but one person could attend to perhaps four or five of the latter at a time, and thus be able to turn out, say, eight or ten times the product with a power loom as with a hand loom. The convenience, however, of having the hand loom in the house and the difference in its cost will, perhaps, be sufficient to delay the introduction of power looms to any great extent for some time to come. The comparative cost of labor is about 1 to 8 or 10 in favor of the power looms, and this should tend to crowd out the hand looms very fast; but it is not doing so yet, though the progressive spirit of the Japanese will no doubt ultimately cause them to substitute power looms for the hand looms now in use. In regard to spinning machinery, the labor cost is about 1 to 150 in favor of the machine, and this very great difference is of course, the cause of the rapid introduction of spinning ma-

chinery. The hand looms are hand made, and are principally used in supplying some 1,000,000 pieces of goods, say, 14 inches in width and from 12 to 25 yards in length, to the home market, and for export to China and Korea. The Japanese manufacturers are very conservative in their business methods, and manufacture large quantities of goods only on orders. The largest silk factory in Japan using power looms is the Kyoto Orimono Kaisha, of Kyoto. It imported these machines from France. It was the intention of the company to manufacture silk fabrics for export; but after some years of unsuccessful attempt, the project was abandoned, and the company commenced making satins and "obi" materials for home use. In these lines, it is said, it has been very successful. This mill also manufactures curtain and upholstery materials, and it has found a good market in England and Australia. The power looms first obtained have been copied here, and the company is using large numbers of them; but they are not equal to the imported ones.

Silk in its various forms, from the raw material to the finished product, is mainly exported from Yokohama. The industry dates back to an early period, and is to-day in an advanced condition.

There is no doubt a great misapprehension exists in our country, as to the necessity for the use of woolen goods in Japan. The climate is thought by many to be such as not to require warm clothing in winter, but this is not the case. During the last winter, which was said to be not as cold as usual at this port, foreigners were clothed as warmly as persons need to be during the cold season in Washington, D.C., and the masses of the Japanese people needed, but did not have, the same protection; and it must be remembered that this locality is a warm one in comparison with some other parts of the Empire. The manufacture of woolen goods is a new industry, and a small one, as only about 13 per cent. of the woolen textiles used in Japan are made in this country. The raw material is all imported from China, Australia and London. The four woolen factories of the country are located in Osaka and Tckyo. One is owned and operated by the Imperial Government, and manufactures supplies for the army and navy. Some of the better grades of cotton and woolen yarns are made there, but they are mostly imported. A large proportion of the woolen cloths used are made on hand looms. A much more general use of woolen products is requisite for the comfort of the people, and all classes are constantly becoming more able to purchase them, hence there is no doubt that the demand for them will increase.

Japanese rugs have deteriorated in quality to such an extent as to greatly check the American demand. The materials used are hemp, jute, cotton, wool and silk, the two latter separately and in combination. They are made on upright hand looms, which vary from 3 to 24 feet in width. The pattern is worked from the front. This is also largely a home industry. There are no large factories. Only one or two employ more than 100 hands each. Kobe is the centre of the rug-making district. Nearly all the spinning machinery still comes from England. American manufacturers of machinery have obtained large orders for other kinds; but they seem to have utterly ignored the constant demand for spinning machinery and for all the other spinning mill requirements, including engines and boilers. This may also be said in regard to almost all the weaving machinery in the country. The first spinning machines used in Japan were sent from England, where a single firm has supplied more than half the spindles. Another English firm supplies a complete mill equipment, including boilers and engines. Weaving machinery is largely furnished by a third. French and German makers have supplied a considerable quantity of the silk and woolen weaving machinery, and some woolen machinery for an Osaka mill came from the United States; but

our country is practically sending almost none of the large quantity of spinning and similar machinery constantly in demand.

There are 52 spinning and 16 weaving establishments here, using imported machinery. The weaving establishments with machinery are located as follows: Five at Tokyo, four each at Osaka and Kyoto, and one at Nishinomiya, Sizuoka and Wakayama. There are four flax (jute) mills making canvas and twine, located in Shimotsuke, Sapporo, Otsu and Osaka.

TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the sterling values of the textile imports from Great Britain for June and six months ending June, 1898-1899:

	Month of June		Six months ending June	
	1898.	1899.	1898.	1899.
Wool.....	£ 1,841	£ 1,011	£ 22,953	£ 8,325
Cotton piece-goods	24,411	34,506	226,795	276,816
Jute piece goods.....	12,924	11,803	67,263	57,408
Linen piece-goods	8,761	14,880	66,686	87,935
Silk lace	232	834	4,168	8,912
" articles partly of	1,314	3,947	10,989	17,202
Woolen fabrics	17,850	28,237	106,965	136,566
Worsted fabrics.....	30,348	42,448	276,392	263,242
Carpets	6,890	6,559	98,852	102,398
Apparel and slops	13,903	12,652	131,372	100,508
Haberdashery	3,253	6,543	73,146	78,656

TROUBLESOME WARPS.

Of the problems requiring solution in the weaving department of the manufacturing industry, probably those dealing with warps which are troublesome to weave present the widest range for the display of tact, observation and application of methods which are the result of tuition and experience. The old proverb, "Prevention is better than cure," is applicable when this state of things exists, and should be rigidly enforced, as far as possible, but although a great number of cases arise through neglecting some particular duty, still a few occur when making some new departure either in the build of cloth or particular class of warp yarns. One of the most common causes of these troublesome warps, says a technical writer in *The Textile Recorder*, is the use of yarns which are insufficiently sized for the strain and friction which they have to undergo. This may be the case with fine, strong yarn intended for some heavily-picked cloth, or may be some soft, spongy yarn intended for shirtings. The finished yarn ought in all cases to be examined before putting it into further use, and the person to pass it should be one acquainted with the use for which it is intended, but even an experienced person, when estimating, in thought, the delay and damage caused by re-sizing the yarn, is liable to be occasionally at fault in his judgment, and will risk the use of rather soft yarn, which is afterwards found not to present the necessary resistance to the friction of weaving. When rove yarn is used for warp, it should be very well sized, because any softness beyond a certain point will allow the threads to be so chafed when weaving that they will draw out in a similar way to a yarn with soft twisted places. These rove warp yarns are used somewhat extensively in matting shirtings, and as the weave of the cloth does not require what is usually termed "cover," the position in the loom and other arrangements can be adjusted in the way which tends to the greatest ease when weaving. The better class of home-trade goods are often made of superior yarn, which will easily withstand all the attempts at covering, and overlookers having rarely to deal with rove warp (possibly under sized), often omit some item in the arrangement for ease in weaving.

The method of shedding and picking early causes unnecessary rubbing of the warp by the weft, because of the firm way in which the weft is held when it is being pressed up to the fell of the cloth, and this alteration alone has made the difference between weaving a warp in a moderate length of time and the more expensive and inconvenient treatment either of using the warp in some other way or having it resized in the warp. The latter arrangement is not always feasible when the warp is composed of several colors, owing to the fact that most colors bleed slightly when sizing, and would therefore destroy the clearness of color which it is so desirable to retain. With warps of this description, which are at best only capable of withstanding the easiest weaves with a low number of picks per inch, very little is gained by altering the make of cloth, but with the finer counts and closer weave of cloth probably some weave might be substituted which would still leave it a marketable article, and though not quite of the original value, the loss would not be as great as with the loss occasioned by the stoppage of the loom, redrawing of the warp threads, dressing of the warp, or other alterations which might be necessary to make the warp weave its original patterns, and the cloth is not always satisfactorily produced when the work has been completed.

A warp which is intended for a fine cambric, and fails to withstand the friction caused by putting in the full number of fine picks, if not suitable to be woven with a rather less number of picks of coarser weft, may be converted into an Oxford make of cloth, with probably only half the number of picks first intended. The method of drawing the threads on four shafts or healds (one, three, two, four) enables this to be done by simply working together the first and third and second and fourth. Some patterns, notably those with single ends or odd numbers of white and color, do not lend themselves to this treatment very favorably, as mixed couples or tapes, white and colored, give an irregular mingled effect which is not often resorted to when designing Oxford patterns. If it was found impractical to proceed with a warp which came under the latter category, it might be found advantageous to redraw the warp or a portion of it and still allow the single ends of color to work singly in conjunction with the double threads, whereby an Oxford cloth would be produced, containing fine lines, effects which seem to be scarcely separable from a range of Oxford designs. The figure is another item requiring consideration when it is composed of a stripe along with some other ground weave. If the cloth is fairly heavy, considering counts, reed and picks, and the figure is even more closely interwoven, trouble may result if stronger yarn is not used for the stripe which requires to endure the extra strain. The calico ground figures which are introduced in Harvard twill shirtings may be instanced as coming under the category; when these calico ground figure stripes are found to be of insufficient strength (either from material or want of size), the quickest way of surmounting the difficulty is to introduce a figure of looser weave. The change in many cases may be made very near the original in effect, but in other instances quite a distinct figure could be more advantageous, introduced, and would produce a design of more value than one simply in imitation of the original. When cloth is not made to order, but simply intended to be sold from stock, alterations may be made with a more free hand; but in the execution of definite orders caution should be observed, and as little deviation as possible be made from the original designs.

One class of warps with which it is difficult to deal are those which are tendered in the dyeing or bleaching process, but these would probably be found in the preparatory processes and if drawn through the healds in tapes or double ends, and woven in Oxford styles, they often carry through the loom with surprising success, as both threads seldom seem injured in the same place, and one helps the other along. Fine places in the yarn often pass the preparatory process and break in the loom:

also some warps allow threads to draw up from the back beam when weaving; these threads are very troublesome, and weave into the cloth like a miniature pile, and are often found in very light cloth, and are caused by placing too much drag on the warp when beaming, especially from sections. The threads being broken in the latter case, if the breakage is too great for the weaver to overcome in reasonable time, there is no alternative but to make the threads continuous by piecing up in a dressing or beaming frame, which is a very slow and tedious duty to perform, and, if possible, should be inflicted on the person causing the injury, in which case it is not likely to occur a second time.

Another cause of trouble is the way in which some warps are drawn through the healds, especially when very fancy drafts are introduced, and the healds are evenly knit, and are to be dropped or cast out to pattern. These warps require accurate calculation and care in casting out, or they will pull very much when in the loom, and the chafing of the yarn is very seriously increased. The selection of suitable counts of healds is an important item, as there is more friction caused by the use of coarse healds in some cases than would be the case with those of finer counts, which would not spread out some narrow stripe to so great an extent. Imperfections of the nature just described should be rectified at once, which is a duty to be performed only by the operative employed.

Before warps are taken out of the loom to be redrawn, the overseer should make sure of the cause, and notice if the healds are secured each in its accurate position; because the fastening of one shaft a little too much in one direction, and another shaft a little in another direction, is sufficient to give at a glance a misleading conception of the cause. The irregularity of drawing is more serious when the warp is woven in a dobby loom provided with springs for the purpose of pulling down the healds. The rigid way in which the healds are held brings any crossed healds to bear upon the yarn very severely. Cords tied at the ends of the shafts have given relief in some of these cases by lessening the tension on the healds, and allowing them to bend more easily out of position. The practice of having a group of healds knit at each end of a shaft of very coarse counts is a point to be recommended, as it tends to ease the friction when weaving by taking some of the strain from the center, and makes the healds last much longer.

WILD RIHA.

The most recent Agricultural Ledger issued by Dr. Watt contains a report by Professor Dunstan, Director of the Scientific Department of the Imperial Institute, on some samples of the Bon, or Ban, Riha fiber forwarded to him for experimental purposes by Dr. Watt. In forwarding the samples, the latter stated that this wild riha fiber had been spasmodically discussed for about half a century, but only in a superficial way; its merits had indeed been extolled, but no practical tests had been made and no progress reported. Dr. Watt made a detailed examination of the plant in Assam, where it grows wild, and came to the conclusion that while related to *Boehmeria nivea* it is in reality quite a distinct variety, viz. *Villebrunea integrifolia*; that it was a truly wild plant and was nowhere cultivated, though its fiber was highly appreciated by the hill tribes of Assam. The plant, we are told, can be grown on all waste lands; it has little or no gum; it gives a high return of fiber where the *Boehmeria nivea* or *Boehmeria tenacissima* fail; and the fiber is very fine and perhaps as strong as, if not stronger than, China grass. This being so, Dr. Watt resolved upon making an effort to bring the fiber to the attention of commerce. The plant, it may be mentioned, produces shoots 20 feet in length; the bark strips off easily and a cleaned and partly bleached raw fiber might be obtained with the assistance of

machinery; and finally, Dr. Watt pointed out that the most important point in connection with the fiber was that it could be produced at one-third of the price of other varieties, (The name of the plant, it will be noted, is riha, not rhea, and it means, in Assamese, the cloth that covers the heart or breast). In his report, Professor Dunstan says that a comparison of the results of his examination of Ban Riha and *Boehmeria nivea* "clearly brings out the superiority of Ban Riha, especially in regard to its smaller loss by hydrolysis and its higher nitration number. At the same time, it must be remembered that the process adopted in treating this fiber in the laboratory only very roughly approximates to that which would be used on a large scale. Portions of the original samples have been submitted to a fiber expert, who reports that they can be readily treated by a special and simple process which has recently been devised." This opinion, Dr. Watts considers, may be regarded as confirming the exceedingly favorable views already expressed of *Villebrunea* as a commercial fiber, and he adds: "Its superiority over ordinary rhea in regard to strength, texture and composition, cannot but be considered as a most important result, and one which should commend it to the favorable attention of all persons interested in rhea fiber. As a catch crop to the tea industry it has perhaps no rival, certainly no equal. The fact that this fiber may be cleaned by simply retting the ribbons of bark (after the fashion of jute) is perhaps of even more interest than its exceptionally high merit as a textile. Expensive decorticating and degumming machinery and methods are thereby rendered unnecessary. It is thus possible that the fiber could be turned out at a price that would not only undersell rhea, but for certain purposes, compete with flax, if not with jute itself. At all events, the cultivation and separation of a crudely cleaned fiber of great merit might easily enough be accomplished by even the poorest agriculturist. While rhea must of necessity command capital and enterprise, Ban Riha can be developed by the peasant."

This fiber seems to offer exactly the material required for the manufacture of driving belts, ropes and bands, boot laces, canvas hose, fishing nets and mosquito curtains. Its culture might, perhaps, be combined with that of the aloe and sisal. One plant with the qualities above stated might form the foundation of a large industry in India.

THE MANUFACTURE OF FEZ CAPS.

The Board of Trade have received through the British Foreign office, copy of a memorandum from H. M. Consul-General at Salonica calling attention to an opening which exists for introducing into England the manufacture, for export to Turkey, of fez caps, £40,000 worth of which were imported into Turkey in the previous year from Austria-Hungary. H. M. Consul-General at Salonica forwards a translation of a circular received by one of the leading importers of fezes there from a Vienna firm, relative to the fusion into one company of all the Austrian houses engaged in this trade. The annual production amounts to some 5,600,000 fezes, which are mostly manufactured at Srakomitz, in Bohemia. The importers fear that this combination will result in a rise in prices, as the trade will, for a time, at any rate, become a monopoly, and some merchants in Salonica proposed to open a factory to compete on the spot with the Austrian combination; but this project has been abandoned in view of the promises and assurances of the Austrians that there will be no increase in prices. As soon as the fusion of the Austrian firms was known, some of the chief importers suggested that the present would be an exceptionally favorable occasion for English firms to engage in this manufacture. The Journal de Salonique publishes a letter from a Mr. J. Livada, a British subject, advising merchants to attempt to obtain from

English houses better terms than will be given by the Austrian syndicate. The above newspaper states that prices have already risen 15 to 18 per cent., and only opposes Mr. Livada's suggestion on the ground that the opening of a local factory would be more advantageous to the trade of Salonica. A Vienna firm has written to a merchant in Salonica strongly urging him to confirm an order which had been recalled on account of a rise of 15 per cent. at once, or it may be refused, and a further increase may be regarded as certain after July 1st, when the new amalgamation company will begin its operations. The whole male population of European Turkey wear one or the other of these headdresses. The white kiole is worn by the Albanians and by some of their neighbors, and the use of the red fez is not only compulsory on all civil officials and the infantry of the army, but it is almost universal outside Albania, both among Mohammedans and Christians. It is also used by the majority of the inhabitants of Asiatic Turkey and of Egypt, and a similar article in a green color is employed in India. Moreover, as the shape, material, and color of these articles may be said to be invariable, there being practically no change of fashion in this respect, the plant required should not be complicated. It has been stated by a gentleman largely engaged in this trade, who has visited a number of the Austrian factories, that fezes could be made at any stocking factory, the material being made like a stocking, and then pressed to resemble felt. The Austrians get their machines mainly from Chemnitz, where stockings are made; the fez and the kiole are made with the same machine. The raw material is almost entirely Australian wool imported into Bohemia from Bradford, and if the manufacturers of that place, or of Leeds or Dundee, would turn their attention to these articles, it is believed that they could compete successfully with the Austrian Syndicate. Even if a factory is opened in Salonica it will be some months before work could be begun, and the English houses might by then have secured a large share of the trade. It is said that the two factories existing near Constantinople can hardly do more than supply the garrison of the capital.—Board of Trade Journal.

JOHN H. LORRIMER'S PATENTED MECHANICAL SYSTEMS

J. H. Lorrimer, of Philadelphia, is well-known to textile manufacturers all over the United States, Canada, Austria, Germany, England and Scotland, who are now using the various improved machines made by the Lorrimer Machinery Company, including their specialties and other mechanical contrivances for scouring yarns, wool, etc., washing hair, cotton, waste, degumming ramie and kindred fibers, treating flax, straw and tow, dyeing yarns, slubbing, cotton, wool and raw stock of all sorts, drying all the above in whatever form required. Their yarn scouring machine is claimed to scour a great variety of yarns, in great quantities, in a thorough, uniform manner. The company has secured control of M. Musgrave's patent endless rake machine, and nearly all systems can be altered to this system, if in good order. Their patented hair washing machine has now been in use for some years, and stands alone as a hair washer where quality and quantity of work are considerations. Their cotton washing machine is a modification of their patented hair washing machine. For degumming ramie and pine fiber, and treating flax straw and tow, they have special machines. Their yarn dyeing machine is the result of years of observation and experiments. It is simple, durable, practical, and needs no shafting or other mechanical appliances out of place in a dye-house, and in point of economy equals any machine. Their drying system covers machines for drying raw stock of all sorts, yarns in skeins or warps, etc., special machines for special work being designed and built for anyone, who, after thorough investigation, decides in favor of their system. Their raw stock

drying and carbonizing machines are fitted with their patent metallic sectional apron. Their warp drying machine is the result of many years' experimentation, and is well worth the consideration of all who are interested in warp drying. Their yarn drying machine has been adapted to dry long skeins or short skeins, and is now in use for drying long skein printed tapestry yarn in many mills.

YARNS FROM WASTE.

One of the features of the present state of trade in the textile industries is undoubtedly the effort to utilize to the greatest possible advantage all products which have been regarded as waste. Many of these products, which have been sold for generations for little or nothing, are being worked by spinners, and in many cases are showing satisfactory results. As instancing this fact, a contemporary mentions that W. Carter & Co., Belfast, recently submitted to the textile trade here some samples of yarn which appear likely to attract a considerable amount of attention among the users of the heavier numbers of linen and cotton yarns. The yarn in question is spun from the waste made in the wet-spinning of flax. It is a matter of surprise that this waste, consisting, as it does, of valuable fiber, made more costly still by the various processes of preparation, should not have been turned to useful account for spinning purposes before. The chief difficulty in the way has been that after carding the fiber is too short to be worked over ordinary flax or tow machinery. This problem seems at last to have been solved, and not only so, but the yarn sent out for inspection presents an attractive appearance, and possesses qualities which are certain to be appreciated. The thread is level and free from "slubs." These are qualities which manufacturers will not be slow to take advantage of, particularly as the price is, we understand, considerably lower than that of wet-spun tow yarn.

LATEST DYESTUFFS.

Brilliant Benzo Green B.—Is a new homogeneous aniline, the latest addition to the important but recent Benzo Green family, specially adapted for cotton dyeing, producing clear, bright shades, which could formerly only be obtained by a mixture of the clearest blues and yellows, of this group of dyestuffs. Fastness to light is claimed to be decidedly better than such mixtures or any other homogeneous dyestuffs hitherto known on the market. It dyes easily level, very fast to acids, perspiration, ironing and rubbing. Fastness to washing about equal to Benzo Green and for light shades should answer all requirements, but if necessary fastness to washing can be increased by an after treatment with fluoride or chrome or chrome alum. Brilliant Benzo Green B. is equally well adapted for dyeing loose cotton, sliver, cross-reels, and cops as for yarns and piece goods. Also well suited for dyeing wool and mixed fibers.

Diazo Indigo Blue M.—Is a new Diazo product possessing valuable properties. As a further addition to the Diazo Blue group already well known as substitutes for Indigo, it holds an important place. The shades of this new Benzidine dyestuff when diazotized and developed with developer "A," are marked especially by their fastness to light, and on cotton are considerably superior in this respect to Indigo, as well as all other diazotizable products on the market. Fastness to washing of the diazotized shades is very good, being equal to the older "B" brand, especially adapted for cotton piece goods, yarn and loose cotton.

The Benzidine group has recently been added to, in the form of Pluto Orange G. (Patented). Very fine shades, ranging from a delicate cream to the brightest orange may be

obtained, which possess good fastness to light; especially adapted for dyeing cotton, half silk and silk, as the shades on these fibers are fast to washing, and when dyed on silk, its fastness to water is also good. In dyeing of half wool, Pluto Orange G. can be employed in conjunction with other dyestuffs, suitable for half wool. When developed with Benzo Nitrol paste on cotton, yellowish browns, fast to washing, are obtained.

A red cotton dyestuff fast to acids, has long been sought after. The Farbenfabriken, of Elberfeld, are now placing a product called Benzo Red S. G. on the market and which is fast to acids. Up to the present time, Delta Purpurine and brilliant Congo have been used, but they are only moderate in regard to fastness to acids.

In regard to fastness to light, it is better than the average substantive red.

Victoria Violet 4 B. S., and Azo Acid Blue 6 B.—While not new are now manufactured by the Farbenfabriken. These colors dye wool easily level in a sulphuric acid bath. They are moderately fast to alkalis and light, extremely fast to rubbing and are moreover very cheap. Kinse Azo Acid Blue well or resulting shade is somewhat redder. Cotton checking threads remain white. Both the above colors are especially suited for producing cheap navy blues, very fast to rubbing and yarn (hosiery yarn), and ladies' dress material.

Patterns, circulars, samples, and latest information about colors, etc., will be supplied gratis by the Dominion Dyewood & Chemical Co., sole agents in Canada for the Farbenfabriken, vorm. Friedr Bayer & Co., Elberfeld, Germany.

FRAUD BY UNDERVALUATION.

On June 12th the Executive Committee of the Canadian Manufacturers' Association passed a resolution calling upon the Dominion Government to enforce the law and to inflict exemplary punishment upon those who may be convicted of fraud upon the revenue by way of undervaluation of merchandise liable to customs duty. A copy of the resolution was forwarded to Hon. William Paterson, Minister of Customs, who, in his reply, states: "I have carefully perused and considered the terms of the resolution. I desire to assure your association that the department over which I have the honor to preside has endeavored to carry out thoroughly the provisions of the law in respect to frauds upon the customs. I hold it is a sound principle that fraud, by way of undervaluation, should be severely punished, and I have endeavored to follow this principle in determining seizure cases. It is not always an easy matter, however, to determine when fraud enters into a transaction. Each case has to be dealt with on its merits and in the light of all evidence, pro and con. Without full knowledge of the evidence an absolutely correct conclusion cannot be arrived at. While I hold that frauds, by way of undervaluation, sufficiently established, should be severely punished, I have recognized that probably the best way to put a stop to frauds is to prevent their commission, as far as possible, and my best efforts have been directed to that end. Many preventive measures have been adopted of late, which are operating successfully. As you are no doubt aware, a change was made in the form of certification of invoices by exporters, under which exporters are now required to show the home consumption price on the invoice when such prices vary from the invoice price. I would also point to the fact that the oath required to be made by a foreign owner of goods shipped to Canada on consignment, has been made more binding, with the object of preventing frauds, such as complained of. Further, better methods have been adopted for the collection of reliable information as to values and for the systematic distribution of such information among officers of customs. The

aim of the department is to post its officers as thoroughly as possible as to foreign values."

IMPROVED DOUBLE-BED ROTARY CLOTH PRESS.

The improved double-bed rotary cloth press consists of a pressing cylinder and two bed plates mounted upon sliding carriages upon the frame, on opposite sides of the cylinder, to which bed-plates are shackled upright levers, which are fulcrumed upon movable steel bars inside of the boxed frame members of the machine, which latter are fastened upon a heavy platform, or base plate, underlying the machine. The lower ends of these levers are connected to a circular toggle-head, fastened to a crucible steel power-shaft, mounted on top of the base plate, the turning of which, either in one direction or the other, will cause the levers to move the bed-plates against the cylinder, or away from it, as the operator may elect, for applying pressure, or releasing pressure. This lever mechanism, and the train of gearing connecting it with the prime mover of the machine, is made of steel throughout, rendering it a very strong and most positive means of producing pressure ever in a rotary press, and enables the operator to easily apply 50 tons or more pressure on each side of the cylinder, whilst the cloth is passing between it and the bed-plates. The latter, as well as the cylinder, are ground absolutely true after planing, respectively turning, and this grinding of the pressing surfaces takes place whilst the parts are heated under a pressure of 75 lbs. of steam, thus insuring absolutely straight pressing surfaces of these parts subsequently at the mill, whilst the machine is under the same or similar steam pressure, which it has to be during the pressing operation.

This feature is claimed to be one of the most important in a rotary press, as it assures perfect accuracy and uniformity of finish upon the cloth. The bed-plates are, moreover, trussed in a manner said to be entirely new, the truss bars (consisting of steel forgings wrought into shape under a powerful steam hammer to increase the density of their metal), have a jack between them, and the centre of each bed-plate so arranged that it operates both ways, that is to say, it can be used for forcing the centre of the bed-plate either up towards the cylinder, or away from it. This is a new departure and a great improvement over the old method of trussing bed-plates, because after a bed-plate has been heated and cooled a great many times whilst under the strain of a truss rod, it is very apt to become set in this strained position, even after the strain of the truss rod is released, thus leaving the bed-plate in a sprung condition, enough so, when a lighter pressure is later on used, to cause the goods to be pressed more in the middle than at the sides. To overcome this state of affairs, it has been customary in the past to send a sprung bed-plate to the shop to have it replaned, which, of course would, for a while, correct the evil until the bed should once more become sprung, each successive planing weakening the bed only more and causing it to be more apt to become sprung thereafter than before. This difficulty is overcome in this machine, inasmuch as the trussing mechanism can be used to pull away the centre as well as force it forward, thus making it possible for the operator to secure a dead straight surface on all kinds of work and under all pressure and conditions. The fulcrum bars to which the levers that operate the bed-plates are pivoted, are movable endwise, so that any alteration made in the shackle screws between one bed-plate and the top of one of its levers, will communicate itself to the other bed plate on the opposite side, and thus even up, or divide, this change between the two, which is quite an improvement over the older make of machines, in which each lever had its own fixed fulcrum, necessitating a separate adjustment at the four corners of the machine, which now is effectually done away

with, the beds becoming self adjusting on account of this end-wise movement of the fulcrum bar

The pressure in this machine is applied by power, the toggle-heads upon the power-shaft being operated through a train of gearing connected with the prime mover of the machine. This gearing is made of steel entirely, and the gears are all cut from solid blanks, as is also the other gearing which drives the pressing cylinder and other running parts. The degree of pressure can be varied and regulated (whilst the beds are not under pressure) by turning a little hand wheel at the steam end of the machine, which sets upon a worm shaft connecting the shackle-screws between the front bed-plate and its levers, thus either elongating or shortening these connections. The toggle-heads, to which the lower ends of the levers are secured, move to the same extent at all times, either in one direction or the other, when putting on or taking off pressure; a hand-lever for causing this movement to take place, being at the other end of the machine, and the power for throwing the beds forward or back being at all times more than sufficient to easily produce all the pressure ever wanted or asked for in a machine of this kind. The machine is very heavily built throughout, weighing over 12,000 lbs. when set up, and is very easy to handle and regulate, and is, altogether, the best built and most efficient machine of its kind to-day. A number of these machines can be found running in Canadian mills, where they are giving entire satisfaction, and where they have replaced other makes of machines, both of domestic and American manufacture. Those wishing to purchase a rotary press may communicate with the maker of this machine, David Gessner, Worcester, Mass., U.S.A.

THE RAW SILK SEASON

The Silk Association of America has issued a series of tables in relation to the raw silk season now drawing to a close. The season is referred to by the association as having been quite a surprise to many manufacturers, jobbers and consumers. The figures show the shipments from Yokohama for the season of 1899 to have been as follows, in piculs of 133 1-5 pounds: France, 15,448; England, 234; Italy, 4,213; America, 30,692. The stock on hand at the end of the season in Yokohama is given as 985 piculs, against 2,010 piculs a year ago. The total yield of Canton silk for the season to May 31, 1899, is given as 46,541 cattiees of 106 4-5 pounds; the shipments from Canton for the season being in cattiees as follows: England, 2,512; France, 30,600; Italy, 1,145; America, 12,234; Bombay, 2,050. The Shanghai shipments are as follows, in piculs: England, 2,728; France, 64,399; America, 12,620; India and Egypt, 6,474; Japan and Straits Settlements, 2,246. The stock on hand in Shanghai is given as 1,200 piculs, against 1,800 piculs last year. The world's production of raw silk in 1898-9 is given as 34,063,274 lbs., and the estimated production for 1899-1900 as 35,863,000 lbs.

DRAFT WITHOUT A CHIMNEY.

The days of the chimney are numbered. No longer is the location of the factory to be evidenced by the existence of a tall brick stack belching forth its volumes of smoke. Comparatively small but all-powerful is the fan blower which has stepped in to fill its place and do its work. Two years ago at Jamaica Plain, in the suburbs of Boston, there stood a tall chimney upon which the B. F. Sturtevant Co. were entirely dependent for producing its draft for the operation of its boilers. Changes in the arrangement of the works necessitated moving the boiler plant, but, of course, it was out of the question to take the chimney along. In its stead a fan blower was installed on top of the boilers and provided with a special engine to drive it at just the

speed required. It is automatically regulated so that less than one pound drop in steam pressure greatly increases the draft, starts up the fire and brings the pressure back where it belongs. It is thus kept the same, hour in and hour out, and the fireman has nothing to do but shovel coal. The fan works by suction, draws the gases from the boiler flue, and forces them out through a short stack extending only 31 feet above the boiler room floor. The draft which may be produced is two or three times stronger than that of the chimney which has been discarded. The weather makes no difference, the draft is just as strong on damp and muggy days as on those that are crisp and bright. Though it barely extends above the roof of the surrounding buildings, no trouble whatever is experienced from smoke, for the simple reason that when draft is produced in this way, no smoke is made. The utter uselessness of the old chimney has been so clearly demonstrated, that it has just been taken down for the sake of the bricks it contained. There is thus presented the novel sight of a large manufacturing plant, covering half a dozen acres, with no apparent means of producing the draft, the little steel plate stack being visible only from certain points.

The cost of the entire mechanical draft equipment, including the stack, was less than one-half that of a new chimney, because of the stronger draft, much cheaper fuel is burned than was possible with the chimney, the saving being nearly a thousand dollars a year. In another boiler plant of 1,000 h.p., the full saving is \$6,500 per year. At the same time the amount of steam generated may in either case be readily increased to double that for which the boilers are rated. In other words, it is possible, with mechanical draft, to use much smaller boilers and still produce the required amount of steam. What has been done here is being done elsewhere. Many boilers on land and sea are now so arranged that a chimney is only needed to carry the gases high enough to conveniently discharge them into the atmosphere. According to the conditions, the fan may be applied for from 20 to 40 per cent. of the cost of a chimney. Where the chimney draft is not sufficient, the fan may, for very little cost, be added to help it out. Sometimes the blower can be arranged so as to force the air under the fires and cause it to pass up through them and thus give perfect combustion; or on shipboard it may be so arranged in connection with the ponderous boilers that the air may be heated by the gases as they escape, thereby saving coal. This possible saving of heat is one of the most important advantages of mechanical draft. With a chimney, 20 to 30 per cent. has to be wasted in the hot gases in order to produce the draft. The fan requires only about one-seventy-fifth as much power to move the same amount of air, and therefore makes it possible to save as much of the remaining heat as is practicable. The fan can be built of any size and exactly adapted to any location and regulated to suit the requirements. No heavy foundations are required, it seldom requires valuable floor space, and, being portable, need not remain like the chimney, a monument to a departed industry. In every way, mechanical draft presents advantages and conveniences which make it perfectly safe to assert that the next generation will see it generally adopted as a substitute for the chimney.—Textile World.

TO BLEACH COTTON SNOW WHITE.

Editor CANADIAN JOURNAL OF FABRICS.

In your last issue "Cotton" asks for a method of bleaching cotton snow-white. I would like to refer him to a volume just issued by the Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany, which may be had on application to the sole agents for Canada, Dominion Dyewood and Chemical Co., Toronto: "Before dyeing the piece, yarn or warp, cotton is boiled for 1 to 2 hours, usually with a slight addition of soda

crystals, and then well washed. It is still better if the cotton is boiled in a soap bath (1 per cent.), for 1 to 1½ hours, and then wrung out. For bright shades the cotton requires to be bleached according to the following method: Boil for 1 to 2 hours in an open vessel with soda and a little resin soap, using for 100 lbs. of goods 8 to 10 lbs. Solvay soda, and 1 to 2 lbs. resin soap. Rinse well and then enter into a chloride of lime solution at 1 to 1½ deg. Tw., which is cold and quite clear; after about 20 minutes to ½ hour the goods are taken out, rinsed and passed through a cold bath containing 5 lbs. sulphuric acid, and afterwards thoroughly washed off. To obtain a full bleach it is necessary to repeat the above manipulation once more."

BLEACHER.

Toronto, August 14th, 1899.

THE WOOL MARKET.

Toronto.—The greater part of the season's clip has now found its way into the market, but at no time has there been what could be called a fair demand for wool. Prices have been very low, and dealers state that they still have all they have bought on their hands, and do not see much prospect of disposing of it to advantage. Similar grades of English wool are very dull, and are being offered at 7¼d. and 7½d. The bulk of the Canadian fleece marketed this season has been sold at 14 to 14½ cents.

Montreal.—Manufacturers are now beginning to realize that prices of all fine wools have permanently advanced. Some good sales are reported this week of merino wools at 19 to 21c. for Cape in the grease, and Australians 25 to 28c. in the grease, casting, clean, 50 to 60c., according to quality, etc. Medium wools have advanced 7½ to 10 per cent., since our last report, showing that manufacturers are turning their attention to this class of wool. Canadian wools have also advanced since our last report. Unwashed is now worth 14 to 15c., washed fleece is now worth 16 to 17½c., pulled is worth 19 to 20c. The market is very strong at present, and good demand; manufacturers feeling they have not the stock of wool they ought to have.

LITERARY NOTES.

The Century for August is a midsummer and travel number. "The Present Situation in Cuba" is graphically stated in a brief article by Major-Gen. Leonard Wood. Jacob Riis writes of "Feast Days in Little Italy." The first feast described is in honor of some Italian village saint—"just-a-lik'-a your St. Patrick here," as one of the celebrants explained to President Roosevelt of the Police Board, who accompanied Mr. Riis to Elizabeth street, and took five chances in a raffle for a sheep. John Burroughs gives a fascinating glimpse of the wild life about his slab-sided cabin near the Hudson River at West Park. In "The River of Tea," Miss E. R. Scidmore writes of the Yangtze-kiang, and especially of the city of Hankow, where Russian and Siberian merchants have supplanted the English, though the tea-tasters, "for reasons not flattering to Russian character," continue to be English only. In a learned paper on "The Churches of Auvergne" Mrs. van Rensselaer introduces effectively, in her illustrated paper describing "The Churches of Auvergne," the picturesque episode of Peter the Hermit's preaching of the first crusade; and the story of the second continues its course in Mr. Crawford's romance, "Via Crucis." "Old, unhappy, far-off days, and battles long ago" are the theme of Prof. Wheeler's "Alexander in India," with its graphic account of the great and decisive victory that marked the conqueror's crossing of the river Hydaspes. Milder matter is furnished in Jonas Stadling's picturesque "People of the

Reindeer," though even here there is adventure enough, on snowshoes and reindeer-sleds; and something more than mere adventure is to be heard of in John R. Musick's description at first hand of a town "In the Whirl of a Tornado," and the accompanying learned article on "Tornadoes," by Cleveland Abbe. Paul L. Ford's "Many-Sided Franklin" treats this month of "Franklin as Jack of All Trades;" and Frank R. Stockton's "Vizier" of that immortal's relations with Moses and Joshua, Pelech and Laura. Short stories by Chester Bailey Fernald, Mary Tracy Earle and Seumas McManus tend to round out the number. And the twin arts of poetry and picture-making are exemplified on many a page, one of the more striking features of the magazine being "The Night Walk," a poem by George Meredith.

William J. Matheson & Co., Ltd., manufacturers of dye-stuffs and chemicals, New York and Montreal, have issued a very valuable pocket book on the dyeing and printing of fabrics. This book contains many recipes for not only cotton, silk, flax, jute, straw, paper and wool dyeing, but many recipes for printing and staining of various fabrics, there being about 200 different processes described. Besides this the book has an appendix containing tables, weights and measures and formulæ for dyers and textile manufacturers. The publishers have a reputation for doing a thing well when they undertake it, and this very valuable pocket book is an exemplification of their reputation in this respect.

We have received that very valuable reference book, The Textile World's Directory of the Mill Trade and of Buyers of Textile Fabrics, 1899. This volume contains the usual convenient tables of contents and sectional maps, which are such an aid to traveling men in arranging their routes. Cloth, 400 pages.

Among the most remarkable and useful books compiled are Kelley's Directories, published by Kelley's Directories, Ltd., London; Canadian agent, A. Gate, 28 Victoria street, Toronto. One of these, Kelley's Directory of the Merchants, Manufacturers and Shippers of the World, is the standard export medium, endorsed by the British Government, and is published annually; price, \$9. Other trade directories of Great Britain, published by this company, are: Cabinet Furniture and Upholstery Trades; Grocery and Oil and Color, and Provision Trades; Leather Trades; Stationers, Publishers, Printers, Booksellers and Paper Makers; Chemists and Druggists, and Chemical Manufacturers; Engineers, Iron and Metal Trades; Manufacturers of Textile Fabrics; Watch and Clock, Goldsmith and Jewellers' Trades; Building Trades; Wine and Spirit Trades, Brewers and Malsters; Postoffice London Directory (100th annual edition); Titled, Landed and Official Classes; Clergy List; Royal Blue Book, and many colonial directories, among which are postoffice directories of Victoria, New Zealand, New South Wales, Western Australia, South Australia, and Tasmania, besides the Queensland official directory, directory of Belgium and general directory of South Africa. All these directories contain a classified business list. This company also publishes two national directories, one of Scotland and one of Ireland. These directories are very complete and accurate, being to a large extent compiled by British consuls.

—F. W. Hodson, of the Ontario Agricultural Department, reports that there is a sheep famine in Ontario. He has received a request from the Quebec and Newfoundland Governments for thoroughbred sheep, but finds it impossible to procure them. Hon. John Dryden and other prominent sheep men have disposed of their yearling sheep. United States dealers have been buying up sheep in large numbers.

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.

Harry Hobbs, formerly of Magog, Que., is now managing a large factory producing antiseptic cotton and surgical goods in New York.

O. Garriety, La Chevroitiere, Que., has finished the new dam, and improvements to the water power, and is now running full time in his woolen mill.

S. Erb, for the past seven years traveler for the Berlin Shirt and Collar Co., died in Berlin, Ont., last month, after a severe illness, at the age of 44.

W. Gray & Co.'s ivory collar and cuff factory, Chesley, Ont., was destroyed by fire, July 24th. Loss is about \$1,500, insured for \$600. The fire was caused by the explosion of a coal oil lamp while the proprietor was away at dinner.

The Ontario Board of Health has ascertained that the existence of anthrax among cattle near Listowel, Ont., is due to the polluted water below the tannery and woolen mills there. The town council has undertaken to devise a scheme for sewage disposal.

The employees in the weave room of the Gillies Mnfg. Co., Carleton Place, Ont., presented Wm. Baird with a silver bread plate and knife on the occasion of his leaving the employment of the Gillies Mnfg. Co., July 17th. Mr. Baird has been eight years with the company.

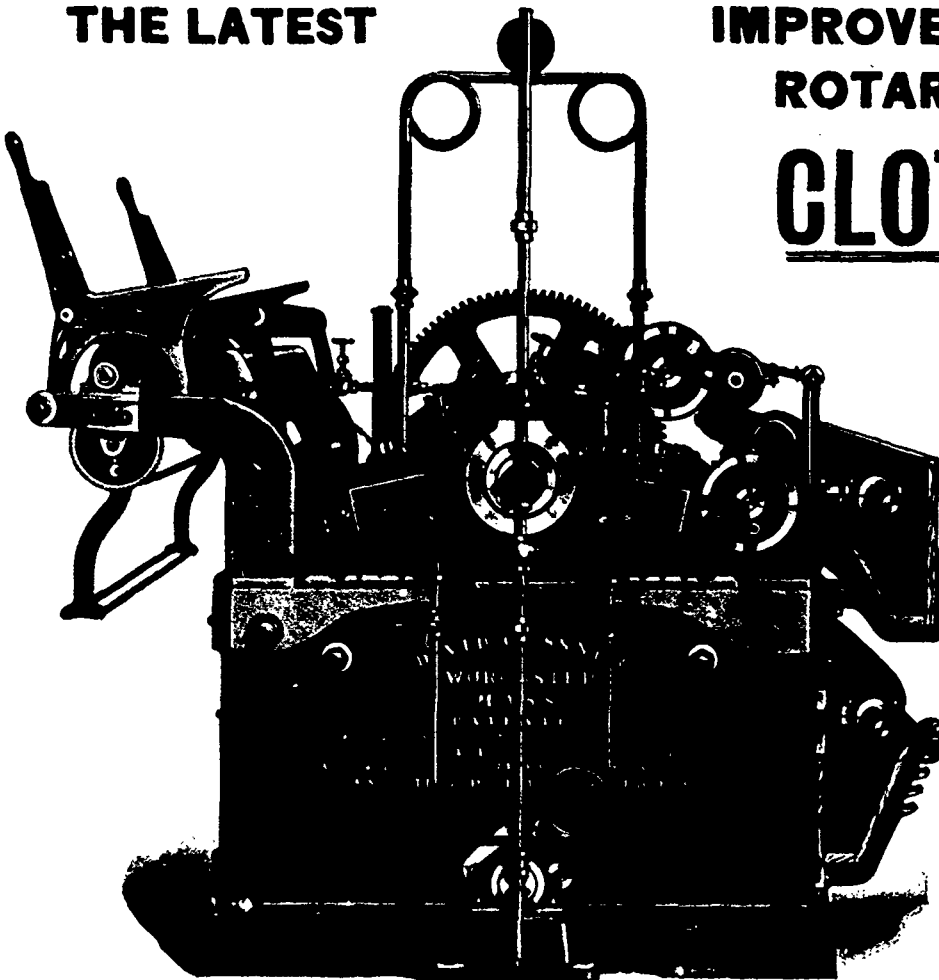
The L. S. Watson Manufacturing Co., Leicester, Mass., has been appointed sole agents for Canada and the United States for Felten & Guilbeaume's steel wire heddles. These heddles are manufactured in Mulheim-on-Rhine, Germany, and are generally recognized as being very strong and serviceable, and are in use in many of the leading mills of Canada and the United States.

The Wentworth Knitting Company, limited, which has recently been incorporated with \$20,000 capital, will start manufacturing in a short time in the old Laidlaw foundry, Hamilton, Ont. About eighteen hands will be employed. Dr. J. C. McCabe is president, J. P. McGowan, secretary-treasurer, and the other provisional directors are, O. Leonard, W. C. Langhorn, Wm. Bauer and George Bauer, all of Hamilton.

Recently the Toronto Carpet Manufacturing Company, in order to meet trade demands, has moved from its premises on the Esplanade to a splendid factory building on Fraser avenue and King street, Toronto. This building cost \$80,000, and gives to the company 80,000 square feet of floor space. The company commenced business in 1892 with ten looms for the making of ingrain carpets, and about twenty employees. At present it has 100 ingrain looms alone, besides looms and ma-

THE LATEST

IMPROVED DOUBLE-BED ROTARY CLOTH PRESS



The bed plates are self-adjusting, the levers that operate them being mounted upon sliding steel fulcrum bars within the frames. The trussing apparatus of the bed plates is so arranged as to permit not only a forcing of the centres of the bed plates in a forward direction, toward the cylinder, but also away from it, which is of the utmost importance if the bed plates should ever become sprung. Bed plates and cylinder after being cold finished, are ground absolutely true while heated by steam at 75 lbs. pressure, insuring perfectly straight and uniform pressing surfaces. Pressure is applied and removed instantaneously, and by power.

DAVID GESSNER,
WORCESTER,
MASS., U.S.A.

T. A. Code, Perth, Ont., is building an addition, 40 x 50 feet, to his woolen mill.

Dick, Ridout & Co. are adding some broad looms to their woolen mill at Cobourg, Ont., supplied by Geo. Reid & Co., Toronto.

FOR SALE CHEAP

One Crompton Loom, has not run much; 24 harness. 4 x 4 shuttle boxes; 48 inch reel space. CHAS. SCHILLING, Auburn, N.Y.

FOR SALE.

Woolen Mill in the Province of Quebec, near St. Lawrence River, and on line of railway; substantial stone buildings, both flour mill and carding mill, excellently situated for a large flour, pulp or woolen mill, and having the good will of a large country trade, owner wishes to retire because of advancing age, stone dwelling house attached, and the property in every way a desirable one. Address O. G. P., care Canadian Journal of Fabrics.

WANTED—Man thoroughly acquainted with the manufacture of Worsted and Mohair Braids. None but experienced hands in the manufacture of braids need apply. Address No. 6, Canadian Journal of Fabrics.

POSITION WANTED—Young man of good education, at present employed as superintendent in a large woolen mill in the south of Scotland, would like similar position in Canada. Can assist in designing. Address "SUPERINTENDENT," care of Canadian Journal of Fabrics, Montreal, Que.

CAPITAL WANTED.

By a thorough practical worsted spinner (with small capital), a partner with capital, to start worsted spinning business and weaving worsted goods, in Canada, as there is a good opening for same, with good inducement offered at some places, correspondence confidential, only those with capital need apply. For further particulars address CANADIAN JOURNAL OF FABRICS, Box 7.

FOR SALE

Entire Equipment of Cotton ... Mill ...

Spinning, Weaving and Twisting; 8,000 spindles all in first-class condition; cash or part cash and part bonds. For particulars address COTTON MILL, Office of the Canadian Journal of Fabrics.

Dye Stuffs

Chemicals

..Alizarines..

DIRECT DYING ANILINES FOR

COTTON & WOOL

Dyewood Extracts

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55 Calborne Street, TORONTO

15 Lemoine Street, MONTREAL

NEW YORK PHILADELPHIA

BOSTON.

CHICAGO GLOVERSVILLE, N.Y.

The Mispic pulp mill, St. John, N.B., is now turning out thirty tons a day.

A lad named Charlie Kabel had his left hand caught in a card in the Berlin Felt Boot Co.'s factory, last week, lacerating it severely.

Cronkhite Bros., proprietors of the Thessalon Woolen Mills, have put in a number of new looms, supplied by Geo. Reid & Co., Toronto.

The Coaticook, Que., Woolen Co. (R. G. Trenholm and I. H. Armitage, proprietors), is rebuilding the one-set woolen mill destroyed by fire a short time ago.

CHEMICALS AND DYESTUFFS.

Business dull as usual during the month of August. Reports from abroad advise advances in all alkalies. The following are current quotations in Montreal:—

Bleaching powder	\$ 1 95	to \$ 2 00
Bicarb soda	2 00	" 2 05
Sal soda	0 70	" 0 75
Carbolic acid, 1 lb. bottles	0 35	" 0 37
Caustic soda, 60°	1 75	" 1 80
Caustic soda, 70°	2 00	" 2 10
Chlorate of potash	0 13	" 0 15
Alum	1 35	" 1 50
Copperas	0 70	" 0 75
Sulphur flour	2 00	" 2 50
Sulphur roll	3 00	" 3 50
Sulphate of copper	4 50	" 5 00
White sugar of lead	0 07	" 0 08
Bich. potash	0 09	" 0 10
Sumac, Sicily, per ton	70 00	" 75 00
Soda ash, 48° to 58°	1 15	" 1 25
Chip logwood	1 90	" 2 00
Castor oil	0 09	" 0 09½
Cocoonut oil	0 06½	" 0 07

A. KLIPSTEIN & CO.

122 PEARL STREET, NEW YORK.

Chemicals & Dyestuffs

Fast Color for Wool—Dry Alizarine, Phenocyanine, Gallocyanine.
Direct Cotton Colors—Auramine, Congo Red.
Azo Colors—Naphthol Yellow, Orange, Scarlets, Fast Red.

HEADQUARTERS FOR

Caustic Potash 90% Carbonate of Potash
Chlorate of Potash Bleaching Powder
Phosphate of Soda Refined Cutch A.K.C.

WRIGHT & DALLYN, Agents, Hamilton, Ont.

JOHN W. LEITCH & CO.

Milnsbridge Chemical Works, near HUDDERSFIELD, ENGLAND.

PHENYLENE DIAMINE (DISTILLED)
TOLUYLENE DIAMINE (DISTILLED)

Bismarck Brown, Chrysoidine, Crystals and Powder. Largest makers in the world.

Soluble Blues—all shades.

Binitro Benzol and Binitro Toluol.

Reduced Indigo. Wood & Leather Stains.

Specialties for Cotton, Wool and Silk Dyers, Paper Makers, &c.

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MADE OF COPPER, TIN AND STEEL

ORNAMENTAL,
EFFECTIVE,
STORM-PROOF,
DURABLE.



For Ventilating all kinds of
Buildings.

Down-Draughts Prevented.

We will mail free our Illustrated Catalogue of Tiles and Ventilators to intending Builders.

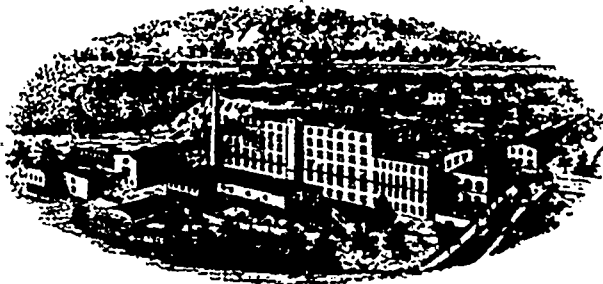
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Sole Manufacturers.

517 Arch Street, Philadelphia



ROSAMOND WOOLEN CO., ALMONTE, Ont.



Fine **TWEEDS, CASSIMERES, and Fancy WORSTED SUITINGS AND TROUSERINGS**

Colors warranted as fast as the best British or Foreign goods

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CAPITAL, \$200,000.

Insurance against burglary and housebreaking. Policies clear and free from vexatious or restrictive clauses.

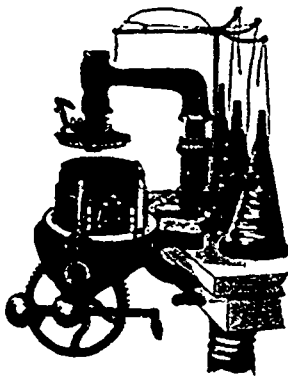
CHAS. W. HAGAR, General Manager

CREELMAN BROS.

GEORGETOWN, Ont.

Manufacturers of

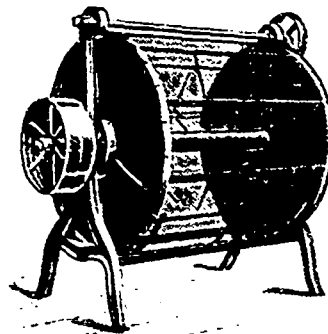
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AND
"THE STAR," Steam Power,
AND
"THE WORLD'S STAR," for
Knitters

PATENT WASTE CLEANER

For Cleaning Woollen Card-Waste.



Does not Damage the Staple

Loses Nothing but the Dirt!

Over 500 at Work.

Price £25 packed at Liverpool
Space occupied 3 ft. 6 in. x 3 ft 6 in
Power required 1/2 H.P.
Production 1000 lbs. per day
Weight packed, 14 cwts

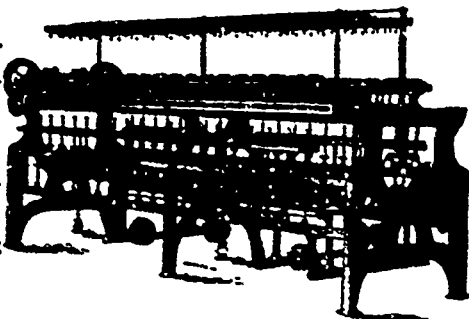
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BRADFORD, ENGLAND.

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ing Mills, Soaping
Machines, Cloth
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Wool & Waste
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Dead Spindle Spooler for Warp or Dresser Spools,
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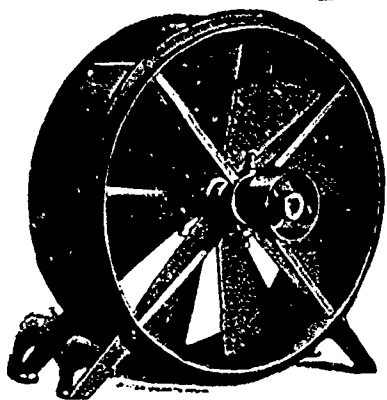
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Jute Binder Twine, Horse Blankets, Etc.

WOOLEN GOODS, TWEEDS, Etc.

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Velveteens, Velvettes, Furniture Coverings.

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**A workroom well ventilated
will increase its production.**
**Our Exhaust Fans are used extensively
for removing smoke, dust,
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 Manufacturer of **Novelty Braids**
For Ladies' Dress and Wrapper Trimmings. Braided and Woven Spool Tapes and Bindings. Tapes for Underwear, and Round Braids. Cotton Banding and Hook Bands.
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William Hollins & Co., Limited, Nottingham, Cashmere, Worsted, Merino Yarns
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James Smethurst & Sons, Manchester and Bolton; Cotton Yarns.
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The Canadian Textile Directory

1899 Edition Just Issued.
CLOTH, \$3.00.

THE CANADIAN TEXTILE DIRECTORY is more than a mere directory of names. It gives facts and figures about the textile trades of Canada which have been attempted in no other work. It contains not only lists of all the general stores, retail dry goods dealers, hat and fur dealers, clothiers, haberdashers, tailors, milliners, etc. (the retail lists contain over 19,000 names), but all the wholesalers and commission merchants or manufacturers agents in similar lines, and all the mills and factories engaged in manufacturing fabrics connected with the textile and kindred trades. It is the only work in Canada which gives a full list of the boards of trade, commercial travelers associations, and dry goods and kindred associations, while the immense amount of statistical information, such as the details of the imports and exports of dry goods, etc., the tariff of Canada, of the United States and Newfoundland, sterling exchange rates, etc., make it indispensable in an office of any pretensions.

As an example of the information given in the various lists of manufacturers, the following shows the form of report of the Woolen Mills. Name and address of Proprietors, and names of the Officers (if a joint stock company), the capacity in sets of cards, looms and spindles, when established, whether water, steam or electric power, description of goods manufactured, whether the mill has a dye house, and names of selling agents, if any. Corresponding information is

given concerning the other mills, of which the following is a list. Asbestos miners and manufacturers, manufacturers of awnings, batting (wool and cotton), bedding, binder twine, braids, buttons, caps, carpets (including hand loom weavers), children's wear, cloaks, clothing, collars, cuffs, cordage, corsets, cottons, embroidery, feathers, felts, flags, flax, fringes, furniture, gloves, hair cloth, hats (straw, felt and cloth), haberdashery, horse covers, hosiery, jute goods, lace, ladies' wear, mantles, mats, mattresses, men's furnishings, millinery, mitts, neckwear, oil cloth, oiled clothing, overalls, paper, pulp, pins, print goods, regalia, rope, rubber goods, sails, tents, shirts, shoddy, felt, straw goods, suspenders, tarpaulins, tassels, thread, tow, trusses, linens, umbrellas, upholstery, wadding, water proof garments, webbings, window shades, worsteds, etc. The woolen mills include the carding mills, manufacturers of tweeds, blankets, flannels, yarns, homespun, and all other piece goods, carpets, felts, and all kinds of knitted fabrics. The cotton mills include all classes of cotton piece goods, yarns, wadding, batting, etc. There is also a complete list of the tanners and curriers, laundries, dyers, dealers in raw wool, furs, etc. Under each heading the whole of Canada and Newfoundland is included.

The number of copies left on hand is limited and those wishing to secure a copy before the edition is exhausted should order without delay. Address,

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 Hetherington's Patent Revolving
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Combing Machines.
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 Self-Acting Mules.

Curtis Sons & Co., Patent Worsted Card, Woolen Cards and Mules.
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 Bottoms, etc.
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 Joseph Stubbs, Manchester, England, maker of Patent Quick Traverse
 Gassing Frames for Cotton, Worsted and Silk Yarns; Yarn Pre-
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 Will make a saving of 50 per cent. in cost of making bands, besides the superior
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 These machines are now in use by the Montreal Cotton Company.
 We are also Builders of **BEAMING MACHINES**, to beam yarn
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Patent upright bottle
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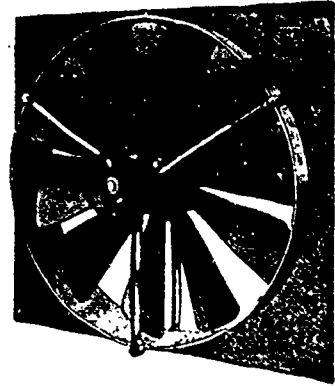
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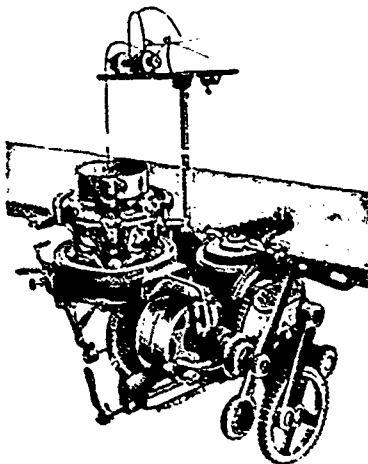
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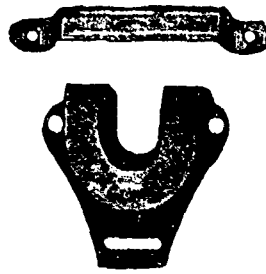
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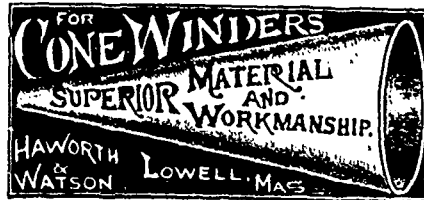


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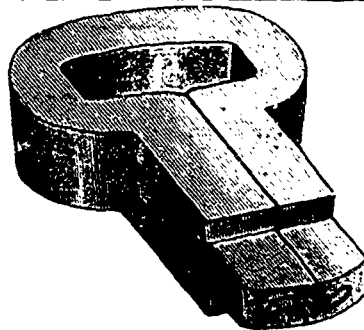
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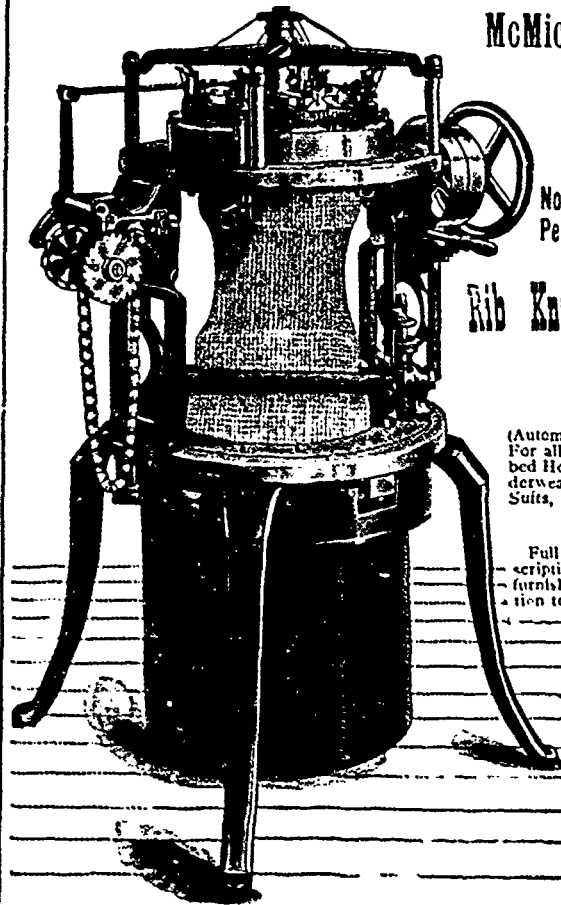
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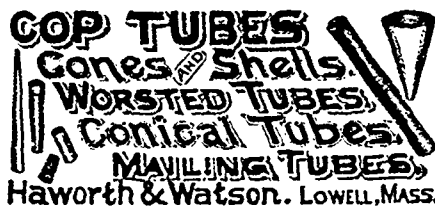
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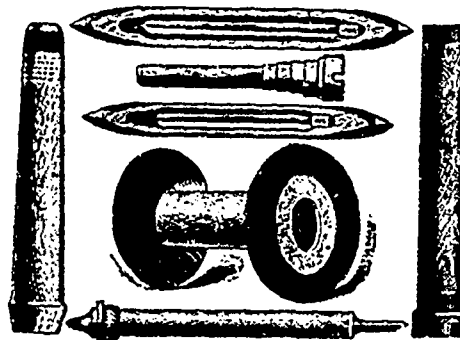
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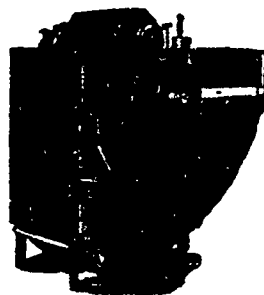
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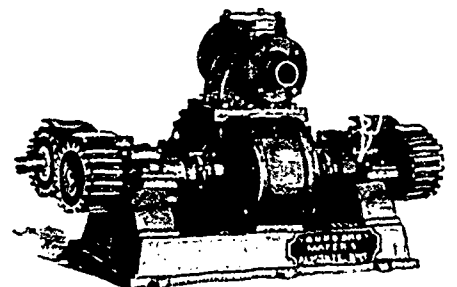
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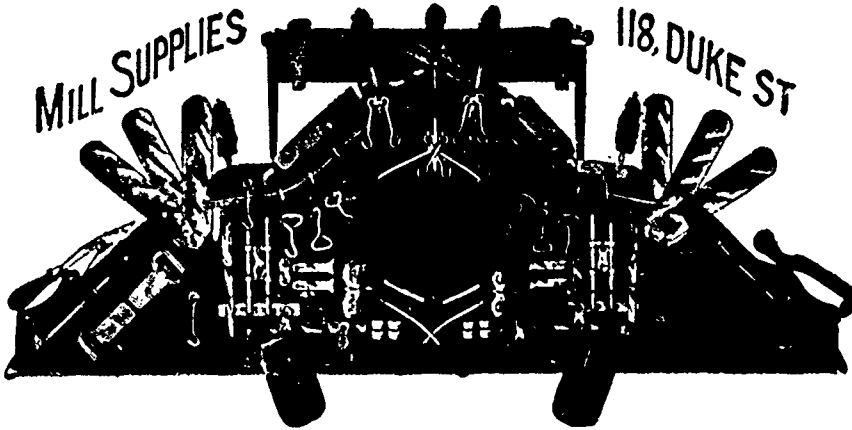


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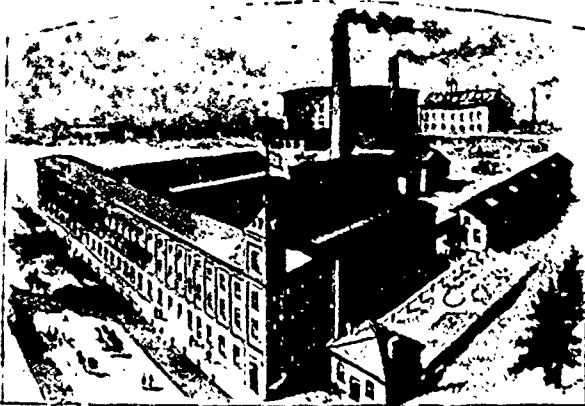
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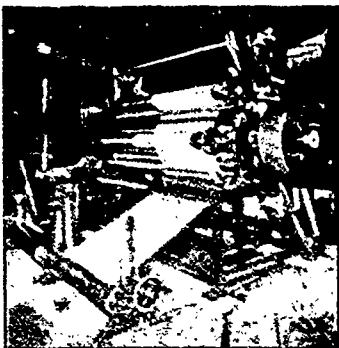
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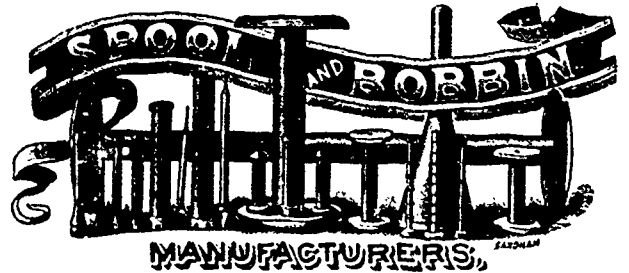


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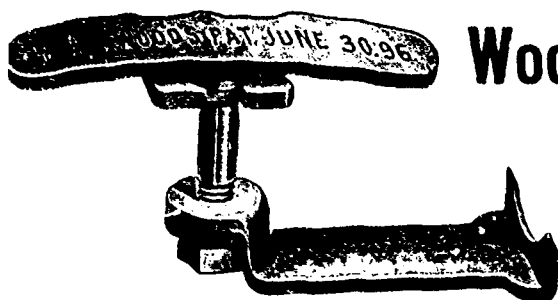
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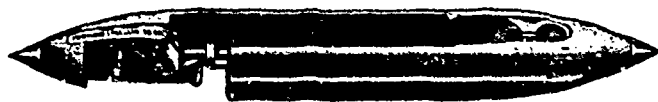


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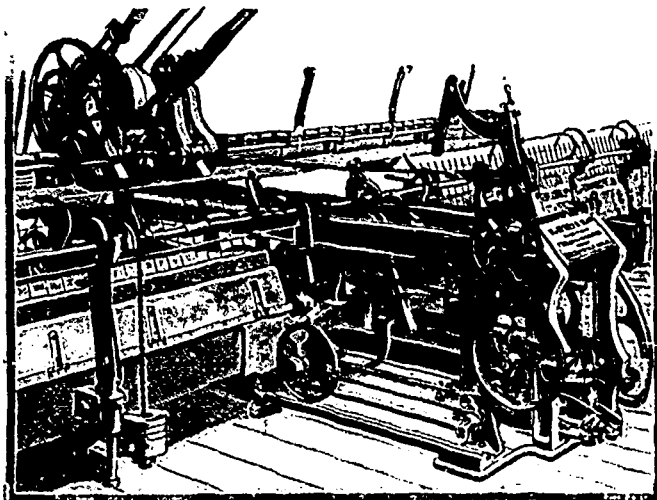
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FABRIC ITEMS.

A new woolen mill has been erected near St. John, N.B., by Alexander Willis, on the site of one formerly owned by him but which was destroyed by fire a couple of years ago.

The new buildings of the Dominion Brussels Carpet Co. at Sherbrooke, Que., are now completed; the machinery is being set up and it is expected that work will begin by Sept. 1st.

Fire caused considerable damage in W. Blue's clothing factory, Sherbrooke, Que., last month. The electric motor is said to have been the cause. The loss was covered by insurance.

Geo. H. Street, Delhi, Ont., pump manufacturer, has gone into the woolen business, and is putting in a one-set mill at that place. It will do custom work and manufacture coarse tweeds.

B. Tooke, F. T. Tooke, W. A. Tooke, J. McNab, F. W. Stewart, Montreal, have been incorporated as Tooke Bros. Ltd., with \$200,000 capital, to carry on the present business of Tooke Bros. as manufacturers of shirts, collars, etc.

Moisan & Moisan, dry goods, St. Catherine street, Montreal, were burned out last month; loss, \$10,000; insurance, \$8,000.

H. Lockart, Almonte, Ont., had the top of one of his fingers taken off recently by a machine in the Golden Fleece Mills.

John Runcimen, dry goods merchant, St. John's, N.B., was accidentally drowned at Oromocto, July 27th, while attempting to board a moving steamer from a small boat.

The W. R. Brock, Co. Ltd., Toronto, has bought the business of Jas. Johnston & Co., wholesale dry goods, Montreal, and will run it as a branch of the Toronto business.

James Coristine, C. Coristine, B. W. Grigg, D. B. MacPherson, C. B. Carter, Q.C., Montreal, have been incorporated as Jas. Coristine & Co., Ltd., to manufacture hats, caps, furs, etc., in Montreal; capital, \$300,000.

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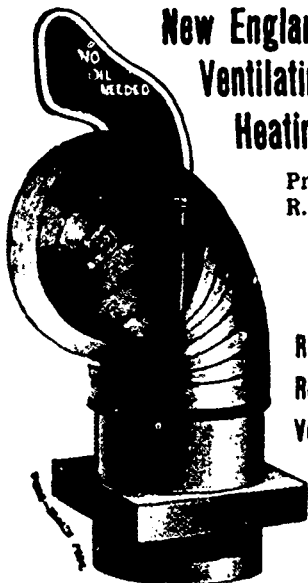
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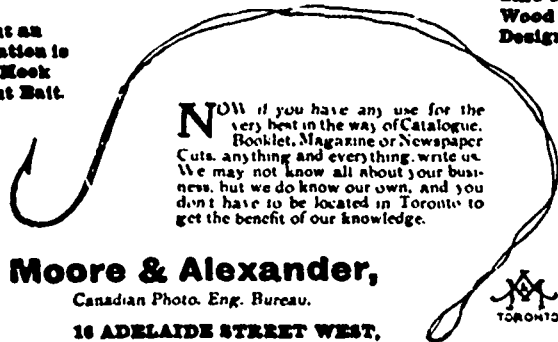
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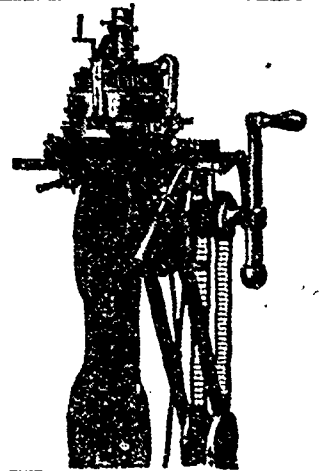
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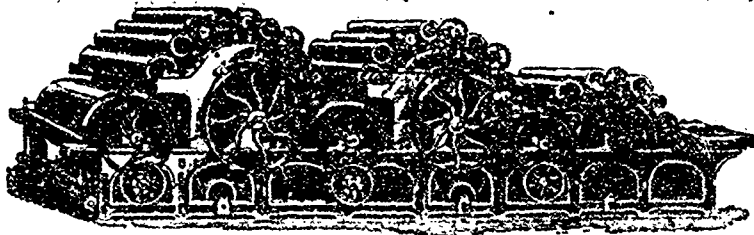
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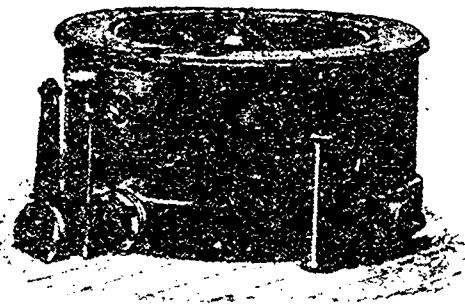
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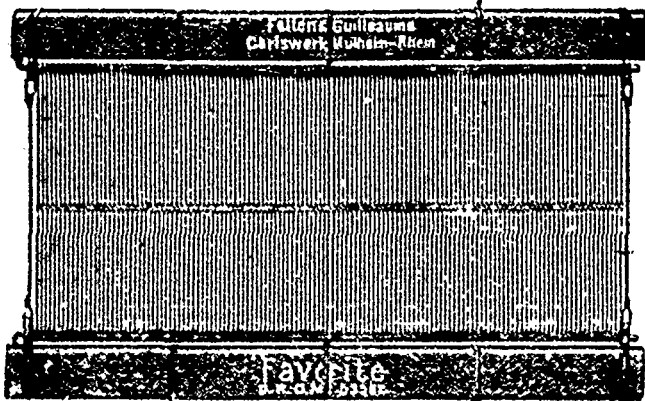
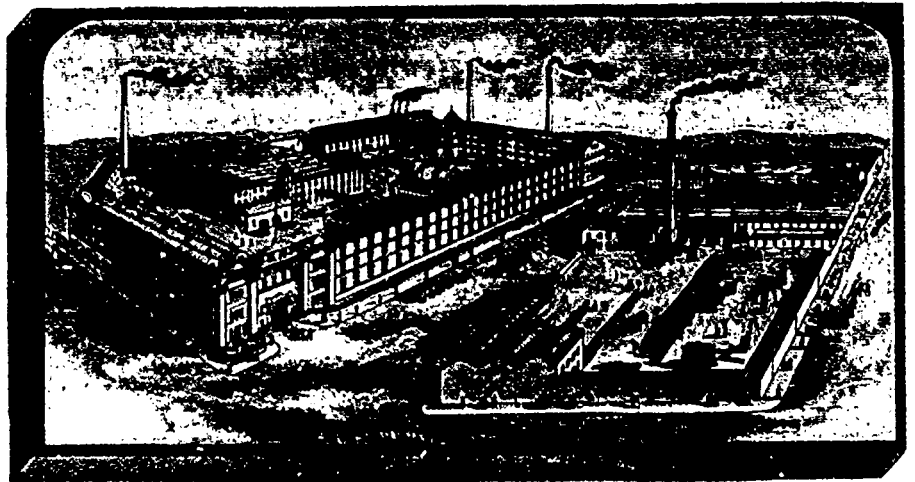
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