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# CANADIAN Journal of Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XIV.

TORONTO AND MONTREAL, OCTOBER, 1897.

No. 10.

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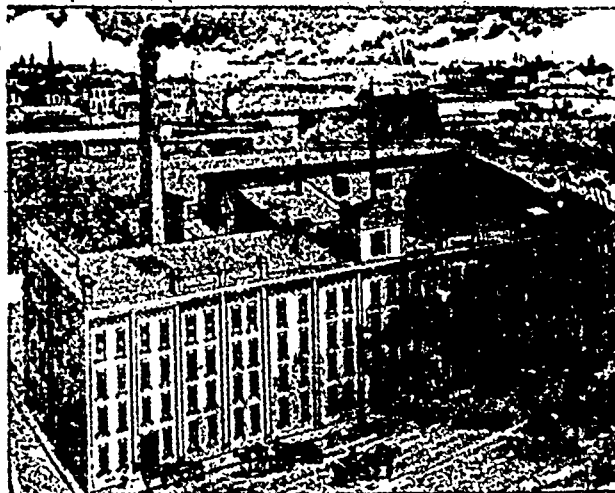
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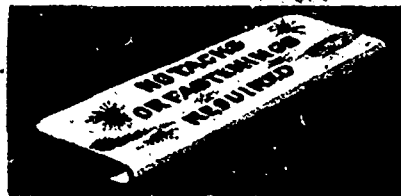
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# CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XIV.

TORONTO AND MONTREAL, OCTOBER, 1897.

No. 16.

## Canadian Journal of Fabrics

A Journal devoted to Textile manufactures and the  
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Subscription Canada and United States, \$1.00 per year. Great Britain 5s.  
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### THE CANADIAN TEXTILE DIRECTORY

A Handbook of all the Cotton, Woolen and other Textile manufactures  
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## Editorial.

### Spinners Afraid.

Spinners for the trade of woollen and  
worsted yarns are seriously affected by the  
new tariff, and state that, when the second  
instalment of the reduction provided for in the preferential  
clause goes into effect next year, they cannot compete with  
English spinners. One manufacturer of yarns in Ontario  
takes so serious a view of the outlook that he contemplates  
moving to an American city, where for the next three  
years at least, tariff conditions afford prospects of good  
profits. It appears to have been a question of the strength  
of "pull" possessed by the hostery manufacturers as

against the Canadian yarn spinners, and the smaller  
interest appears to have been sacrificed for the greater.

### Insolvency Law.

What is the cause of the delay in enact-  
ing the insolvency legislation which has  
been so urgently demanded for some years  
past by the boards of trade and by the leading business  
men of Canada generally? Is it that any one class in the  
community would be adversely affected by such legisla-  
tion, or is it possible that there is "nothing in it" for any  
of the legislators, and hence the wheels of the legal mill  
grind so slowly? The advances which we are making in  
our trade relations with Great Britain are seriously  
hindered by the reputation which Canadian traders have  
in the British market. It is all very well for us to build  
fast Atlantic steamers, establish cold storage systems,  
and preferential tariffs, but trade is not a river which  
is content to flow with full current in one direc-  
tion; there must be a reciprocal action, and if our pro-  
ducts are to go to Great Britain, the products of Great  
Britain must come to us. The bad odor in which Cana-  
dian traders are held across the Atlantic, may be seen by  
the following quotation from a leading London mercantile  
journal, when commenting on a recent Canadian failure.  
"The sole partner in the house of --- and ---, is finan-  
cially embarrassed, but it is unknown how the estate may  
turn out, although he owes \$25,000 or more. If I mistake  
not, this firm has had a financing creditor, who, in these  
hard times, has perhaps been anxious to "get out," which  
is not always an easy matter. But the Canadians will  
patch it up in some way, and Irene will, no doubt, start  
again with the usual Canadian surplus." A vast number  
of the men in business in Canada to-day are insolvent.  
They go on from year to year, wearing out their lives in an  
effort to meet the payments on their growing liabilities,  
and piling up fresh indebtedness by the exercise of the  
most marvellous ingenuity, till some day the largest credi-  
tor grabs the remnants of what was once a fine business,  
and the small fry are left without anything. The Scotch  
law is a good one, which makes it criminal for a man to  
carry on business when insolvent. Any law is better than  
ours, if it compels an honest distribution of a debtor's  
assets.

### Trade

The state of trade at the present mo-  
ment is generally satisfactory. A large  
crop and high prices have made the far-  
mer's position easier, the local merchant is meeting his  
paper promptly, and the depleted coffers of the wholesale

dry goods merchant are rapidly filling up. In time this must have a marked effect on mill prices, though as yet it has only stimulated production to a certain extent without causing any marked advance in prices. In the meantime the bank clearings continue to increase, our railway earnings are piling up at a wonderful rate, and there is a general feeling of buoyancy in the market.

#### Cotton Prices.

Under the influence of large receipts at cotton ports recently, and of a certain amount of indifference on the part of speculators, the tendency of the market is downward. The reported receipts of cotton during September are 236,772 bales, against 231,442 bales for the same time last year. The exports for the corresponding periods are 292,757 bales, against 458,135 bales. The Liverpool market also shows a decline, and spot cotton has been limited to a moderate demand only. Middling cotton on October 1st, 1897, was 6½c., as against 8½c. in 1896, 9½c. in 1895, and 6¼c. in 1894.

#### The Outlook.

While everyone is talking of the rapidly improving trade conditions now prevailing in Canada, and commenting favorably on the outlook, it seems a fit time for that favorite occupation of the theologian "self-examination." How are we going to take prosperity when it comes? Will our manufacturers when they feel an increased demand enlarge their plant so as to place an enlarged output upon the market? Possibly, but if they are wise they will not. If they do expand their operations it is to be hoped that it will not be upon the lines hitherto so often followed, of buying the cast out machines from our rival's factories across the line or in Great Britain. Any expansion which may take place in manufacturing should take the form of improved processes and the replacing of machines now worn out, and probably antiquated when installed, by the most advanced apparatus made by the most skilled workmen in the world, wherever it may be found.

#### Sweating.

The recent labor congress passed the following resolution, presented by the Garment Workers' Association, reflecting on the Manufacturing methods pursued by the Government clothing contractors: "Whereas the uniforms for the militia and public officials of this country are manufactured by contractors for the Government in sweat shops and tenement houses, under conditions that do not guarantee to the people of Canada that proper sanitary precautions have been taken to protect the health of the wearers and workers, and a fair wage has been paid to the workers thereof; therefore, be it resolved, that this congress urge upon the Dominion Government to establish under its control a factory where all clothing necessary for the public service be manufactured, or if clothing be again contracted for, that a clause be inserted in the contract that all garments bear the label of the United Garment Workers of America."

#### Shorter Credits.

The movement for shorter credits is extending. The leading boot and shoe manufacturers of the Province of Quebec recently sent out the following circular on the subject. It

must be a subject of interest to every manufacturer in Canada, and is a straw from which the direction of the wind may be estimated. The circular said: "We, the undersigned shoe manufacturers, hereby give notice that, on and after the first day of October next, our terms and conditions of sale to the jobbing trade will in no case be longer time or larger discount than the following, viz.: 30 days 6 per cent., 60 days 5 per cent., 90 days 4 per cent., from date of shipment of goods. No dating ahead. On all overdue accounts beyond 90 days, all discounts to be forfeited. On payments previous to 30 days, interest at 6 per cent. per annum only will be allowed."

#### THE LONDON WOOL SALES.

The fifth series of London sales of colonial wool commenced 28th September, 1897, with catalogues comprising:—

Sydney.....	1,245	bales out of an available total of	33,000	bales.
Queensland....	1,671	"	33,000	"
Port Phillip....	953	"	20,000	"
Adelaide.....	—	"	3,000	"
Tasmania....	200	"	1,500	"
W Australia..	181	"	1,500	"
New Zealand..	3,933	"	65,000	"
Cape.....	678	"	13,000	"

8,861 bales out of an available total of 170,000 bales.

There was a very large attendance of buyers on the first day, and keen competition. Australian wools ruled on an average 5 per cent. higher than at the close of last series. Among merino wools the rise is often greater, especially in the case of medium and inferior scoured, where it reaches 7½ per cent., while in the best scoured it is less marked. Grease which was but poorly represented, fully shared in the general advance, some superior lots selling very high. Among crossbreds fine sorts sold 5 per cent. above July, but the rise was less in the lower classes. Capes were unchanged. The arrivals in time comprise 178,346 bales (138,926 bales Australasian and 39,420 bales Cape). Deducting what has been forwarded direct, but adding the wools held over from last series, the total available will amount to about 170,000 bales.

The attendance throughout was large, and prices were well maintained. The series closed on October 12th. On that day 9,978 bales were offered, of which 1,000 were withdrawn. The attendance was large and the demand keen. Finer grades of merinos sold well up. Scoureds were firm, but faulty descriptions ruled weak. A small supply of Cape of Good Hope and Natal Western scoured sold as high as 1s. 5d. The home buyers purchased a large quantity of crossbreds. The American inquiry was small, and only speculative. The day's sales in detail were: New South Wales, 1,209 bales scoured, 8¼d. to 1s. 2¼d.; greasy, 6d. to 10d. Queensland, 116 bales; greasy, 6¼d. to 7¼d. Victoria, 1,266 bales; scoured, 8¼d. to 1s. 5¼d.; greasy, 5¼d. to 8¼d. South Australia, 189 bales; 5¼d. to 7d. West Australia, 228 bales; scoured, 1s. 2d. to 1s. 3¼d.; greasy, 6d. to 7¼d. New Zealand, 6,709 bales; scoured, 6d. to 1s. 3d.; greasy, 4¾d. to 9¾d. Cape of Good Hope and Natal, 261 bales; scoured, 8d. to 1s. 5d.; greasy, 6d. The next series will be held

November 25th. The first series for 1898 will be held January 18th, and the second series for that year March 15th.

#### ONTARIO'S FIRST HAT FACTORY.

Canniff Haight, the author of that interesting book "Country Life in Canada Fifty Years Ago," has written some equally interesting reminiscences of the first settlements of the U. E. Loyalists in Adolphustown, then known as "township No. 4." In these papers Mr. Haight gives an account of what was evidently the first hat making in Ontario. The beaver hats of that time were, of course, made from actual fur, probably muskrat, the nap being very long. Mr. Haight's reference to this factory is as follows: "Among the first of the United Empire Loyalists who located in the township was one George Rutter, a hatter by trade, and who very early after his establishment on Hay Bay, commenced to manufacture hats about 1790. In a few years Rutter brown hats became an important item in male attire, and his patrons from all parts of the country came and left their measure for them. I think the Quakers, perhaps, were his best customers. Their long napped broad brims were a striking feature in their dress. They were dyed black, and the brims were fully six inches wide. I do not remember the price, but they were expensive. His son John succeeded, and continued to make hats in my early days. The old factory was a small frame building, standing on the bay shore. I am quite safe in saying that this was the first hat factory in the Province."

#### WASTE IN WEAVING SHEDS.

When speaking of waste in weaving sheds, says a writer in the *Factory Times*, we allude not only to the amount of waste yarn and web that does not become used for its original purpose, but the term includes all the material which is thrown away as being no longer fit for service in the manufactory. One very expensive item in the operations of the weaving shed is the leather account, and in many cases, through a policy of false economy, this is excessive. In sheds which are supplied with elbow pick looms, the picking bands, or picking straps, as they are called in some districts, have to do a great amount of work; and owing to the great speed at which these looms are often run, it is evident that these picking bands must be of very good quality, otherwise great loss ensues to the weaver, overlooker, and particularly to the employer. There are few things in a mill that are more necessary than a good quality of picking band. Many kinds of picking bands in the market would be dear if they were given, and considering the difference in price between the "cheap" ones and the better ones, the extra cost is much more than recouped by the better quantity and quality of cloth woven.

Of course, all looms, whether of the fast reed or loose reed kinds, are supposed to be always in such perfect condition that, when the picking band breaks, and the shuttle is stopped in the shed, no breakage of the yarn will result, and no bad place in the cloth; but, practically

speaking, this cannot always be the case, especially when the loom, or its protector, or loose reed mechanism, is of an uncertain age. The best picking bands cannot last forever, it is true; but a "cheap" picking band will sometimes not last two days. "There is nothing like leather, and though a composition of brown paper and rubbish may be pressed together and made to look like picking bands, these have not the same durability as leather ones." To a great extent the same remarks might be applied to all the leather that is required in the weaving shed. The loom in its operation is subject to a variety of somewhat jerking motions, and in connection with these a certain amount of strapping is necessary; and though the thickest of leather is not in every case advisable, it is certainly necessary that the leather should be properly tanned and not liable to crack.

When given a supply of good serviceable strapping and picking bands, it is the duty of the overlooker to arrange his looms so that an economical use of his supplies is achieved. This is not a matter that can be entirely found out by reading, but requires a certain amount of reasoning and experience. Care should be taken that too much force is not exerted in the picking of the loom, and also that the picking bands are not too long. The springs on the swells should not be too strong, and the proper oiling of the various parts of the loom should be attended to. One method of arranging for an easy pick is by taking care that the picking mechanism is causing the shuttle to start a little before the cranks are on the bottom centre. This gives the shuttle time to travel across the loom without any awkward jerking.

As regards the driving straps, these could be saved to a great extent by always running the loom with the entire width of the strap on the fast pulley. When a strap is running with only a portion of its width on the fast pulley, the power of the strap is greatly reduced, and also its durability, as it in a manner becomes torn by the strain of operating at one side of the strap and not evenly over its entire width. In repairing or lacing straps great care should be taken that the over-lap of the strap is placed right, so that it is not liable to catch the hand when running, or in case of a cross strap, so that the over-lap does not catch the strap at the crossing. The pickers when received at the mill usually require to be steeped in oil, and then well dried before using. If they were steeped about a month, and then hung up in a dry place for another month, their serviceableness would be increased, though after the steeping the longer they are "drying" the better, and if they could be hung up for six or twelve months they would be greatly improved. Care should be taken, however, that they do not come into contact with water, and that they are not hung in a damp place.

One very great source of waste in weaving sheds is the faulty condition of the shuttle tongue. The stem of the shuttle tongue should be quite straight, and should be set straight in the shuttle, neither too high nor too low. When shuttle tongues are not straight, it is almost impossible for the weaver to shuttle the cops properly, without having to pull a considerable amount of the web out of the cop, and as this is afterwards impossible for the

remaining portion of the cop to be entirely used, a great amount of waste is thus produced, which might be saved if the shuttle tongue was attended to. In order to obtain the best results, the shuttle tongues should be of a kind suitable for the weft to be used, and shuttle tongues suitable for very fine weft, say 80s or 100s, are not generally suitable for using in connection with low numbers, as 20s. In order to avoid making too much waste, care should be taken that the loom does not pick too strong, and that the shuttle runs straight and enters the box easily, though the springs which act on the swells should not be too strong nor too weak.

The proper method of shuttling a cop, though to all appearances a very simple matter, is learnt only after a certain amount of practice, and when the weaver receives cops which have been damaged by careless doffing, or by having been badly packed, it generally requires a very experienced weaver to make even a comparatively successful attempt to weave them. In shuttling cops in the ordinary way, when the cop has been placed on the tongue, a little of the weft is placed across an opening in the head of the shuttle, and the weaver putting his or her mouth to an eyelet hole in the side of the shuttle, by suction draws up the weft. This in itself appears a very simple matter, but in quite a number of cases medical men have traced diseases of the lungs, etc., to this cause. This is especially the case in the weaving of colored goods in which colored weft is used, as a certain amount of poisonous fluff is liable to be taken into the system.

Though it is perhaps too much to expect that textile manufacturing will some day be carried on entirely free from danger to life, eyesight, limb and health, still there ought to be some attempts made to render existence in a mill as safe and as little detrimental to health as possible. The lawyers seem to have come to the conclusion that a shuttle is a dangerous part of machinery on account of its liability to be thrown out, but the ordinary shuttle may also be considered a dangerous part of machinery on account of its being a means of injecting various injurious substances, such as indigo, madder, arsenic, etc., into the lungs. Winding and warping in the colored trade may also be considered injurious to health. There has been an ingenious American patent, the purpose of which is to relieve the weaver of the necessity of sucking up the weft through the eye of the shuttle, but this somewhat complicated suction pump does not seem likely to become a favorite with either employers or weavers. There are a number of "self-threading" shuttles on the market, and there seems to be a likelihood of a good future for them, especially in the colored trade.

#### ANGORA GOATS.

One of the most lucrative industries in the Karoo districts of South Africa is Angora goat farming, and although it has only been established for less than forty years, the Cape bids fair to become the most important centre of mohair production in the world. The early attempts to import this goat from Angora were attended with great loss of money and great disappointment, nearly all the goats dying either on the way to the Cape or very soon after land-

ing; in fact, of the early importations only a very small number survived. But in 1879, a large importation was successfully made by three different firms or individuals, who landed a large number of pure-bred Angora goats at Port Elizabeth, where they were sold at from \$500 to \$2,000 apiece. Soon after that, the exportation of Angora goats from Turkey was prohibited for a time; but, in 1894, Mr. Rhodes obtained the relaxation of this prohibition. Early in 1895, a shipment of 200 Angora goats, after being quarantined, was sold at Port Elizabeth at an average of \$250 apiece, some of the rams selling for as much as \$1,500 each. At present there are somewhere about 4,000,000 Angora goats in the colony. According to a Cape Colony authority, the Angora in the colony is not now pure-bred; the original imported rams were crossed with carefully selected pure white Boer goat ewes, and from the succeeding in-breeding the present flocks have sprung, and a fine, glossy, silky fleece secured. Indeed, it is accepted that mohair can now be produced in Cape Colony as perfect in quality and as beautiful in lustre as any produced in Angora itself. The goat itself is a pretty-looking little animal, looking, with its long white, wavy fleece, more like a sheep than a goat. The beard, too, so characteristic of the goat, is almost hidden in the long hair about the neck and face. The head is small and narrow, with drooping or lop ears. Horns—light in color, flattened, twisted slightly and spreading outward—are possessed by both rams and ewes, though they are smaller in the latter. The small body is thickly covered with a beautiful long fleece of white lustrous, wavy, silky hair, which, in well-bred goats, nearly reaches the ground; and, in addition to this long hair, there is an inferior under coat of hair, or second coat, which has its own separate market value. The Karoo and higher lands of the colony are the places where the Angora flourishes best. Almost every farmer in the Karoo has his flock of Angoras, some several flocks of several hundred in each. Every morning the flocks are driven out of kraals or sheltered inclosures into the veldt, where they are allowed to wander and graze all day, but at night they are driven back to the shelter of the kraal after being taken to the dam to be watered. Angoras are sheared about June, when a good fleece will average from five to six pounds in weight, with hair from five to six inches long. About November the goats tend to shed their hair, but rather than lose it the farmer again shears in October. After shearing, the wool is packed into large bales, which are fastened securely with iron bands; it is then exported to England for manufacture, a large part going to Yorkshire. In 1895, mohair to the value of \$3,500,000 was exported, and at the present time, one-tenth of the total British supply is received from the Cape. Among the most dreaded foes of the timid little Angora are the jackal, the red lynx and the baboon; the two former kill the kids for their flesh, but the baboons rip open the udders of the ewes in search of milk, and even open the stomachs of the kids for the sake of the curdled milk they may obtain. The first two animals are poisoned and hunted down with dogs where possible, and to keep down the baboon, shooting parties are frequently organized. By way of encouraging the extinction of these pests, the



Government pays 3 shillings a tail for jackals and 1 shilling a tail for baboons.

The raising of Angora goats in Africa and in other foreign lands, directs inquiry into the efforts in this direction, that are being undertaken in the State of Maine, U.S.A. We have the report, says a writer in the *Textile World*, that experiments are being made in the newly cut but uncleared lands of northern Maine, by one Major Charles J. House, of Augusta, who is securing leases of wild lands and hiring goat herders. According to Major House's theory, as reported to us, there is more money in goats than in sheep. A sheep is doing well if she raises one lamb in a year and brings it up to a salable age. A goat brings forth young twice in a year, producing two or three at a birth, and can be relied upon to rear three young ones every season. Since the price of wool went down, the pelt of a fat kid is worth as much as a lamb's skin with the wool on it, while the meat of a young goat is fully as good to eat as that of a lamb. Sheep are subject to many diseases, the flocks are constantly raided by dogs and wild animals, and the farmer who would grow sheep for profit must build barns, buy provender, and make a great outlay for hay. Goats are hardy, cropping the sprouts from stumps in the clearing, eating coarse hay, and enduring all kinds of weather without harm. The billy goats in a flock are able to keep the dogs and bobcats away. For these reasons, Major House proposes to turn the great raspberry and blackberry wilderness of Maine into a goat pasture, stocking a half million acres of land with approved breeds of goats, and putting them in charge of goat herders, who must attend the flocks, cut meadow hay to carry them through the winter, and cull out the young males for market as fast as they grow. The females will be kept for breeding purposes for a few years until the waste territory is occupied. The company, with which Major House is connected, will start out with about 500 goats and two herders. If the experiments succeed, the Major hopes to have 100,000 goats at the end of this century, and thinks the company will get a net cash profit of \$1 a head for every goat.

#### THE NEW YORK WOOL SALES.

The merchants of New York city have embarked on a crusade to enlarge the trade of that city. This is felt to be necessary from the fact that in recent years the trade of the city has fallen off enormously. Not so much, perhaps, in the actual volume of trade done, as compared with that of previous years, but the volume of the export trade of New York, when compared with that of the whole of the United States, has been cut in two by the rise of such great shipping centres as Newport News in the middle east and Galveston in the far south. The wholesale dry goods merchants have induced the railways to grant excursion rates from all over the Union at the buying seasons, in order to centre the wholesale trade in their city, and so far the experiment has been successful. The wool market of the United States has hitherto been chiefly in Boston. To centre the trade in New York, a Wool Exchange has been opened, and a regular series of

sales instituted. The first of these, held in August, was a failure, owing to the fact that those offering wool did not seem disposed to deal fairly with those who came to buy. The method of selling a few bales to test the price bid, and if not satisfactory and up to the market, the wool being withdrawn, was not what buyers expected, and the greater bulk of it was withdrawn. The prices realized upon the wool sold were in some instances up to the market, but the bulk of the bids were below it, and because of this, the greater part of the lots catalogued were withdrawn or bid in by their owners.

At the second auction of the first series of wool sales at the Wool Exchange, New York, the amount realized was about \$300,000, and although the attendance was not so large as at the previous sale, on August 18th, there were many more actual buyers present. The lots sold were also much larger than at the former sale, although fewer in number, the entries being over 1,100,000 lbs. Several important changes were made in the methods of conducting the sale compared with the previous one. The sale was entirely peremptory and no offerings were withdrawn, as was the case formerly, whereby considerable criticism of the first sale was occasioned. A change was also made in the arrangements of the seats, which were placed in semi-circular rows about the auctioneer's desk, so that nearly all were immediately under the auctioneer's eye, thus stimulating the bidding. The terms of the sale were also amended so as to make it possible to obtain special arrangements for settlement by conferring beforehand with the auctioneer.

The third of the first series of sales took place September 29th. The catalogue comprised a miscellaneous assortment of foreign and domestic wools, both scoured and in the grease, and the entire offering amounted to more than 1,000,000 lbs. Territories, Texas, Australian and South American crossbreds, Capes and carpet wools, together with some choice grades of scoured wools of various kinds, were disposed of. There was a very satisfactory number of wool dealers and brokers from the New York and other markets present, as well as some representative manufacturers. The first lot, comprising 50 bales of fine Montana, was knocked down to a Boston buyer at 14c. Throughout the sale bidding continued active, and the prices realized are generally admitted to compare very favorably with regular market quotations, says the *New York Dry Goods Economist*. Every lot was sold, with the exception of one or two lots of New York State wools, which arrived so late that the grading could not be completed in time. These will be offered at the next sale, while four lots of English scoured wools, which were entered in their place, brought good prices. A large number of the offerings were purchased by Boston buyers, while Philadelphia representatives were also active.

#### A JOKE ON THE TAPIS.

Pious Female—"Do they have matins in this church?" Old Man—"Yes mum, but they 'as oil cloth up t' the pulpit"—*The Sketch*.

H. W. PETRIE, of Toronto, has sold to George Easterbrook for shipment to Delagoa Bay, South Africa, an engine with other machinery and supplies for his flour mills to be erected there.



### THE TEXTILE MANUFACTURES OF ANGORA.

There are still a few spots left in the world to which modern industrial arts have not penetrated, and where life passes in a gentle current when undisturbed by political troubles. One of these is the vilayet of Angora, in Asia Minor, a province of the Turkish Empire. The capital of this vilayet is the city of Angora, which is a handsome town situated on a steep rocky hill, rising from the middle of a plain, in a mountainous district. This locality appears to be the native home of the celebrated Angora goat, which produces a fine, soft, silk-like fur, that grows to a considerable length. The body color is milky white, the legs short and black, and the hair is disposed in spiral ringlets or curls. The fleece of this animal first found its way into the European markets under the name of Mohair. It is chiefly exported from Smyrna. In England the hair is mainly manufactured in Bradford, Norwich, and a few smaller centres. It is used for a fairly numerous class of goods. In the district of Angora there are somewhat extensive native manufactures, and the town is the seat of an English Consul, W. S. Richards, who now holds the post, in a report just issued, gives some interesting details. As regards native fabrics, they consist mostly of cotton goods, although some are of silk, and a few of wool. They are manufactured principally at Tocat, Marsovan, Amassia, Aidin, Broussa, Castambol, Aintoh, Gurun, and Aleppo. Those which come from Tocat are made, so far as the warp is concerned, of yarn imported from Europe, while that which forms the weft is of native manufacture, being made mostly in Kharput. With the exception of the "fast" reds which are imported from Switzerland and Germany, such yarn as is imported is dyed in the country, native dyes being rightly considered far more durable than those which come from Europe. Mr. Richards is assured that colored yarns imported from Europe are not unfrequently re-dyed by the natives before they are used. At one time it would appear that the native-spun yarn was employed entirely in the manufacture of these fabrics, but subsequent experience showed that it was more economical to import the British article for the warps, although the latter is less strong than its native rival. These fabrics consist chiefly of the following, the native (Turkish) term being given, as that which is best understood in the trade. Aladja, a somewhat coarse striped cotton material, used by both men and women for various parts of their dress. Yazma—small, printed muslin kerchiefs, worn as part of the head-dress by members of both sexes, the men winding it round their fezes so as to form a sort of turban, while the women, more especially the Christians, use it as a head-covering both in and out of doors. This article, of which very large quantities are now made in Angora, was at one time imported almost entirely from Switzerland, among whose exports it figured so conspicuously that it was considered a specialty which defied competition from other markets. Now it is made almost entirely in various parts of Asia Minor, and if not quite so good as the Swiss article, it is certainly much cheaper. Kushak, or "cummerbund," as it is called in India—a strong, half cotton, half woollen material, generally dyed red. Amerikan—a coarse, plain, white calico, woven from English yarn, is used by the natives of both sexes as the material for their underlinen. Peshtamal—a rough, wholly cotton fabric, made up into an article, half towel, half apron, used for drying purposes in the native baths. Those of the native-made fabrics which consist of silk are imported mostly from Aleppo, although Broussa still sends a small quantity of such goods yearly. In the case of both towns, nothing foreign enters into the composition of their silk fabrics (except possibly the dyes, some of which are imported from Europe), the silk-worms being reared, the silk spun, the material woven and dyed on the spot. When completed, it is made up mostly into various articles of female attire of the better and more costly kind, though it is also used as a material for men's vests. As it is undoubtedly true that

this, one of the few forms of native industry which shows any sign of vitality, is making genuine, if not marked and rapid progress every year, it is thought by some that in the course of time, and indeed at no distant date, European, and more especially British importations into Turkey of cotton goods, cotton yarn, prints, and similar articles will undergo a most sensible diminution. Mr. Richards is not inclined to share these apprehensions, so long, at all events, as the existing economical and industrial conditions of Turkey remain unchanged, for the following reason. These native fabrics, even when made by the piece, are without exception short and narrow, just sufficient in fact to supply material for a whole costume whether for a man or woman, the difference between many of the essential portions of the two costumes not being so marked in the East as it is with us. The narrow width is owing to the smallness of the native hand-worked loom, and although of course the length might be considerably increased, yet the fact remains that they are all of a uniform length for the reason above indicated.

### THE SEWING THREAD COMBINATION.

For some time past reports have been current to the effect that the syndicate of which Messrs. J. & P. Coates are the leading members has secured control of the United States concern known as the Willimantic Linen Company. The rumor has been denied, but has been again revived. A contemporary states that the Willimantic Linen Co., the most important thread manufacturing concern that has not been absorbed by the syndicate of foreign thread manufacturers, is reported to be about to pass into the hands of the syndicate. A direct offer was made to the officers of the company looking to the sale of the entire capital stock. After some negotiation a price of \$31.25 was agreed upon between the directors and the buyers, and the directors selected Vice-President A. C. Dunham and Directors L. Brainard and T. M. Ives to interview the stockholders and get their consent. These gentlemen are now circulating papers for signature, and find no opposition. There are hundreds of stockholders, though among these some hold very large lots of stocks. It is understood that President L. A. Barbour represents something like 9,500 shares, Normand Smith's estate 5,000, the Ives estate 5,000, the Dunhams 3,500, and Wheeler & Wilson and others lots of thousands of shares each. There are in all 80,000 shares of \$25 each, representing a capital of \$2,000,000. The offer for the stock comes through a well-known New York lawyer, who says that he represents American not foreign buyers, but his relations to the Coates' are quite close, and the opinion prevails that, however literally true the statement quoted may be, the ultimate fact will develop that this deal is affiliated with the great Scotch thread trust that was organized a while ago, and that has given the Willimantic such bad times of late. The offer, it is understood, is not limited to the Willimantic Co., but it is the design of the syndicate to buy up every thread-making concern. The Merricks at Holyoke and others are also given a chance to sell out. It is said that the capital behind the thread deal is the largest amount combined in any one industry in the world. The Willimantic Co. has been materially affected by the recent cuts in the price of spool cotton, and has paid no dividend for some time past, the last being a 3 per cent. semi-annual dividend, declared in February, 1896. In old days the company for a series of years paid 20 per cent., besides occasionally allotting new stock at par to its stockholders. But in recent years the rate has dropped little by little, with the increasing competition in business, until dividends were entirely omitted as a "war measure." Many merchants will be sorry to hear of the absorption of this company in to the syndicate, as it will put them at the mercy of what is practically a spool thread trade. The tendency of this trust has been to sell direct to consumers and ignore the wholesale houses by its rebate arrangements with buyers of quantities. As the quantities to entitle buyers to a rebate have

been growing less, it tends to induce them to purchase direct from the manufacturers and ignore the merchants.—*Textile Mercury*.

### DEFECTS IN DYEING.

BY J. J. HUMMEL, F.I.C., F.C.S., IN JOUR. SOC. D. & C.

In colored cottons, shirtings and similar fabrics. Congo colors should not be employed, but rather such colors as alizarin red, indigo blue, chrome yellow, etc., or, instead of these, such azo colors as are developed upon the fiber, since these are free from the defect. Equally disastrous, of course, would be the result of "topping" a "developed color" with a Congo color. Certain of the Congo colors, however, viz., those containing the salicylic acid group, have the property of forming lakes, and with these the defect of bleeding is cured by passing the dyed cotton through various metallic solutions, thus fixing the coloring matter as an insoluble salt.

An interesting method of preventing a defect similar to bleeding, experienced by the calico printer, shall be my last example: Alizarin steam prints usually contain, associated with alizarin reds and pinks, one or more basic colors fixed with tannic acid, etc. During the soaping operation, which invariably follows the steaming and fixing, these basic colors come off more or less, soil the soap bath, and, becoming fixed by the alizarin reds and pinks, dull the latter to an excessive degree. The brightness of these colors, however, may be maintained by adding to the soap bath a certain amount of finely divided tannate of antimony precipitate. This immediately attracts any loose basic color in the soap bath, and thus renders it insoluble and inert.

Unfortunately, trade competition frequently lures the unwary to adopt false economy and to curtail this or that process, or, because certain operations are somewhat of a routine character, they are apt to relax their vigilance. One lesson to be learned well from the achievement of Witz is surely this: Never neglect to make a memorandum of any difficulty or defect which may be met with in any daily practice, observe the details and conditions surrounding them, and then, if possible, study them long and seriously, for it is not impossible that by so doing, not only will the original defect be remedied in due time, but new and enlarged views may be gained and actual improvement effected. Dirt has been defined by an eminent statesman as "matter in the wrong place," and defects might be considered as due to physical and chemical properties misapplied. I always feel when discussing matters of this kind that progress and improvement do not nowadays depend upon the knowledge of some special secret, or upon the care devoted to some one or two points, however important in themselves. That idea has long since been exploded.

Success in dyeing, as in other trades, depends rather upon the continual attention to a multitude of details and the consistent application of those physical and chemical principles upon which the various processes involved are based. What we want is the thorough permeation of our industries with more science, and more of the scientific method, which, after all, as Huxley once said, "is merely trained and organized common sense." And he continues: "The vast results obtained by science are won by no mystical faculties, by no mental processes other than those which are practiced by every one of us in the humblest and meanest affairs of life. That process of induction and deduction by which a lady, finding a stain of a peculiar kind upon her dress, concludes that somebody has upset the inkstand thereon, differs not in any way, in kind, from that by which Adams and Leverrier discovered a new planet. The man of science, in fact, simply uses with scrupulous exactness the methods which we all habitually and at any moment use carelessly; and the man of business must as much avail himself of the scientific method—must be as truly a man of science—as the veriest bookworm of us all. The value of a knowledge of physical science as a means of getting

on is indubitable. There are hardly any of our trades in which some knowledge of science may not be directly profitable to the pursuer of that occupation. As industry attains higher stages of its development, as its processes become more complicated and refined, and competition more keen, the sciences are dragged in one by one to take their share in the fray; and he who can best avail himself of their help is the man who will come out uppermost in that struggle for existence, which goes on as fiercely beneath the smooth surface of modern society as among the wild inhabitants of the woods." These words are as true to-day as when they were uttered, and in the long run England will only maintain her supremacy as a manufacturing nation if her sons act upon the wise counsel they contain.

Many years ago I was consulted about a very similar defect met with in army cloth dyed cochineal scarlet. This, too, was covered in a precisely similar manner with minute black spots, known to the trade as "tin spots," and believed to be due to the tin mordant being in an improper condition. At that time I was unable to determine their nature with accuracy, but from their extreme similarity to those met with in the Weld yellow cloth, and from the fact that the kind of cloth was also the same, i.e., thick and heavily milled, I am now inclined to think they, too, were due to the presence of iron, and that the defect is connected with the production of this particular quality of cloth, and not with the process of dyeing. An interesting development of spots during the dyeing process was mentioned to me by Mr Gardner some time ago, as having come under his notice. In this case blue spots were developed while dyeing stiffened hat felt with magenta. At first sight this seems rather a curious defect, but remembering the fact that the felt is stiffened with shellac, and that a blue color may be produced by heating an alcoholic solution of magenta and shellac (viz., the so-called Blea de Mulhouse), Mr. Gardner was able to prove experimentally that the blue spots were caused by the action of the shellac in the stiffened felt on the magenta, and could be at once prevented by selecting some other dyestuff.

A defect of quite a different kind is one experienced some years ago by one of my former students, when dyeing with alizarine colors. He had occasion to use a mixture of alizarine orange, i.e., nitro-alizarine, with one or other of the alizarine-bisulfite colors. The mixture had often been used by him with success, but now and again the colors came up entirely off shade, although he could find nothing wrong with the dyestuffs employed. After some time, however, it was noticed that the defect only occurred when the mixture of dyestuffs was made beforehand, and allowed perchance to stand over night, instead of adding them separately to the dye-bath. It eventually was discovered to be owing to a radical alteration of the nitro-alizarine, caused by the reducing action of the sulphurous acid from the bisulfite colors mixed with it, an effect which apparently did not occur when in dilute condition in the dye-bath.

With respect to defects caused by the machinery employed, they usually comprise such things as streaks, spots, stains, cuts, tears, etc., and although more or less varied in character, their origin is usually recognized by some specific feature, such as repetition at definite intervals, or the occurrence of some peculiar form. Spots are frequently caused by water drops from the roof or from the interior of a hood, over drying cylinders, owing to defective slates, or to condensation of moisture through insufficient ventilation. It is an axiom that currents of cold air should always be prevented from entering heated rooms charged with moisture, roofs should be boarded internally, so as not to become condensing surfaces, through being rapidly cooled by the outer air, or they should be warmed by steam pipes.

Listing in pieces, i.e., the appearance of a darker or paler shade at the selvages than in the centre may be due to several different causes, but among the rest is that of the arrangement of the dye vessel, the position of the steam pipes, etc. Cop-

per dye vessels, heated by a direct fire may give rise to irregularities through local overheating of the sides of the vessel. Other marks in pieces may be due to the accidental formation of spots when dyeing, and the friction of the winch for a short time on one particular part of the cloth, or by too vigorous working with a wooden rod when endeavoring to disentangle the cloth.

Defects of the most varied character may arise from an improper method of dyeing, etc., being employed, and these must, as a rule, be ascribed to ignorance or want of experience on the part of the dyer. Full shades obtained on wool with many dyes, are apt to bleed and rub off, if not boiled long enough during the dyeing process. This is the case, for example, with the Congo and the alizarin colors, the latter being further improved by a supplementary saddening process with the mordant. On the other hand, long boiling must be avoided when dyeing grays, drabs, or, indeed, any delicate color for which logwood is used in small amount, otherwise the colors are rendered duller or off shade, in consequence of the oxidation and destruction of the coloring matter of the logwood. By keeping the dye bath in a slightly acid condition, e.g., by addition of a little acetic acid, this defect may be avoided. Another rule to be observed is not to dye pale shades in the same dye bath in which dark colors have previously been dyed, since a certain small amount of dyestuff deposited on the sides of the vessel is sure to be dissolved off, sufficient to cause the pale color to be off shade.

Entering the material into a dye liquor which is too hot, tends to a superficial fixing of the coloring matter, which is usually accompanied by rubbing off or irregularity of color. On the other hand, entering at too low a temperature to avoid the defect of irregularity, may, in some cases, lead to equally annoying defects. With certain acid violets, for example, entering at a low temperature causes the production of spots on the goods, due to separation of the color acid in a tarry form. By entering at a high temperature, say 70-100 deg. C., the color acid remains in solution, and at the same time dyes level shades. In dyeing, as elsewhere, there are exceptions to every rule, and instead of adhering too rigidly to the general good rule of entering at a low temperature, the dyer ought always to adopt a method suitable to the particular dyestuff employed, and with respect to this particular point (the proper temperature at which to enter goods), it is advisable always to enter at the highest temperature which is consistent with the production of level colors, both to save time (because the dyeing usually proceeds at a quicker rate the higher the temperature) and to save expense, e.g., when dyeing successive lots of material the same color. A hot liquor which can be freshened up with dyestuff is worth more than a cold one, viz., by the value of the coal expended in heating it.

Sometimes bronzy patches with aniline colors, or irregularities of shade, may be caused by freshening up the bath with dyestuff without lifting the goods from the liquor. Again, non-filtration of the color solutions is a cause of such defects as spots, through particles of undissolved coloring matter becoming attached to some particular part of the fabric being dyed. Another method of preventing this kind of defect, found useful by one of my past students, is to introduce a grating about two inches from the bottom of the vessels containing the standard color solutions, beneath which all insoluble deposits may rest undisturbed while ladling out the solution.

Of defects met with or caused during finishing operations, I propose to give only one or two examples. A very common one is that of pieces being "listed," i.e., appearing of a paler or darker color at the selvages. As I have already explained, there are cases in which this is due to the occurrence of "feeding" by the pieces having been left to drain in a heated and unwashed condition on wooden supports, and there are others in which it is owing to defective arrangement in the mordant or dyelath. But a very prevalent cause seems to be the opera-

tion of "steam blowing," i.e., blowing steam through the pieces while wrapped tightly on perforated copper rollers. The steam, in its endeavor to force its way between the folds of cloth toward the selvages, melts and drives before it any impurity present in the steam, or any grease, lime, soap, etc., present in the cloth, so that these impurities tend to accumulate at the selvages. If such pieces have then to be mordanted and dyed, "listing" of the pieces is almost sure to result, though steaming process, or the use of soft water, have entirely done away with the defect. Another very common and very troublesome defect experienced with many colors during the operations of scouring or milling of dyed goods, is that of "bleeding," i.e., staining neighboring fibers in the cloth. The ordinary acid colors, for example, are very prone to exhibit this defect in woollen goods. Here the remedy is to test each color for "bleeding," and to avoid the employment of such as are unsatisfactory in this respect. In cotton dyeing a similar experience is met with in the case of Congo colors; these, too, bleed very readily into the neighboring cotton fibers during soaping.

### FIBER MACHINERY.

There appears, as an appendix to the valuable descriptive catalogue of useful fiber plants of the world, by Chas. R. Dodge, special agent in charge of the office of fiber investigations, U.S. Department of Agriculture, a most excellent and timely article on fiber machinery, which we think will be of sufficient interest to our readers to warrant its republication in these columns, especially as the edition of the catalogue is very limited, and its distribution, consequently, will be very small.

In countries where the rates of wages are on so different a plane from the prices paid for labor in countries like China and India, the success of new fiber industries is largely dependent upon mechanical means for extracting the raw product after the crop has been grown. Cotton cultivation in the United States only began to be extended after the invention of the Whitney cotton gin, and in like manner the establishment of the sisal hemp industry, outside of Yucatan, has only been possible since two or three improved automatic machines for separating the fiber have been placed on the market.

The production of China grass, or ramie, in many countries is so dependent upon the state of the machine question that not a pound of commercial fiber is produced in these countries, although, as in the American Gulf States, the plant thrives in the proper soils, and the machine question has been before the people for thirty years. What is true of the cotton, the sisal hemp, and the ramie industries is true of other possible American fiber industries, not excepting the production of hemp and flax, the fiber of which the perfecting of several special machines would largely aid in extracting. In China the fiber of *Boehmeria* is extracted by hand, and the partially degummed "grass" can be laid down in New York city at six cents per pound. In India the best of jute is thrashed off by the ryot who stands waist deep in a pool of stagnant water, and it can be sold in New York for three cents per pound. American farmers, who are used to the finest agricultural implements that can be produced, will never resort to old world primitive methods—nor can they afford to do so—and the machine becomes the most important factor in the problem.

It is a little surprising in this age of invention that the machine used for scutching flax in many countries to-day, if machine it may be called, is older than the invention of the steam engine by Watt. The scutching mills in Belgium are supplied with this appliance. Through the rooms, from end to end, runs a wrought-iron shaft, to which are attached, at intervals of a few feet, systems of wooden beater-blades, which revolve rapidly. The workmen stand in small compartments partitioned off from the room, but open on one side, the flax being presented to the action of the wooden blades through a bevel-edged slit in the side of the partition. The blades as they revolve, strike the already broken flax, held firmly in the

hand, knocking out the shive or waste matter, when the opposite end is cleaned in the same manner. The fiber of flax surrounds a slender stem, straw-like or sometimes woody, which, by retting, is easily broken, and the filaments partially separating from the crushed bits are readily freed from them by the operation of beating. A perfect machine, therefore, would be one that would break the straw or wood into fragments without injury to the fiber, separating the long filaments from all waste matters perfectly, doing away with hand labor, and accomplishing the work without waste of fiber, and at an economical cost. It would seem a simple proposition, but from the fact that none of the many improved machines that have been brought to public notice have been generally adopted by mill men, and the old-fashioned berth scutching described above is still practiced even in this country, we may infer that the machine scutchers are not fully practicable. These differ in form and in the manner in which they operate, as well as in the quality and quantity of flax produced, but they need not be described here.

An improved scutching machine to prepare the fiber for market is a desideratum, but two other machines are needed in establishing the flax industry in the United States: an economical thrasher to save the seed without injury to the straw, and a flax-pulling machine to do away with the laborious and costly operation of hand pulling. Several machines have been invented in the latter classes, but there is room for improvement in flax thrashers, and the flax-pulling machines are still in the experimental stage.

It is not important in the limits of this paper to record here the consecutive history of ramie-machine invention in America, particularly as it would necessitate describing almost a score of machines that, one after another, were brought to the attention of the public for a time, only to be practically abandoned when it was proved that they were unable to fulfil the claims of their inventors. Since 1867 the persevering effort to produce a satisfactory machine has naturally resulted in a gradual improvement in mechanical construction, and substantial progress has been made, though at this date (1896) the question has not been practically settled. Ramie machines may be divided into two classes: (1) Delignators, or simple bark strippers, and, (2) Decorticators, which not only remove the bark, but make some pretence of removing the outer pellicle or epidermis, and the layer of cellular matter covering the fiber layer proper. The bark strippers produce the fiber in the form of flat ribbons, only the wood of the stalk being eliminated, and they are usually constructed with some form of knife or knives, with which the stalks are split before being subjected to the action of the breakers and beaters. The decorticators usually first crush the stalk by means of metal rollers, presenting the flattened mass to the action of the breaking or beating devices; and frequently there is a system of mechanisms for combing the fiber before it is finally delivered to the aprons. The product of the delignators is always the same, a flat ribbon of bark, whether the dry or green system of decortication have been employed. The product of the decorticators, on the other hand, is almost as variable as the machines which turn out the fiber. In some of the poorer machines this product is little more than a mangled strip of bark, neither a delignated ribbon nor decorticated fiber, but something more fit for the trash heap. In the best of them, individual filaments, by the green system, somewhat resemble China grass, though darker and less clean, while by the dry system the fiber is already soft enough to spin into coarse cordage without further manipulation. Between these two extremes every quality of "ribbon" is represented. Taking China grass, or commercial ramie, as the highest form of the fiber, since it is degummed with a loss in weight of only 15 to 30 per cent., it will readily be seen that the value of the machine-cleaned ribbons to the manufacturers must be in exact ratio to the degree to which the cleaning and freeing from gum have been carried.

We have considered that these varied products, or grades

of product, differ only in the degree to which the elimination of the gum and waste matters have been carried, and that the proportion of gum, cellular matter, and epidermis, is the only consideration. In point of fact, the product of many machines which otherwise might be called "good fiber," has been so filled with fragments of the woody portion of the stocks, or so "chewed up" by harsh treatment, or, finally, so soiled and tangled in the delivery, that it has had little value for any purpose. The product should be delivered straight, unsmarled and untangled, free from chips, and without breaks, cuts, or bruises, whether in the form of stripped bark or semi-cleaned fiber, and its value will be determined by the percentage of pure fiber it contains. It may be fairly assumed, then, that the nearer a machine approaches in its product the ramie of commerce, Chinese hand cleaned fiber, the higher the price of its product, and the more desirable the device producing it as an economical agricultural implement.

Hemp and jute machines may be classed together, as a successful bast-fiber machine might with slight modification be made to extract either fiber. It has been shown, also, in ramie machine trials, that an unsuccessful ramie machine may prove a fair jute machine, and two machines the department has tested have worked on the three fibers, hemp, jute, and ramie.

It is claimed that nearly three hundred patents have been issued in the United States alone for machines for breaking hemp, many of which have proved absolute failures, while none of them filled the requirements of an economically successful hemp-cleaning device, the Kentucky hemp grower of to-day relying upon the rude and clumsy five-slatted hand brake of his grandfather's time, a device similar in all respects to that used for the same purpose at the present day by the hemp farmers of Brittany. The French brake is only a slight advance upon that used in this country, being smaller, composed of both wood and metal, and having seven instead of five slats. With a less clumsy affair than the American device, a Frenchman cannot clean with it more than half the quantity of hemp in a day that an average Kentucky negro operator produces on the American brake. Thirty to thirty five kilograms of fiber per day is the limit of production for a single brake on a Sarthe farm equal to 65 or 75 pounds of fiber. It is more carefully prepared however, being twisted into small "streaks" or loose ropes a number of these making up a bundle of several kilograms in weight, this being the form in which French hemp goes to market. In Kentucky, breaking is an expensive operation, costing \$1 to \$1.25 per hundred pounds of fiber. The work is performed in the winter by negroes, and the best workers will not average more than 150 pounds in a day. A number of patented machines, possessing more or less merit, have been brought to public notice in the past four or five years, several of which have been examined by the Office of Fiber Investigations. The fact remains, however, that while several of the more recent inventions that have been looked into are "promising," the hemp-growers of Kentucky do not consider that a perfectly satisfactory machine is available at the present time.

Probably a greater degree of success has been achieved in the invention of machines for extracting the fiber from such fleshy leaved plants as the Agave, etc., than for any other classes of fiber plants. Several successful machines have been placed on the market which will enable a sisal-hemp grower to market his crops without recourse to the clumsy raspadores used so many years in Yucatan.

#### REMOVING DUST FROM THE CARDING ROOM

At the Ravensburg Spinning Works, at Bielefeld, the dust produced by the cards is drawn off by a strong current of air (produced by an exhaust fan) through a grating below each machine, and conveyed through suitable channels into a tubular filter. This latter is so arranged that it can be brushed out several times daily by a series of brushes, and the dust delivered to a special collecting chamber, where it is packed into bags

for removal and disposal. The purified air is conveyed from the filter back into a conduit arranged along the ceiling of the carding-room, and re-enters the room properly distributed. A branch pipe on this conduit, leading into the open air, can be opened or closed at will, by means of a throttle valve, and a portion, the whole, or none at all of the air from the filter, allowed to escape, according to the season (spring, summer, autumn, or winter). The Muller filters employed for this work indicated, after a year's working, a resistance of two-fifths to four-fifths of an inch on the water gauge. No difficulty was experienced in cleaning them. The power required to purify an average of 282,500 cubic feet (8,000 cubic meters) of air per hour is 5 h.p., and as the incoming fresh air is warmed previous to its admission, the temperature of the carding-house is always agreeable, even in the depths of winter.—*Leipziger Monatschrift*

### TEXTILE SURNAMENES.

The "sports" of textile study, if an expressive gardening term may be borrowed for the occasion, are many and fascinating. Moreover, it may be claimed—while we carry the figure a little farther—that these offshoots from the matter-of-fact affairs with which commercial men are constantly concerned, will make rapid growth, with but little attention, and speedily become the pride and joy of those who cultivate them, says a writer in the *Textile Mercury*. Among such trade diversions it may be doubted whether any could be found more profitable than the following up of surnames with regard to their sources and significations. The subject may, at first sight, appear unpromising. It is certainly not one that the man in the street would find any pleasure in. About thirty or forty lines, and with three or four flimsy anecdotes thrown in at that, would about finish off surnames for him. And yet any directory, or any of the lists of voters or ratepayers that flutter their little day on the doors of churches and chapels, would give a periodical of the scrap-and-puzzle order a long start in interest and value, and win easily, provided always, as our Acts of Parliament so frequently stipulate, that the directory or register is read over in the light of much that is already known of the origin and development of the names that appear therein, or—to put the matter once more on a common or garden footing—presuming that there is previous acquaintance with the culture and training of the special branch of the subject that appeals to the reader. And among several books that are devoted to this knowledge and that insight, cordial commendation can be given to Canon Bardsley's "English Surnames," of which a fresh and fifth edition has just been issued by the publishers (Chatto and Windus). As magazine readers are already aware, there is a medical man who holds that trades leave a visible and distinct impress upon the features of those that follow them. He would have us believe that the stress and mental direction of occupations have as much effect upon the faces of men as their bodily activities develop special skill or strength in them. The theory has not yet been brought to the test of illustration, but we may suppose that, in course of time and on the composite principle, photographs of the facial types of different trades, occupations, and characteristics, will be prepared for demonstrative purposes. And our readers may perhaps wonder what representative trades upon officials or factory operatives will turn out to be like when the camera has finished with them. But while we may not put much faith in this phantasm of physiognomy, the marks that have been left in another way by trade upon the people are beyond question. Whatever fate may have in store for us, we shall stand out as a nation of industrial descent as long as our surnames remain to us. It is a good thing that the surnaming of our forefathers began when manufacturers were in their infancy, not only because names formed from the strange sub-divisions of employment in our day would be grotesque to a degree, but because we are able now to

get a clear view of the course of early trade from the names of those engaged in it. Thus, in relation to wool and woollens, to which Canon Bardsley very properly gives precedence when dealing with town occupations, we have Woolers and Woolmen, or Lanyers and Laniers in direct descent from the older Woolmongers and Woolbuyers, Packers abbreviated from the Woolpackers that were once so common, Staplers who sorted the wool, Towzers and Tozers who teased it into order; Carders, Combers, Kempsters or Kemsters who undertook the preparatory processes for which the Cardmakers provided some implements, as the Spindler at a stage farther and the Slaymaker, Slayman, or Slaywright did at another, in readiness for the Webbe, or Webber, or Webster, who finally wove the yarn into cloth. Then came the Fullers, who obviously cleansed or whitened fabrics at the time our Authorized Version was issued, and may have shared with the Tuckers and the Walkers the work of thickening the cloth by walking or treading it in water, as distinct from the Baters and Beaters, who arrived at the same result by pounding it. The old layzers or leazers, who may yet, in Canon Bardsley's opinion, survive in living Taylors, brought up a nap on the stuff with teasles, the Litsters or Listers and Dyers gave it colour, for which the wadman and Maderman may have supplied woad or madder, or, perhaps, have been noted themselves for the blues and reus they once turned out, and if a rough-surfaced material had to be dressed or a pile trimmed, there was the Shearman, Sherman, or Cropper to take it in hand. Whether the Lenter or Lenturer were also engaged in bestowing tufts on fabrics, or whether they were occupied in the tenting of finished cloths, is a matter open to conjecture or argument. There were Sackers and Canevassers to pack goods or make rough flaxen goods for the purpose, and Ropers or Rapers, Corders, Stringers, and String-fellows to furnish them with anything from twine to rope as required; Spinners, Flaxmen and Lyners were engaged on linens, and Lindrapers or Lyndrapers found business in selling them, as there were plenty of Clothiers, Clothmams, and Drapers endeavoring to make a living out of the vending of woollens and worsteds, Tailors in endless vagaries of spelling, to make them up, and Marchants or Marchaunts ready to deal wholesale in the wares that, through their enterprise, brought us national wealth and power. As an outline sketch of the textile activities of long ago, these associated surnames leave little to be desired.

But it is not the least of the pleasures of surname study that it often reveals so much beyond itself. In an old document there has been found a poor fellow called Spylwede; and so, although not more clearly identified, he is handed down to posterity as something less than a mediocrity among tailors—a pitiful bungler who marred rather than made garments; and that is but one instance out of many in which the rough humor or rougher satire of our forefathers gave names that stuck to some unhappy individuals like burrs to cloth. But, besides such indications of character, surnames sometimes follow for our benefit the social movements of their day, or run side by side with history. Many of the developments of our foreign trade have left their mark on existing family names, and the great immigrations of foreigners, who found here the freedom denied to them in the countries of their birth, can still be seen writ large upon all sorts and conditions of people, although the names are often Anglicised almost beyond recognition, and are still more frequently brought into very strange company. To the anomalies and whimsicalities of surnames there is in truth no end. Chaucer himself was palpably descended from a maker of chausses or long-legged boots, and Sir Richard Arkwright from one who made wooden chests. Canon Bardsley believes that our Freemantles may be remotely connected with mantles of frieze, and, with far more likelihood, says that the Pilches or Pilchers of the present date are living representatives of a short outer garment of fur, that was allied to the pelisse in its

title, but has come in some inexplicable way to be a bandage or swathe for very young children. All living Pilches might feel anything but flattered at this account of their origin, but still less gratified might they be to learn that the Slopers—including, of course, the famous Ally of that ilk—can claim close kinship with them through the slops or outer-frocks that their progenitors once made. Several less familiar textile trades can be traced in this way. Chaloner, for instance, introduces us to the manufacture of a kind of colored coverlet, considered—it is hard to say with what authority—to have been called chalons, from having been a specialty of the town of that name in France, and well known to have become a prominent manufacture at York, when that city was a flourishing centre of textile trade. From an Act passed in 1544 the industry appears to have been then long established, and it was, at any rate, of sufficient importance for a country monopoly to be granted to those engaged in it—a privilege that probably had to be paid smartly for in one way or another. The preamble of the Act states that the city had formerly been principally supported by the making of such coverlets and bed-coverings, whereby, as it continues:

Great numbers of inhabitants and poor people in that city and suburbs, and in other places of the county, have been constantly employed. But that of late years sundry evil-disposed persons, apprentices, not expert in that occupation, have withdrawn themselves out of that city into the county, and divers other persons inhabiting the villages and towns of that county and nigh to the said city have intermeddled with the said craft, and do daily make coverlets, neither of good stuff nor proper size, and do hawk and sell them abroad in the county to the villages and men's houses to the great deceit of the King's subjects.

It was therefore enacted that no person whatever, within or nigh to the county of York shall make any coverlets for sale, but inhabitants alone dwelling in the city of York and its suburbs. This is a remarkable chapter of industrial history to remain open through a surname, and another occurs in Burrells or Burrels, who obtain their names through a fabric that perhaps is as interesting as any other that could be mentioned, and always seems to have a lot of humanity woven into it. While all the world would be so gay that sumptuary legislation endeavored to confine the brightest colours to rank or wealth, borel or burel was so entirely the resource of the poor that it became distinctive of their low estate, and they were generally known as borelmen or borel folk, a class to be known by their clothes. Canon Bardsley is too ready in asserting that it was brown in hue, and there is little doubt that he is in error in saying that plonket, as a perversion of blanket, was pale and colorless. Plonket appears to have been at first, beyond dispute, a cloth of light blue color. As to borel, it is good to know that it came in course of time to typify the simple virtues of the folk it had once been a reproach to, and, just as two other homely stuffs are honored by Shakespeare as standing for truth and integrity—"russet yeas and honest kersey noes"—so borel speech and borel righteousness became things that men, no matter what their rank in life might be, could be known by—and not be ashamed. These few particulars may serve to show what strong claims the subject of surnames has on our attention, if only from a textile point of view, and with what thoroughness Canon Bardsley enters into it. There may be some rulings in the book open to exception, and other matters that have long been regarded as hard nuts by philologists are occasionally settled off-hand by the Canon. But, a few blemishes notwithstanding, the book is one to be enjoyed and to be kept near at hand for the frequent references that are sure to be made to it. To many a reader it will be all the more acceptable for its joviality. For the Canon loves a little joke, and so long as it turns upon a cognomen, will have it too, no matter though it be one of the fine old crusted variety

## MANUFACTURING KNIT GOODS.

After the wool has been run through the burr picker or willow, in order that it may be freed from all dust, dirt, shives, etc., the stock is oiled. All carders will admit that good oil, when properly applied, is a valuable assistant in all the succeeding processes. In carding machines, says the *Textile Manufacturers' Journal*, it has a tendency to strengthen and lubricate the fibres, if the proper oil is used for spinning, it assists in the drawing and twisting, making a softer and a rounder thread. Stock for knit goods requires a good oil. There is no question that olive oil is the best. All who have tested it for years, on all kinds of stock, claim it is superior to all others. It softens the wool and preserves it in a limpid condition, which is of importance. But it is costly, and some mills resort to cheap oils made from soap stock. A less quantity is required for the same amount of stock, and wool which is treated with it will retain its elasticity; but the majority of cheaper kinds become gummy and have a tendency to turn rancid. Lard oil is a very good agent when the proper grade is used. When the stock is to be used right away and is kept in a dry, warm place, the red oils may be used to advantage. The quantity to use is usually about three or four quarts to 100 lbs of clean wool, or if the lot is composed of a mixture, a little less. Cotton should not be oiled at all. To test oils, take about one-third of a common glass tumbler of scouring soap of a good strength; add one-third of oil, and mix well by shaking. Let it stand a while, and if it is a good oil it will not separate much.

*Mixing.*—In making up any amount of mixture of cotton with wool it is advisable to use as little white cotton as possible. This cotton does not always require to be picked before mixing, if it is perfectly dry. If cotton is to be used in connection with colored wools, let the cotton be colored also. The mixer must be kept in good shape. When anything interferes with the flight of the stock between the feed and the screen cylinder there is always irregular work. The defective places made by obstructions in the path of the material through the mixer are of such a kind as will give rise to some awkward uncertainties later on. Wool should be thoroughly dried before mixing into a batch.

*Good Yarns.*—A good, smooth, round and elastic thread is required for good knitting. Burrs from the wool, with broken and unripe cotton seeds that pass through the preparing machinery and are spun into the yarn, are sure to make trouble on the machines. There is no adjustment of a knitting machine that will prevent it making holes when the yarn has very fine or twitty places in it, or that will make a smooth and even-faced fabric when the yarn is lumpy or uneven in size.

*Knitting.*—It is practically impossible to make a complete stocking on one cylinder and still preserve its uniformity of appearance. Even the unskilled knitter may readily conceive that in order to make a perfect stocking the leg must be knit on a machine in which the cylinder is larger than the one on which the foot is made. Of course there is quite a difference between a full automatic seamless knitting machine and the half automatic seamless machine. In the full automatic knitting machines all that is required of the operator is to change the needle cylinders, there being two cylinders for each machine. While one stocking or sock is being knit, the other cylinder is being filled by the topper or transferer. Some of the full automatic seamless knitting machines are so constructed that the needle cylinder cannot be so easily removed. Hence it is necessary to do the topping or transferring while the cylinder remains in the machine. The full automatic machine does all the rest of the work—i.e., after the machine is started by the operator no stop is made until the article being knit is completed, whereas on the half automatic machine the operator is compelled to make all changes by hand—for instance, the splicing of the heel and toe thread, also the throwing into action of the device for manipulating the needles required for forming the heel and toe. There are two changes, one for widening and



the other for narrowing. Two stops are made for the extra heel and threads, and the raising the back half of the needle for the commencement of the heel or toe operation. All this has to be done on the half automatics.

*Dropped Stitches.*—When it is required to run a yarn that is heavy enough to fill the gauge properly, and of such a character as to cause dropped stitches, the only satisfactory way that I have found is to use stationary pressures with a long point extending to a point on the needles where the yarn is left by the stitch wheel. The presser should be set so that the point will commence to press the needles where the yarn leaves the stitch wheel, but quite lightly, or just enough to close the barb sufficiently to keep the yarn from getting out under the barbs. These expedients should be resorted to only in special cases. We do not recommend the use of stationary pressers on ordinary work, nor are crimped handles necessary, except when fine or hard-twisted yarn that is fine for the gauge are used.

*Lines in the Goods.*—Lines usually extend lengthwise of the goods. They have the appearance of being off color, but they are not. The effect is brought about through improper condition of some of the needles. A bend in a needle tends to shorten it, and the result is that every loop made by this needle will be formed a little lower in the goods, and so will assume a different shape from the other loops, and thus produce a line. Sometimes the butt of the needle wears off on top. The needle will move up higher than the others at each revolution of the machine, and will form the loop a little higher than the average; consequently lines will be made in the texture. After a year's constant use the needles begin to wear at the butts, and should be replaced with new ones. Lines are also made when the cams that operate the needles are out of order. The rib goods made on an ordinary spring needle are only a mock rib. It is produced by pressing part of the needle beards and leaving others unpressed. To avoid making diagonal goods it should be seen that the number of needles in the cylinder can be exactly divided by four.

*Tuck Work.*—The principle of making the tuck stitch on the spring needle is to have two stitches under the hook or beard at once; and to cast them off both at once; but to make tuck work you must have an odd number of needles, or else the cut presser must be cut odd, so that the particular needles you wish to do the tucking may cast the stitch off every third revolution of the head, if it is a single feeder. In the case of a double feeder, it may be arranged differently.

*Socks.*—The cheapest way of making stockings consists of cutting the article from the straight web and inserting the heel by hand, closing the toe by the use of the regular apparatus. The first operation consists in cutting off pieces the length of the stockings desired. Next comes the insertion of the heel and toe. The final operation consists in attaching the top. The socks are run through a scouring machine, and a light fulling serves to set the yarns just enough to close up open spaces, after which the socks are neatly adjusted on wooden forms and dried. About 120 needles are required to make an ordinary sock. The leg, heel, and toe are knit with seam. The toe is also formed on the machine, but cannot be closed, as the work must be lifted from the needles. The closing up is accomplished by the use of a thread and needle. When drawn tight, the loops are drawn together and the opening closed. When this is done mechanically the loops are taken up by the device and threads are inserted. The great elasticity of knitting material, the ever-varying tension owing to atmospheric conditions, etc., the variations in the yarns, the differences in the finishing operations, are among the conditions that prevent uniform sizes in knit goods. In some of the latest-made machines of the seamless kind, a method has been adopted by which the tension system is superseded by a device which causes the loops to maintain a certain and regular position, thus helping to maintain uniformity. Another new device is

a circular disc, in which three upright pins are securely fastened at regular intervals. This disc is pivoted on a perpendicular bearing and fitted with a small grooved pulley, around which a belt runs from a larger pulley connected on the main shaft of the knitting machine. Two or three bobbins of yarn can be set on the upright pins of the disc, which revolve with great rapidity when the machine is in motion. A twist is thus communicated to the strands of yarn as they pass into the needles of the machine.

*Looping.*—All well-equipped hosiery mills are supplied with a full complement of looping machines. Half the stitches of the opening in the toe are put on the points, and then the other half are systematically adjusted on the same needles, thus making two stitches on each point. The machine is then rotated one point, and the needle is introduced below the stitches and looped on the other side, which operation is repeated until the opening in the toe is closed. The surplus yarn is next removed by unraveling, and the place where the two sides were connected presents a perfectly smooth and regular appearance. Care must be taken not to place the frame too low, for thus it may come in contact with the yarn and damage it. A very fine adjustment of the machine is obtained by turning the handle until the needle reaches its furthest extremity, and then setting the looper so that it will just touch the end of the needle.

*Finishing.*—For the hurling board in the finishing-room use a broad, smooth-top table. From the burlers the goods go to the sewers or darners. The more knit-wear is fulled the less elastic it becomes, consequently many manufacturers merely scour the goods. But there are certain classes of goods which must be fulled. Creases fulled into the goods go on record as seconds, and are sold below price. Spots and cloudy effects are caused by the goods becoming pinched and being acted upon at the edges by the strong ingredients or by the friction of the rollers. Uneven ruts or grooves in the rollers, dirty suds, soiled liquids, greasy sides, etc., will also cause clouds and stained places. When nearly done, the fuller often dumps in a compound of hot water and scouring soap. If this compound is too hot, if it strikes certain parts of the goods suddenly, if it is not uniformly applied, cloudy effects will result.

*Soaps.*—The production of a good soft soap for the purpose of scouring and fulling knit goods is a difficult and delicate operation. The following method has proved very successful: Dissolve 50 lbs. of pure caustic potash in 50 lbs. of water. The hot liquid is allowed to cool to about 80 degrees. In another vessel the oil and grease are prepared. Twenty gallons of cotton seed oil and 20 lbs. of clean melted tallow are mixed, and into this is poured the lye in a small but constant stream. This is gently stirred until the combination has much the appearance of honey. After covering and allowing to stand, about 300 lbs. of a highly concentrated soap is the result. This soap will be very nearly neutral, and is intended mainly for fine work.

## TEXTILE ORNAMENTATION.\*

### CHAPTER I.

After spending much time in observation and study in the great museums and exhibitions of art and manufacture, where all kinds of fabrics and textiles, from all nations and of all epochs, are to be seen, examined and admired, the only conclusion arrived at is that the technical schools have a very great work to accomplish, before they can hope to reach, much less to surpass, our forefathers in design and manufacture.

It is the duty of all students of design to avail themselves of the many advantages open to them: to take the textile journals, to visit museums and art galleries where suggestion and ideas for all classes of work are to be had. Admitting that the weaving of textile fabrics, generally, has reached a very

\*By Fenwick Umpleby, Instructor in Textile Design at the Lowell Textile School. Reprinted from the *Textile World*.



high and perhaps unsurpassed degree of perfection, we must allow that we have not yet attained to the standard of excellence shown by our forefathers in ornamentation in the various branches of this art, therefore, it is the incumbent duty of students to leave nothing that is possible, undone, in order to develop a genuine artistic taste in all classes of society, more especially in those whose business it will be to cater for this taste. Our trade and commerce depend upon it, and, without such artistic taste, we cannot hope to gain much supremacy in the market.

The art of manufacturing textile goods dates from the very remotest periods; we read in the Book of Exodus, that the curtains for the tabernacle were of fine linen. It was from the Egyptians that we received the first authentic information or record on the art of weaving. Thousands of years before our era, the Egyptians, Indians, Phoenicians, and the Assyrians, wove materials which were adorned with exceedingly intricate and ingenious designs; the plain fabrics were very fine and delicate in manufacture.

Herodotus speaks of linen made of a thread finer than a hair, twisted and made of two strands; this gives us the idea of either very great skill in hand spinning, or otherwise, of very great perfection of machinery. It may be inferred from the Scriptures that fancy weaving or decoration in stuffs began with simple needlework and embroidery; we find that the Mosaic law required the sacred vestments to be adorned with embroidered ornaments. The chief manufacture for which the Israelites were famed, was fine linen, and this material was much worn in the sanctuary. In Ezekiel xvi. we read of brodered work, fine linen and silk. These fabrics were considered the proper raiment; in another chapter we read of wool, and again Ezekiel reproaches women of his time for adorning themselves with garments that were made attractive with embroidery. We may, therefore, conclude that needlework and embroidery were the first methods of ornamenting textile goods. In the Book of Proverbs, we learn from the inspired writer that women were not only acquainted with manufacture, but in the habit of spending much time in spinning, weaving, etc. Proverbs xxxi.: "She seeketh wool and flax and worketh willingly with her hands." "She layeth her hands to the spindle and her hand holds the distaff." "She is not afraid of the snow for her household, for all her house are clothed with scarlet." "She maketh herself coverings of tapestry, her clothing is silk and purple." "She maketh fine linen and selleth it, and delivereth girdles to the merchant." Job also mentions: "My days are swifter than a weaver's shuttle." Thus, it is evident that manufacturing textile fabrics by weaving and spinning, as well as the art of ornamenting them, dates thousands of years before our era. These extracts prove, too, that this employment was one of the earliest of human inventions. As to the modes of manipulation in manufacture adopted by the ancients, we have no positive record, although it is very probable that the processes were similar to the methods practiced by the natives of India. Of this we are certain, the spindle and distaff were the chief implements employed in transforming raw material into thread, and it is said that these simple instruments have been, from time immemorial, used for spinning in all countries engaged in manufacture, and are still employed in India, and in some parts of Scotland.

In Homer's poems, which were preserved by the posterity of Cleophylus, and gathered together by Lycurgus, who was the first to give them to the world, about the time of Solomon, some nine hundred years before the Christian era, we read that the heroines, Helen, Circe, Penelope and Calypso, employed their leisure time in needlework and embroidery, and they are frequently spoken of by the poet in connection with their spindles, distaffs and woolen stuffs. Amongst the Egyptians embroidery was a common employment in all grades of society. This household occupation was common amongst the Assyrians, the Indians, Persians and the Chinese; these nations worked

the material with the greatest delicacy. Robes manufactured for persons of distinction were enriched with very complicated and ingenious designs wrought in gold threads, and were of enormous value. The Babylonians were great masters in the art of decorations, including embroidery.

*To be continued.*

**THE DESIGN OF LIFE.**

*Sir, I am a labourer; I earn that I get, get that I wear; owe no man hate, envy no man's happiness; Glad of other men's good, content with my harm.*

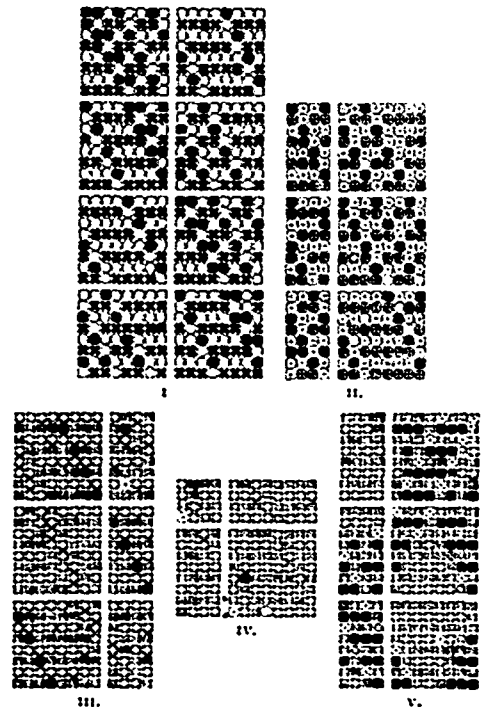
*—Shakespeare—"As You Like It."*

We are but toilers--in whate'er estate,  
Weaving our various fabrics well or ill.  
Some are, who ply with happy-handed skill  
The deft, swift shuttle, and who ne'er abate  
Th' appointed task, but strive to emulate  
Some fair design, which the controlling Will  
Hath given them forth to pattern and fulfil.  
But there are others, who, disconsolate,  
Their textures weave with foolish fears and sighs--  
Like thriftless, thankless craftsmen, who deride  
Their labour, with its hire dissatisfied--  
While to and fro Time's subtle shuttle flies.  
O men, O toilers, let us blithesome be,  
And weave brave garments for Eternity!

ANONYMOUS.

**Textile Design**

WEAVES FOR UNION CLOTHS.



In these fabrics the main object is to conceal the cotton warp, and yet at the same time to get a pattern which will possess, as nearly as possible, the qualities of the pure woolen or worsted article of which it is an imitation. Several makes for this type of cloth have been given in previous articles, but some of a slightly different character are given in designs I-V inclusive. The first four of these form fine twills or diagonals in the piece, and design V a small diamond pattern. It may be best produced by using a worsted and woolen yarn for face and back of the cloth respectively. The warp might be 240 s cotton with 64 ends per inch, and the weft, say 1 pick of 14 s worsted and 1 pick of 10 skeins wool, about 90 picks per inch. The pieces should be set about

78 inches wide in the loom to admit of some felting, which would make it feasible to raise the back of the cloth wet in finishing, and thus improve its softness of handle.—*Textile Recorder*.

**SIXTY YEARS OF BRITISH COTTON TRADE**

Thomas Ellison, the well-known English statistician and historian of the cotton trade, has published a Diamond Jubilee review of the cotton trade of Great Britain. In it he says that :

There is no more striking chapter in the history of the eventful reign of Her Gracious Majesty, than that which has for its theme the extraordinary growth and development of the staple trade of Lancashire. In the year in which Her Majesty ascended the throne the consumption of cotton in Great Britain was only about 13,000 bales of 500 pounds per week. This year it is at the rate of 63,000 bales per week. In 1836 the export of piece goods was 637,000,000 yards; in 1837 it was only 531,000,000, but last year it reached 5,220,000,000 yards! There is not a country on the face of the earth into which the celebrated shirtings and other cotton fabrics of Lancashire do not find their way. They form a large portion of the clothing of the thousand millions of people who dwell in Asia, Africa, Australasia and America, and in larger or smaller quantities, they successfully scale the walls of protection put up by those countries of the old world and new, who vainly seek to monopolize the making of their own clothing materials.

The rapid growth of the industry is shown in the following statement of the number of spindles and looms, and the number of hands employed in the years 1836, 1856, 1876 and 1896:

Year.	No. of Spindles.	No. of Looms. Power.	Hands Spinning.	Employed Weaving.	Total.
1836....	12,000,000	*310,000	150,000	250,000	400,000
1856.....	28,000,000	300,000	187,000	192,000	379,000
1876.....	42,000,000	490,000	259,000	222,000	481,000
1896....	46,000,000	650,000	240,000	300,000	540,000

\*Of which 200,000 hand.

The figures for 1836 are based upon the investigations made by Edward Baines and Dr. Ure sixty years ago. The estimate of the number of hand looms is a very moderate one, some other authorities favoring 250,000. The figures for 1856 are from the factory returns published in 1857, but collected in 1856, by which time the hand loom had been superseded by the power loom, in consequence of the great improvements made in the latter, chiefly in the early '40's, at which period there was for a time a good deal of distress in the manufacturing districts occasioned by the large number of hand-loom weavers temporarily thrown out of employment. The figures for 1876 are the averages of the factory returns for 1874 and 1878. The Parliamentary return for 1885 gave the number of spindles as 44,348,000. The return for 1890 gave 44,504,000, but this latter statement was considered to be altogether too small, and the return itself very incomplete. Worrall's Directory gives the increase in spindles between 1885 and 1896 as about 2,000,000, and the round figure of 46,000,000 adopted for 1896 is probably smaller than the number actually at work. The number of looms is the current estimate. As the Parliamentary returns do not always discriminate between spinning spindles and doubling spindles, we have included both in the above statement.

It will be seen that in the first twenty years the spindles increased more rapidly than the looms. This was due mainly to the displacement of the hand loom by the power loom. In the last twenty years the ratio of the increase in looms has been greater than that in spindles, owing to the smaller relative increase in the demand for yarn for export. This feature is brought out more clearly in the following statement of the quantity of cotton spun, the quantity used in the production of the yarn exported, and the quantity remaining for yarn woven into piece goods, in thousands of pounds:—

	Weight of Cotton Spun Pounds.	Used for Yarn Exported		Left for Wraving, etc.	
		Pounds.	P. Ct.	Pounds.	P. Ct.
1836....	347,400	97,010	27.9	250,390	72.1
1856....	891,400	199,644	22.4	691,756	77.6
1876....	1,280,300	255,810	19.9	1,024,490	80.1
1896....	1,644,650	271,700	16.5	1,372,950	83.5

The weight of the cotton used for yarn exported is the weight of

the yarn shipped, plus 10 per cent. for waste spinning. It will be seen that of the total output of yarn the proportion exported has gradually fallen from nearly 28 per cent. to only 16½ per cent. Of late years this branch of the trade has lost ground, not only relatively, but positively. The quantity exported in 1884 was 271,078,000 pounds, against 247,000,000 pounds last year. This is due to diminished shipments to the continent, owing to the increased production of yarn in Germany and elsewhere.

The distribution of the piece goods and yarn exported is shown in the following statement in millions of yards and pounds.—

Piece Goods:	1836. Yds.	1856. Yds.	1876. Yds.	1896. Yds.
Europe (except Turkey)....	180.3	320.3	428.4	287.5
Turkey, Egypt and Africa..	72.1	344.2	424.2	685.0
North and South America..	187.9	676.8	563.4	873.8
British East Indies .....	74.3	478.0	1,299.6	2,152.4
China, Japan, etc. ....	19.4	183.3	596.7	842.3
All other countries .....	3.7	32.6	356.3	359.3
<b>Total .....</b>	<b>637.7</b>	<b>2,035.2</b>	<b>3,668.6</b>	<b>5,220.3</b>
White or plain .....	224.5	1,221.3	2,608.3	3,405.1
Printed or dyed.....	313.2	813.9	1,000.3	1,815.2
<b>Totals as above .....</b>	<b>637.7</b>	<b>2,035.2</b>	<b>3,668.3</b>	<b>5,220.3</b>
Yarn:	Lbs.	Lbs.	Lbs.	Lbs.
Europe (except Turkey)....	74.8	129.2	113.4	113.6
Turkey .....	2.3	18.3	13.4	31.4
British East Indies.....	6.6	25.2	33.8	52.0
China, Japan, etc. ....	3.3	6.4	29.8	31.8
All other countries .....	1.2	2.4	41.8	17.7
<b>Total .....</b>	<b>88.2</b>	<b>181.5</b>	<b>232.2</b>	<b>246.5</b>

The falling off in the export of piece goods to the continent since 1876, is due to the increased production of similar goods on the continent itself and to increased import duties. The reduction in the exports to North and South America between 1856 and 1876 was due to the lessened exports to the United States, caused by the protective tariffs levied after the war, the exports of goods to the States falling from 207,000,000 yards in 1856, and 227,000,000 in 1860 to 103,000,000 in 1870, and 55,000,000 in 1876. In 1896 they were still at only 56,000,000. The expansion in the trade in the east is due in part to the improvements in the loom in the early '40s, already referred to, and to the opening of the China ports. The increased trade with the world in general is the outcome of the reduced cost of production due to improved machinery.

The value of the goods and yarn exported, in thousands of pounds and pence per yard and pound, compare as follows.

	VALUE OF PIECE GOODS EXPORTED.					
	White or Plain. Total.	Colored or Dyed. Per yd.	Total. Per yd.	Per yd.	All kinds. Total.	Per yd.
1836.....	£7,985	5.91d.	£9,198	7.04d.	£17,183	6.47d.
1856.....	14,737	2.89d.	13,784	4.06d.	28,521	3.36d.
1876....	31,456	2.82d.	14,487	4.49d.	49,943	3.28d.
1896.....	29,311	2.06d.	21,913	2.89d.	51,224	2.35d.

	VALUE OF YARN, HOSIERY, LACE, ETC.		
	Yarn. Per lb.	Hosiery, lace, etc.	Gd. total all kinds.
1836.....	£6,120	16.66d.	£1,329
1856.....	8,029	10.61d.	1,682
1876.....	12,782	13.21d.	4,908
1896.....	10,047	9.78d.	8,109

The percentage of the decline in the value of yarn is less than that of the fall in the value of piece goods, partly because of the great cheapening which took place in the cost of weaving between 1836 and 1856, and partly because of the large increase in the cheaper makes of goods sent to the east. The smaller percentage of decline in the value of yarn is also due in part to the increased proportion of the higher counts of yarn exported. Between 1856 and 1876 the diminished export of the coarser and cheaper, and the increased export of the finer and dearer counts of yarn, more than counteracted the influences of the general tendency toward lower prices.

The diminished cost of production is, of course, the result of th

great saving of labor effected by improved machinery, especially in the power loom, during the ten or twelve years after 1836. The extent to which these improvements have made labor more productive is shown in the following statement of the weight of cotton spun, the weight manufactured, and the production per hand employed:

	Cotton Spun		
	Pounds. (1000's)	Hands employed.	Lbs. per hand
1836.....	347,400	150,000	2,315
1856.....	891,400	187,000	4,766
1876.....	1,280,300	259,000	4,943
1896.....	1,644,650	240,000	6,852

	Cotton Manufactured		
	Pounds. (1000's)	Hands employed.	Lbs. per hand.
1836.....	250,390	250,000	1,000
1856.....	691,750	192,000	3,602
1876.....	1,024,500	222,000	4,614
1896.....	1,372,900	300,000	4,576

At the 1836 rate of production per head the 1,644,650,000 pounds of cotton spun in 1896 would have required 700,000 operatives, instead of only 240,000; while the 1,372,900,000 pounds manufactured in 1896 would have required 1,372,000 hands instead of only 300,000. For both departments the number of operatives required in 1896 would have been 2,082,000, instead of only 540,000. But this is not all. The hours worked in 1836 averaged 69 per week, against 56 per week at the present time, which means that, with the machinery of 1836 and the hours of labor of 1896, over 2,500,000 would have been required to manipulate the cotton spun and manufactured in 1896, so that the saving effected by the "ingenuity of man" represents the wages of 2,000,000 operatives. Of course, if this saving had not been effected, the industry would not have progressed in leaps and bounds.

But the improvements in machinery and in mill building have not only cheapened the cost of a world-wide used article of clothing they have also vastly improved the position of the workpeople, whose wages are from 50 to 100 per cent higher than they were in 1836, while the chief articles of food are much cheaper now than they were then. Moreover the workpeople are better housed, better clothed and better educated than they were sixty years ago. They have also more time for leisure and self-improvement, more holidays and more money to spend on them. The conditions under which they follow their employment are also vastly improved; the mills and sheds in which they work being larger, pleasanter and healthier than those of even a generation since, to say nothing of those of two generations ago.

—The true marine glue is a combination of shellac and caoutchouc in proportions which vary according to the purpose for which the cement is to be used. Some is very hard, and some quite soft. The degree of softness is regulated by the proportion of benzoic acid for dissolving the caoutchouc. Marine glue, according to *Work*, is more easily purchased than made, but when a small quantity is needed the following recipe will give very good results:—Dissolve one part of India rubber in twelve parts of benzoic, and to the solution add twenty parts of powdered shellac, heating the mixture cautiously over the fire. Apply with a brush. The following recipe is said to yield a strong cement:—Ten parts of caoutchouc or India rubber are dissolved in 120 parts of benzine or naphtha with the aid of a gentle heat. When the solution is complete, which sometimes requires ten to fourteen days, 20 parts of asphalt are melted in an iron vessel, and the caoutchouc solution is poured in very slowly, in a fine stream and under continued heating, until the mass has become homogeneous and nearly all of the solvent has been driven off. It is then poured out and cast into greased tin moulds. It forms dark brown or black cakes, which are very hard to break. This cement requires considerable heat to melt it, and to prevent it from being burned it is best to heat a piece of it in a water-bath until the cake softens and begins to be liquid. It is then carefully wiped dry and heated over a naked flame, under constant stirring, up to about 300° Fahr. The edges of the article to be mended should, if possible, also be heated to at least 212° Fahr., so as to permit the cement to be applied at leisure and with care. The thinner the cement is applied, the better it binds.

## Foreign Textile Centres

MANCHESTER.—The depression in the cotton trade has now become so intense that the subject is receiving close attention throughout the district. The weaving towns of North and North-East Lancashire are feeling its effects very keenly, and in Burnley there are nearly 10,000 looms stopped, while the output of the mills there has probably fallen 25 per cent. compared with eighteen months ago. Burnley depends largely upon the print cloth trade, and the fact that calico printers have been doing very badly for some time past has produced a shrinkage in the volume of orders to Burnley houses. The falling off in cotton cloth exports up to the end of August amounted to about 346 million yards, a drop of nearly 10 per cent. compared with 1896. This represents employment for a considerable number of looms, and means a heavy decline in the demand for yarn. The great spinning district of South-East Lancashire already feels the pinch, and it is expected that Saturday's declaration of stock-taking results by the Oldham "limiteds" will show a very unsatisfactory quarter. Mill shares have already fallen from one to two shillings in consequence of the unpromising outlook. Amongst the remedial suggestions brought forward at the present juncture is the inevitable cutting of wages. A reduction of 10 per cent., coupled with short time, is spoken of, but as the proposition is made without the trouble being taken of consulting the operatives, it loses much in weight. The leaders of the operatives' organizations fully recognize that trade is bad, and are willing to share in the losses which that condition of affairs entails. But they say that short time is the remedy they will support, and that a drop of 10 per cent. is not to be entertained. If the position of affairs became very alarming a reduction might be agreed to, but a substantial decrease should not be made without a fight. As showing the wonderful vitality of the operatives' organizations, it may be mentioned that the Operative Spinners' Amalgamation has fully recovered from the effects of the disastrous strike of a few years ago, and has now funds in hand amounting to £200,000. This is only one amongst the federations in the operatives' section of the cotton industry. From an examination of the position, and interviews with leading authorities, it appears that there is little immediate danger of trouble in the cotton industry. An improvement in the Indian trade would probably clear away altogether the storm now threatening. In the meantime, it is hardly an opportune moment for Colonel Dyer, president of the Engineering Employers' Federation, to come forward with bellicose suggestions of a combination between employers in the cotton trade and the master engineers. Men's feelings are wrought up to a sufficiently dangerous point already in the trade with which the Colonel is connected, and it will tend greatly to the promotion of peace if he will mind his own business, and leave the cotton industry to itself. Makers of colored goods have received a few more orders lately. The sale of grandrill shirtings keeps up, but the two-fold yarns interspersed with the warp of the grandrill proper, have, for economy's sake, been superseded in many instances by a single yarn, and the result is that the cloth has deteriorated in its capacity for wear. Liverpool shipments of cotton goods last week to Bombay amounted to less than 600,000 yards, while to Calcutta the quantity was nearly 15½ million yards. During the previous week the shipments to Bombay exceeded nine million yards, and to Calcutta they were over 16 million yards. The average shipments to Bombay from Liverpool, from January to August, were nearly ten million yards a week, and to Calcutta over 18 million yards. It will be seen, therefore, that during the past two weeks the Bombay trade has been much below the ordinary level, even when making allowances for shipments from other ports. Reference was made to the risks involved in accepting the low offers of certain foreign insurance companies which have been endeavoring to cut out English offices by absurdly low quotations. In the season just closed 300,256 bales of American and Egyptian cotton were landed in Manchester from sea-going vessels. This shows an increase of 58 per cent. over the last season, and the result cannot be regarded as otherwise than satisfactory. No one expects Liverpool's old-established monopoly to be taken away from it in a year or two, but the position of Havre, Bremen, and other continental ports, shows that in the course of time new markets can be created.

**LEEDS**—The clothing trade of Leeds still keeps up remarkably well in face of the engineers' dispute, but both the delivery of, and payment for orders, will be seriously interfered with if a settlement is not soon arrived at. The general worsted coating trade is only showing the slightest improvement at present, consequent on the hardening of raw material.

**Huddersfield**—In Huddersfield only the makers of the best classes of plain and fancy woollens and worsteds can be termed really busy. In the heavy woolen districts there is a more cheerful feeling, and heavy cloths for overcoatings and mantle purposes are in better request. There is also a steady trade doing in heavy serges and fancy tweeds, and there has also been a most marked improvement in the demand for dress meltons, the better qualities of which are being used largely for bloomers. Makers of art plushettes for furniture purposes have produced some magnificent new effects in painted styles, and are very busy with them. There is a better enquiry for colored blankets, and the demand continues good for home-trade whites. The Yorkshire flannel trade shows considerable improvement, and there are more orders for finer flannels for the home and shipping trades, and deliveries, which had been kept back, are now being freely accepted by merchants.

**Bradford**—In spite of such adverse influences as the continuation of the engineers' strike, and the unsatisfactory state of our leading shipping markets, the values of the finest wools of the merino order are still hardening, and the opinion is firmly held that at the opening of the forthcoming London wool sales we shall see still higher prices paid for all fine colonial wools. The consumption of these fine wools here happens to be just now unusually small, as large quantities are in the ordinary way taken for the production of the fine light worsted coatings and Italian linings for the United States trade, which is, of course, almost shut off for the time being. Were this not the case, to-day's prices would have been much higher than they are. In cross-bred wools the market, although quite firm, is still quiet, and any tendency towards speculation is kept in check by the knowledge that some heavy weights of this class of wool will be offered at the colonial sales which commenced on the 28th ult., and also that local stocks of this class of wool are much larger than those of the finer classes. English wools are quiet, although some of the merchants here have been replacing from the country in the special classes which were taken most freely for America before the tariff came into operation. There is still a good deal of activity both in raw mohair and alpaca, and spinners of mohair yarns for crepons and similar fabrics find the demand so good that they have been enabled to obtain a further advance in prices, although the demand for braid yarns is still quiet, and, as a rule, the price of mohair. The position of spinners of worsted yarns is just now most difficult, as notwithstanding the hardening tendency in raw material, there is not the slightest improvement in the price of yarns, and in some cases for immediate particulars transactions are reported at absolutely less money. There is very little new business offering from the large-using districts of Germany, and in many cases the prices of the little which does come forward are "impossible." The inquiry for bright mohair yarns from France continues to improve, and there is a better inquiry for worsted yarns also for this market. There is very little new business reported on home account, some considerable business is offering in worsted yarns from the United States, from which it would appear that under the conditions of the new tariff it pays the Yankees better to import yarn than manufactured goods, or it may mean that the domestic mills are to produce the cotton warps which are to be filled with Bradford worsted yarns. For the time being the business doing here in autumn dress fabrics is fully as good as, under the circumstances, could be expected in the face of dearer corn and the great strike, and the fact that many middle class ladies can wear in the autumn the cycling or walking coats and skirts which they have had for the summer season. The demand for fancy costume goods of the Boucle order in dark shades is also still good, and fancy corduroys and repps still remain in favor. The earlier buyers of dress goods in the wholesale trade have now to a large extent completed their purchases for the coming spring season, and the leading producers of fancy dress fabrics in Bradford have received a better share than usual of the orders placed.

**NOTTINGHAM**.—The article in the current number of the *Saturday Review* on "The Decay of Nottingham" has proved a fruitful topic of conversation to all interested in the staple trades of the city. Pessimistic as its tone is, very little exception can be taken to the conclusions the writer draws, and that is the saddest feature of the situation. If, however, the *Saturday Review* thinks that by publishing such an article it is likely to do any good to Nottingham trade, it will fail in its object. It is never wise to expose the nakedness of the land to the stranger, or to show the shortcomings of the people, for it is certain that foreigners are only too glad to ascertain all the weak places in our armour, and as Nottingham trade is already suffering so severely from the effects of foreign competition, it was scarcely necessary for any English journal to call attention in so marked a manner to our failings. Cotton millinery laces are moving in good quantities in certain specialties, but some manufacturers complain of their inability to keep their hands and machinery in full work. Valenciennes in the better qualities are moving, but there is a superabundant supply in the medium qualities. The colors most in request are white, ivory, cream, two tones, and grass lawn tints. Coarse, heavy laces of low grade are selling in bright butter color. Oriental laces are much in favor, to the detriment of other descriptions of goods made in the district. Local manufacturers complain of the difficulty they experience in competing with the German-Swiss producers. There has been some inquiry for cotton and linen Maltese and Torchons, as well as for assortments of Irish and other guipures. The plain net trade shows no signs of falling off, in fact, prices of all plain goods are well maintained. There are orders still placed in advance for export for the purpose of conversion into Oriental and other embroidered laces produced abroad. A fair demand is also experienced for millinery purposes. Paisley and other foundation nets are in limited request, and prices are high. There is a moderate demand for Brussels, Bretonne, and spotted nets for millinery uses. Mosquito nets are high in value, and considerable quantities are selling for corsets and for embroidery for curtains. Plain silk tulles in certain qualities are in request. Just now is not a brisk time in the curtain, window blind, and furniture lace branches. In some quarters there is a large output of goods, but in others many machines are idle. Scotch competition has been the disturbing factor in this branch for some time, the low rate of wages prevailing in that country enabling manufacturers to place their goods on the market at lower prices than the Nottingham product. This is likely to be altered somewhat, as at present there is an agitation going on at Newmilns for increased wages. Should the operatives be successful, Nottingham manufacturers are bound to benefit. There is a good home demand for collarettes, aprons, ruffles, frillings, and other fancy articles, providing employment for a large number of hands. There is a fair demand for plain and chenille silk nets and veilings; prices, however, are cut very fine. Everlasting trimming, Swiss embroidery edgings, and similar goods for underclothing are slow of sale. For the time of the year the hosiery trade is in a very lethargic condition. Cotton stockings and socks are low in value. Black and colored merino and cashmere stockings and half-hose are steady in value, and there is a moderate demand. Heavier wool goods have met with more inquiry. Merino, natural and other wool vests and combinations are firm in value, and some good orders have been placed. The silk branches are depressed. A fair business is being done in some departments of Valenciennes laces, with a steady sale of Orientals, although even these have by no means a monopoly of the Nottingham trade. Common cotton laces move very slowly, and prices are unremunerative. The union rate of wages is almost prohibitive in many branches of the lace trade if manufacturers are to compete with foreign markets. Unless workmen are willing to become reasonable as to wages, there will soon be a general immigration that will seriously cripple the English lace trade.

**LEICESTER**.—The yarn market is not quite so depressed, but business is conducted under exceptional difficulties, and it is impossible at present to book new contracts at prices which would yield a profit. Stocks are kept low, and the enquiries are of fair extent, but spinners decline to accept orders unless the full limit of late rates is conceded. Lambswool, cashmere and merino yarns are in fair request, but cottons are neglected. The hosiery trade is now more active, and there is a better outlook; but the orders for the home trade are extremely partial, there being an entire absence of business from the industrial centres. Car-

digan jackets, football jerseys, gloves, and other special goods, sell more freely, both for home and export markets. The cotton goods trade has almost entirely disappeared, it being impossible to compete with the low-priced productions from Germany. Elastic web specialties are in fair demand for colonial markets.

**DUNFERMLINE.**—Andrew Carnegie has opened up communications with the Dunfermline School Board on the question of building a handsome technical school. Mr. Carnegie has indicated his willingness to hand over £7,000 for the erection of the building. At present Mr. Carnegie contributes £100 a year to the cause of education in Dunfermline. It is some years since a technical school was proposed for Dunfermline. A scheme then formulated met with strenuous opposition, however, in consequence of the expense, and although there was a majority of the board in its favor, it had to be abandoned.

**KIRKCALDY.**—As regards the linen industry, some hopes are entertained of a slight improvement soon. The stocks of goods sent to the United States, in anticipation of the new tariff, have lately been very considerably run down. Floorcloths and linoleum manufacturers are slightly less active, but a steady demand exists for the various cloths.

**BELFAST.**—The market is stronger, with increased inquiry and very promising orders. Irish crop flax is selling steadily where offered, medium, prices unchanged. In yarns the demand is well sustained, and orders increasing somewhat in number and extent. Prices quite firm. Brown power and hand-loom goods moving regularly into consumption. Unions and tow fabrics receive a shade more attention. Power-loom bleaching cloth is changing hands with moderate freedom. Damasks and handkerchiefs rather more than maintain their position. Finished linens, on home account, are selling satisfactorily, though demand devoid of speculation. Export trade fully supported, and somewhat better with the States.

**LYONS.**—A greater number of buyers from London as well as from Paris who visited Lyons lately, gave the market a more animated appearance, and numerous transactions occurred. The English buyers bought more liberally and cleared a good many lots from stock, while the French purchasers appear more bent on ascertaining the tendency of the fashion as disclosed in the novelties prepared by the mills. They act very carefully in selecting styles, and the number of orders placed by them is not yet large. The objects of their investigations are principally the better class articles, in which the demand is generally limited, and which are not to be found in stock. These goods furnish work for the hand looms, and an increased activity is noticeable among the weavers in the country, while the hand looms in town to which the weaving of the best goods is confided are to a great extent unemployed. For the staple goods, such as piece-dyed fabrics and the lower grades of yarn-dyed power-loom qualities, the orders are regular and of good size. The power-loom factories are well provided with work for a considerable time to come. Prominent among these articles, beside the light weaves, such as mousseline, crepe Florentine and marceline, are satins, lining silks and piece-dyed and yarn-dyed damas. Yarn dyed damas in low grades are mainly made in all black or black glace. Colored damas, however, seem neglected, and an uncertainty exists about their being wanted again for Spring. Armures have gone out of fashion, and the looms hitherto occupied with their production are now engaged on plain articles, for which there are abundant orders at remunerative prices. Orders on the fine grades of black cotton-back satins are very light, and but few looms are required to satisfy this demand. The hand-loom articles are principally damas worked with two shuttles or glace, damas for moire, double-warp damas and matelasse. Plain goods, also, in rich qualities are found on the hand looms, such as taffetas, in plain colors or checked, satin duchesse, bengalines and wool-filled checks. Velvets will, without any doubt, be among the favored articles of this season. The delivery of orders in schappe pile, silk pile and all silk, has begun in all the different styles, plain, fancy and plisse. Dark shades are most favored, principally myrtle, prune and marine. Plaid and checked velvets are in particularly good demand. Striped velvets are improving. The demand for brocaded velvets is increasing, but this article does not yet hold a prominent position. The ribbon trade is much livelier, particularly in fancy styles. The demand for checks, plaids and stripes predominates, while warp prints and ombres show

little life. Velvet ribbons are being bought in large quantities, principally in black, but also in colors and with shot effect.

**CHREVELD.**—The wholesale trade showed a considerably increased activity. Orders for all the fashionable articles continue to arrive, and it now looks as if it were of greater importance to get the goods quickly than to sell them. Foremost among the different articles are taffetas in plain, striped or glace, and, above all, checked or plaided, also damas in the different grades, and moire velours with cotton and wool filling. In velvets fancy styles are principally in demand in checks, plaids and brocades. The favor for plain velvets has considerably increased. The cloak trade seems to have reached the height of the season. The request has been very lively lately for outer materials as well as for linings. Matelasses sold well, but were surpassed by velours du Nord. The sales in lining silks are fully up to expectations. The mills have been materially benefited by this increased demand, but the season is too far advanced for orders to be placed with an extended time for delivery. Only reassortments, or goods which can be delivered quickly, are being ordered.

**ZURICH.**—There has been very steady buying at Zurich, with China silk in the lead, being in strong demand for Bale. Japan silk was less active. In organzines Syrian held the first place. This silk has been taken up on a large scale of late, and the effect of this year's reduced crop is unpleasantly felt. Prices advanced more than 10 per cent. since June, and manufacturers are complaining that the cost of raw material is now out of all proportion to the prices obtained for the woven goods. The mills are well employed and are working full time. Particularly Bale reports great activity. Ribbon orders have been abundant, and manufacturers are asking extended time for delivery. Some of the leading mills have their production sold up to the end of February.

**R. GEMMILL & SON, PERTH, ONT.**

A further meeting of the creditors of R. Gemmill & Son, Perth, Ont., will be held October 22nd, in Perth. A dividend of 7 per cent. will be paid on the 18th. The chief creditors of the firm are: R. S. Fraser, \$61 77; Canada Garnet Co., \$391 23; Jack & Robertson, \$225 66; Queen City Oil Co., \$22 74; William Allen, \$612 62; Donald Munro, \$219 87; W. T. Benson & Co., \$475 59; R. Berryman, \$579 26; L. M. Tetlow & Sons, \$3,692 37; Calvert-Wilson-Dwyer Co., \$1,546 22; D. R. Noonan, \$525 73; John Dettrick, \$204 59; W. E. Orr, \$539 34; Bank of Montreal, Perth Branch, \$17,058 58; Bank of Montreal, Montreal Branch, \$4,848 94; Estate J. A. Cantlie & Co., \$12,367; Dominion Dyewood and Chemical Co., \$222 47; A. McArthur, \$36; Kerr & Harcourt, \$46 06; G. B. Farmer, \$93 55; Shaw & McKerracher, \$90 83; Goldie & McCulloch, \$5 50; James & Reid, \$42 62; J. & T. Scott, \$7 95; W. A. Moore, \$19 10; Alfred Savage & Son, \$121 27; Kippen & Allan, \$10 50; A. Klipstein & Co., \$79 25; J. H. Gould, \$5 12; JOURNAL OF FABRICS, \$2 25; Wright & Dallyn, \$256 15; Robert Linton & Co., \$10; W. S. Duncan, \$24 9; W. Strachan & Co., 79 57; Berlangette & Lee, \$7 90; estate of Mrs Robert Gemmill, \$320; W. J. Kirkham, \$20 82; the Montreal Blanket Company, \$727 30; Walker Bros., \$50.

**TEXTILE IMPORTS FROM GREAT BRITAIN.**

The following are the sterling values of the textile imports from Great Britain for Aug., 1896, 1897, and the eight months to Aug., 1897:—

EXPORTS TO CANADA.	Month of Aug.,		Eight months to Aug.,	
	1896	1897	1896	1897
Wool .....	£ 214	£ 4,814	£ 5,680	£ 16,805
Cotton piece-goods .....	32,416	30,661	291,466	231,381
Jute piece-goods.....	9,520	11,530	89,322	65,617
Linen piece-goods.....	12,595	11,912	93,609	69,989
Silk, lace.....	.....	.....	.....	.....
" articles partly of.....	.....	.....	.....	.....
Woolen fabrics and worsted fabrics.....	65,672	70,562	313,928	345,979
Carpets .....	5,383	8,610	113,541	90,262
Apparel and slops.....	32,697	27,681	197,983	159,791
Haberdashery .....	12,726	10,320	89,852	86,221

## SPECIAL CORRESPONDENCE CANADIAN JOURNAL OF FABRICS.

Kingston, Ont., Oct. 11th, 1897.

Editor CANADIAN JOURNAL OF FABRICS.

SIR,—THE CANADIAN JOURNAL OF FABRICS is a constant visitor at the Dominion Cotton Co's mill here. Amongst its subscribers at the mills are found Jno Foote, M Campbell, overseer of carding, P. Donohue, his second hand, and Richard Pomford and Wm. Winters, section hands, weaving. Ed. Clegg, second hand, spinning, Adam Lees, Wm Perryman, and Walter Wilson, mule spinners, also think well of your journal. The hosiery mill, so ably managed by ex-Alderman Hewton, has men within it that are old subscribers. While amongst the business men who subscribe appear the names of McNee & Mines, Crumbly Bros., Howland Bros., and others. This city seems to have taken on new life of late. Elevators are being erected; a new street railway branch to the outer depot is under construction, a coal oil works is being built, and ground will soon be broken for a new drill shed, the sum of \$10,000 having already been appropriated for that purpose. Election talk is rife, and the name of Manager Hewton, of the hosiery mills, is mentioned as a probable candidate for municipal honors. May he win with hands down, is the prayer of yours truly,

J. J. BICKLEY.

### LITERARY NOTES.

"A Canadian Scrap Book," by Lady Jepleson (Marshall, Russell & Co., Ltd., Paternoster Row, London, E.C.; Foster Brown, Montreal. Price \$1.) Whatever excellent paper and tasteful presswork can do to add to pleasing ideas, freshly expressed, has been done by the publisher of this work. The series of word-sketches and essays which make up this volume present a cheering picture of life in Canada, and if some of the high lights are rather bright, and more is made of the toboggan slides of Quebec than of the wine presses of Ontario, yet the picture is well drawn, and a view of every side of a subject cannot fairly be demanded in one book. The illustrations are specially engraved from wash drawings by the author, and are a particularly pleasing feature of the book.

The *Textile World Directory of the Mill Trade and of the Buyers of Textile Fabrics*, has recently been issued by Guild & Lord, publishers of the *Textile World*, 620 Atlantic Ave., Boston, Mass. The confidence which the publishers feel in the completeness of this work is indicated by the fact that they offer a reward for the name of any textile mill or similar establishment in the United States, in April, 1897, not mentioned in this directory.

Hon Theodore Roosevelt contributes a paper to the October *Century* on "The Roll of Honor of the New York Police," his article being one of the series in this magazine on "Heroes of Peace." Mr. Roosevelt incidentally describes his efforts and those of his associates to reform the police force in New York, and he tells of the workings of their plan to reward heroism by promotion wherever possible. A paper by Miss Anna L. Bicknell, who wrote "Life in the Tuileries Under the Second Empire," based upon her own experiences in the palace, treats of Marie-Antoinette as Dauphine, and has many illustrations. Miss Bicknell presents much new material, drawn from the State Papers in Vienna. In "Wild Animals in a New England Game Park," G. T. Ferris describes the great game preserve of twenty-seven thousand acres established by the late Austin Corbin among the abandoned farms of New Hampshire. Mr. T. Cole, the engraver, gives his attention this month, in his "Old English Masters," to Sir Joshua Reynolds, four of whose most characteristic paintings are reproduced. The accompanying text is by Prof John C Van Dyke. Joseph Pennell writes appreciatively of "The Art of Charles Keene," ranking Keene next to Hogarth among English artists. A number of examples of his work, from the original drawings, give point to Mr Pennell's praise. "Letters of Dr Holmes to a Classmate," edited by Mary Blake Morse, are for the first time printed. This number of the *Century* closes the volume, and brings to an end the serials that have proved such successful features of the year. Gen. Horace Porter's "Campaigning with Grant" gives a vivid description of the surrender of Lee at Appomattox, and corrects some errors that have crept into the generally received history of the event. Dr. Mitchell's novel,

"Hugh Wynno," gathers together the strands of romance, after the momentous scenes of the Revolution have played their part of the story. Mrs. Catherwood's romance, "The Days of Jeanne d'Arc," ends with the death of the pucelle and her squire, and is accompanied by pictures by Boutet de Monvel. There is a short story by Lucy S. Furman, entitled "The Flirting of Mr. Nickins," and one by Louise Herrick Wall, "The Heart of a Maid."

The special Autumn number, 1897, of the *Drapers' Record* is one of the finest issues ever turned out by our London contemporary, which has at similar periods of the year produced some very large and interesting examples of trade journal enterprise. Naturally, the greater part of the number is devoted to description and illustration of the new Fall offerings, and in this direction the publishers have been assisted by an army of advertisers. There are some special articles which make good reading for dry goods people.

The October *Canadian Magazine* contains several important historical and scientific articles. Dr. Bourinot writes of the "Royal Society of Canada;" W. L. Cotton, of the "Premiers of Prince Edward Island," Mina A. Reid, of the "Universities of Nova Scotia," and R. G. Haliburton, of "The Days of Prehistoric Man." Among the lighter articles is "The Making of a Dollar Bill," by A. C. Campbell; a story by Eliza S. Atkinson, "Madge Merton;" the third instalment of Fergus Hume's novel, and a splendid story of rural Canadian life by R. F. Dixon. John Chariton, M.P., contributes a spicy article on "American Trade Relations," pointing out that Canada is rapidly becoming independent of the United States' market.

### FABRIC ITEMS.

E. T. Fournier, dry goods, Ottawa, has assigned to P. Larmouth.

Chas. S. Cooke has opened up business in men's furnishings at Boisevain, Man.

George Mills & Co., hats, Kingston, Ont., have compromised at 50 cents on the dollar, cash.

Catto & Sons, dry goods, King street, Toronto, are taking in the adjoining store to the east, and have now one of the widest and most modern shop fronts and interiors in the city.

A. E. Ham & Co., dry goods, Chatham, Ont., have called a meeting of creditors to be held at Assignee Hallworth's office on October 20th. The firm carried a stock of about \$15,000.

Charles H. Gerbig, Toronto, has entered suit against Thos. Cole, Strathroy, Ont., and Knox, Morgan & Co., Hamilton, Ont., for \$20,000 damages, for the alleged wrongful conversion of goods.

Walter Blue & Co., wholesale clothiers, Sherbrooke, Que., have secured the services of Roderick McKinnon, of Montreal, an experienced and successful traveller, to assist on the Lower Provinces route.

William Mowat, dry goods, Napanee, Ont., has assigned to E. R. C. Clarkson. The estate amounts to about \$35,000. The creditors are about half English and half Canadian, divided between Montreal and Toronto.

A demand of assignment has been made recently upon H. B. Muir & Co., a comparatively young firm of woolen jobbers in Montreal. Mr. Muir was formerly contracting freight agent for the Central Vermont Railway, and started this business three years ago.

A very sad affair took place at a meeting of the Reform Association, at Ottawa, recently. E. Leblance, of Leblance & Lemay, clothiers, Sussex street, Ottawa, dropped dead on the floor from the chair. He had been addressing the meeting a minute previous.

Edward Foster, who has been in the employ of the Robert Simpson Company, Toronto, for the past eight years, and the last four years been manager of the men's furnishing department, has secured a position as traveller with the firm of Tooke Bros., Montreal. He will cover the ground between Toronto and Sarnia.

Dame E. R. Hawes, wife of the late Thomas Coristine, has taken an action for \$68,000 against J. Coristine, her brother-in-law. Plaintiff's husband and defendant were formerly in partnership in the fur trade in Montreal. The latter has since made a statement of accounts, but the plaintiff claims that there are still \$68,000 to be accounted for.



Rondot & Co., dry goods, Amherstburg, Ont., have assigned to J. G. Hay. The failure will range between \$15,000 and \$20,000.

An Ontario charter of incorporation is applied for by the W. R. Brock Co. to carry on a general wholesale dry goods business and to manufacture dry goods; capital, \$1,000,000. The applicants are: W. R. Brock, T. J. Jermyn, B. B. Cronyn, W. L. Brock, J. A. Catto, Toronto.

The enquiry into the affairs of The John Eaton Company in the Assize Court before Mr. Justice McMahon has been adjourned in order to allow more time to the experts employed to complete their examination of the books. Previous to the adjournment being granted, B. B. Osler stated that his clients could show that in the fundamental item of the company's claim, that of stock on hand on August 1, 1896, amounting to \$267,000, duplications had been made to the extent of \$60,000 by simply repeating invoices, and he was convinced that if time were given him the amount could be doubled.

Miller Bros. & Co., of Montreal, for whom G. B. Fraser, manufacturers' agent, 3 Wellington street east, Toronto, is agent in Ontario have gone into the manufacture of celluloid collars, cuffs and shirt fronts. Before putting them on the market the goods were thoroughly tested, and the quality is said to be the best yet produced in this country, while the prices are somewhat lower than other makes, and considerably lower than the imported. Directions are given whereby a collar or cuff may be worn for months without the least discoloration. Leading wholesale houses have already placed orders for these goods through Mr. Fraser, and they are highly spoken of.

The estate of Stanley & Co., St. Catharines, is to be wound up. The statement showed total assets of \$11,056.81, made up of stock, \$10,798.50, cash \$56.50, and book debts and liabilities of \$9,582.09, showing a surplus of \$1,471.72. Toronto creditors: Wyld, Grasett & Darling, \$968.10; D. McCall & Co., \$514.70; A. Bradshaw & Son, \$489.12; Flett, Lowndes & Co., \$384.88; J. D. Ivey & Co., \$266.95; Caldecott, Burton & Spence, \$266.98; Standard Bank, \$243; S. F. McKinnon & Co., \$115.88; Alexander & Anderson, \$102.79; Crompton Corset Co., \$106.99; Menzie, Turner & Co., \$65.71; Heintzman & Co., \$54.78; Suckling & Co., \$46.44; Kerr Spool Co., \$40.33; W. R. Brock & Co., \$39.91; Nicholas Rooney, \$37; Gale Manufacturing Co., \$36.06; F. C. Daniel & Co., \$28.50; G. Goulding & Sons, \$24.62; Toronto Cotton Bating Co., \$23; Cockburn & Drake, \$17.98; Croft, Phillips & Wrinch, \$12.17, and Carter-Crume Co., \$13.26. The preferred claims are, rent \$362.52, taxes \$140.20, water rates \$12, wages \$55.02; total preferred claims, \$569.74.

#### CANADIAN TEXTILE PATENTS.

The following patents of textile interest have been recently taken out in Canada:

- No. 56,490.—A washing glove made of rubber, having perforations and corrugations in the working part. Josephine Chalfont, Winnipeg, Man.
- No. 56,494.—A machine for winding thread or yarn. B. M. Knox, Kilbirnie, Scotland.
- No. 56,498.—A moquette fabric and a loom for weaving this fabric. W. B. Smith, Yonkers, N.Y.
- No. 56,699.—A carpet lining fabric formed with a filling of untwisted paper. Wm. A. Mauran, Providence, R.I., U.S.
- No. 56,702.—A garment stretcher of several parts which are adjustable to garments of various sizes. L. B. Cadmus, Sommerville, N.J.
- No. 56,724. A knit fabric to be used for cushions, mattresses, etc., formed of two or more slivers or ropes of fibres having a little or no twist in them, laid in alternating parallel lines, and secured together by interknit or binding threads, the whole being loosely held together. G. F. Sumner, Canton, Mass.
- No. 56,741. A ribbed knit fabric provided with a backing consisting of threads extending from one outer wale to another, and which are interlaced on the inside of the fabric between the lower part of one loop and the upper part of an adjoining loop lying in each of such outer wales of the ribbed fabric. A machine for producing this fabric. D. C. Bellis, Elizabeth, N.J.

No. 56,747. An apparatus for sizing cloths. Robt E. Menzies Toronto.

No. 56,769. A machine for making pillow lace. A. Mattsch, Vienna, Austria.

## 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.

The Berlin, Ont., Brush Company is now employing 30 men. Arnold Bros., glove manufacturers, Acton, Ont., are working overtime.

The R. Forbes Woolen Mfg. Co., Hespeler, Ont., is running full time.

G. Rumpel, felt boots, etc., Berlin, Ont., is working overtime with a full complement of hands.

Brown & Erb, Berlin, Ont., glove manufacturers, are working overtime to overtake orders.

The Beardmore Company's tannery at Acton, Ont., is working overtime, and some additions are being made to the plant.

Sherbrooke, Que., yarn mills had a large exhibit of wool, yarn and hosiery at the Eastern Townships Exhibition, Sherbrooke, Que.

C. Turnbull & Co., manufacturers of knit goods and yarns, Galt, Ont., are working day and night, with orders considerably ahead.

Newlands & Co., manufacturers of glove and shoe linings, plushes, etc., Galt, Ont., are doing a much larger business this season than last.

T. D. WARDLAW, worsted yarn spinner, Dundas, Ont., is putting in a number of knitting machines, with a view of making some specialties in worsted hosiery.

ELZEAR VIGER, who early this year started a knitting factory at St. Catharines, under the name of the Viger Manufacturing Co., has sold off his machinery and retired from the business.

The old dye-house at the Clyde Woolen Mills, Lanark, Ont., has been torn down and a new stone building is being erected in its place. The mill has been closed down for some days while the change was being made.

Mike Duffy, a thief, who has four previous convictions, was recently sent to the Central Prison for six months, with hard labor, for stealing a quantity of underclothing from the Simpson Knitting Factory on Sept. 11.

W. H. Storey & Co., glove manufacturers, Acton, Ont., are working overtime a month earlier than ever before. The firm has stopped soliciting orders, as it cannot keep abreast of the demand. Seventy-five hands are now employed.

W. T. Addison, formerly a buyer for Gordon, McKay & Co., Toronto, has been appointed to represent the Dominion Colored Cotton Co. among the wholesale merchants of Western Ontario. Messrs Cochran and Hardy have also been engaged. The selling office of the company is at 316 St. James street, Montreal.

A damage suit has arisen out of the transfer of the Central Prison Binder Twine Factory from the Ontario Government to private control. J. Baldner seeks to recover from the Independent Cordage Company of Ontario the sum of \$2,000 for wrongful dismissal from the superintendency of the prison factory. The company's defence is that the new Dominion tariff compelled them to close down.

A gentleman who has just returned from Valleyfield, states that there are important changes in progress in the Montreal Cotton Mills Company's factory there. The management is substituting electricity for coal, to dry the cotton, and arrangements are being made for the erection of another large addition to the works to be used expressly for the manufacture of carpets—*Witness*. Upon enquiry it is learned that the statement that carpets are to be manufactured is unfounded.



The C. Turnbull Co., Limited, of Galt, are now running overtime on knitted underwear.

The flax crop of Manitoba in 1897 gave a yield of 309,795 bushels flax seed, as against 259,143 bushels in 1896.

Mrs. Wilson, from Fergus, has rented the Phillip Collfas homestead on Badenach street, Morriston, Ont. and has started carpet and mat weaving.

In the Ontario Government crop report it is estimated that the Ontario wool clip of 1897 was 5,139,984 pounds, as compared with 5,581,387 pounds in 1896.

The waste room of the Dominion Cotton Company's mill at Brantford, Ont., was destroyed by fire Sept. 21st. The loss amounted to about \$500, fully covered by insurance.

A private telephone system is being put in the R. Forbes Company's woolen and worsted mills, Hespeler. A telephone is being placed in each of the seven departments.

Miss M. Dougherty, formerly stenographer for Hugh McMillan, of Guelph, has gone to Hespeler, where she has secured a similar position in the office of the Brodie Woolen Mills Co.

At Northport, Kingston, Ont., a few days ago, Richard I. Creelman, the well known knitting machine manufacturer of Georgetown, was married to Miss Lydia A. Lochhead, B.A., of that place.

The Toronto Carpet Manfg. Co. put in a new art square loom last month. It will weave a piece  $3\frac{1}{2}$  yards wide. The company are now working full time, and are behind with orders in some departments.

Ahrens & Co., slipper manufacturers, Berlin, completed negotiations with Wm. Simpson for the purchase of some land in that town, on which to erect a slipper factory. The proposed building will be 140 x 46, and two stories high.

Geo. W. Ward, superintendent of the Almonte, Ont., Knitting Company's Mill, who has been in poor health for some years past, has resigned his position, to take effect from the 15th inst. He will take a rest for the remainder of the year.

The Dominion Cotton Company's mill at Kingston, Ont., is in first-class condition. The manager, John Foote, is a man of large and varied experience, having managed the Windsor mills at Windsor, N.S., the St. Ann's at Montreal, and previous to his coming to Canada successfully managed mills in India and Great Britain as well.

The stock of the Montreal Cotton Co., has been increased \$100,000, the allotment of the new stock being made *pro rata* to those whose names appeared in the stock register of the company, on October 1st, in the proportion of one share for every fourteen shares held. Payments are to be made in two calls of fifty per cent. each, the first on October 15th, and the second on Nov. 15th, 1897.

Grindrod & Co., of Sherbrooke, Que., had an excellent line of their goods at the Eastern Townships Exhibition, which consisted of home-spuns, tweeds, yarns, lap robes and horse blankets, says the *Sherbrooke Gazette*. This firm is noted for their superior workmanship, and for the fact that the material they manufacture is "a 'oo'" and no shoddy of any description. The wool which they use is secured from the surrounding district largely.

Archibald Campbell, the Markham carpet manufacturer, who refused to settle a claim of \$46 for interest on a mortgage, and allowed a seizure to be made, is still in Philadelphia. Meanwhile a sale has been made to satisfy the claim, and about \$300 worth of plant has been slaughtered to cover the paltry claim, which any of his friends would readily have settled. It is not likely that Mr. Campbell will return to reorganize his business.

The roof of the gas factory at the Brodie Woolen Mill, Hespeler, caught fire the other day. An alarm was at once sounded, but before the brigade arrived the employees of the mill had extinguished the flames. The damage done was very trifling. Much more serious results might have happened if the flames had spread to the building where the large gas tank is kept. This mill has a new independent waterworks system, which was tested a few days ago with satisfactory results.

The Rosamond Woolen Co., Almonte, Ont., is placing a Green's fuel economizer in the boiler room.

Birchner & Mayerhofer, dye works, Edmonton, Alberta, have dissolved partnership. The business will be continued by F. Mayerhofer.

The factory of the Worsted and Braid Co., at Toronto Junction, Ont., will, it is said, be again in operation in a few weeks. About 30 hands will be employed.

The Granite Mills, Yamaska, Que., are running only six hours per day, owing to lowness of water. As soon as power can be obtained the mills will run night and day, as orders are far ahead. There are 900 hands on the pay roll.

The Atburn Woolen Mills at Peterboro are working overtime; and it is rumored that the company may for a time utilize the factory of the Cobourg Woolen Co., now not running, to enable it to keep up with its orders.

James Jackson, late manager of the Dominion Cotton Mills Co., was presented with a valuable diamond pin and shirt stud by the overseers and office staff of the company, at his residence in Montreal, recently. Mr. Jackson replied in a few well chosen words, in which he referred to his successor, C. R. Whitehead, speaking in the highest terms of that gentleman, and hoping that the overseers would do in the future what they had done in the past. Afterward the party was served with refreshments, etc.

The lightning tie cutter is claimed by the makers, the Kitson Machine Co., Lowell, Mass., to be the best and cheapest device on the market for removing ties from cotton bales. The cutter consists of but two parts, both of which are of forged steel, hardened and tempered. The operation is simple and quick, and requires but light labor. The tongue is inserted beneath the tie, and then a pull upon the long lever presses the tie against the upper cutting blade and severs it instantly. The knife is readily sharpened after the bolt has been removed.

The Penman Manufacturing Company, Paris, Ont., which operates some of the largest textile mills in Canada, has made a number of improvements and additions to the mills in Paris, and among the improvements have decided to light their mills by electricity. The contract for a five hundred light "S.K.C." machine, and the wiring of the factories, has been awarded to the Royal Electric Company, which will use the "S.K.C." two-phase, alternating current apparatus, the dynamo wound to deliver to the mains current at a pressure that can be used directly in the lamps, from 100 to 115 volts. This is the first instance of which we know in Canada where alternating current is used for factory lighting.

Work on the Chicoutimi, Que., Pulp Company's new mill is progressing favorably, and it is expected that before long everything will be in working order. The water-power was entrusted to the Jenckes Machine Company, of Sherbrooke, Que., and it is to their credit to notice the way in which they have accomplished it. The water is being carried from the top of the fall down to the power-house through a steel pipe over 250 feet long and no less than  $11\frac{1}{2}$  feet in diameter, at the end of which are three Crocker turbine water wheels, one of 1,200 h.p., one of 690 h.p. and one of 450 h.p., making a total of 2,340 h.p. It is interesting to notice that one of these water-wheels is connected directly to an electric dynamo running 500 revolutions per minute.

From the annual report of the city engineer, of St. John, N.B., Wm. Murdoch, C.E., we learn that William Parks & Son (Limited) last year laid, at their own cost, a six-inch pipe, from the corner of Albion and Clarence streets to the St. John Cotton Mill, and furnished it with a two-way fire plug, as well as connection with the mill for all purposes. Their entire water service is now duplicated, so that in the event of either service being shut off for any purpose, they have the other to rely upon. This action on their part was precipitated on account of a leak having happened on the Brussels street 10-inch main, from which the mill's supply was wholly derived, and the water was shut off from 3.45 p.m., September 14th, till 10 a.m. of the following day. As a consequence, the mill, which had been running both day and night, was deprived of water on that occasion and had to shut down.

A fire, caused by an over heated stove in an attic, took place last month in the hosiery factory of the Canadian Worsted Mills, Montreal, the damage was small.

Bellhouse, Dillon & Co. have engaged the services of Mr. A. P. Melrose to represent their extract of logwood department. Mr. Melrose is now calling upon the principal merchants in Canada.

Fourteen girls employed in the spinning room of the cotton mill [at St. Stephen, N.B.] went out on strike against a reduction in their wages amounting to six cents per day, and placing their pay at seventy-eight cents per day. So far the other departments are not affected, but should the strikers remain out a week longer, it may cause half the mill to shut down. The manager hopes to overcome such a condition by securing yarn from other mills should the strike continue. He states that the reduction is made to make wages correspond with those paid in other factories. The mill has excellent prospects for continuing work with a full crew all winter, notwithstanding reports that have been published to the effect that it was about to shut down.—*St. Croix Courier.*

The fire at the Central Prison, Toronto, a short time ago, did considerable damage to the building occupied by the twine factory, and destroyed the broom factory entirely. The twine plant was not destroyed, however, and manufacturing will be continued. The Independent Cordage Co. of Ontario, Ltd., have made application to the Ontario Government for, and have been granted, a modification of the clause in their contract, which permits them only to manufacture small-sized rope and binder-twine at the Central Prison. They do not propose to discontinue the manufacture of binder twine entirely, but claim that owing to the low tariff on that commodity it cannot be manufactured with profit. There is a great demand for rope of the size the company propose to make, and the product is strongly protected.

James Jackson, who has filled the position of manager of the Dominion Cotton Mills Company for the past ten or twelve years, has sent in his resignation, and his place has been filled by the appointment of C. R. Whitehead, who is a comparatively young man, not being quite thirty years of age. He has, however, had great experience in the manufacturing line in the Province of Quebec, and as manager of the Montmorency cotton mills performed the responsible duties of his office with unusual ability. The promotion to the higher position of manager of the Dominion Mills is consequently well deserved, carrying as it does increased emoluments. The mills in future will be under the joint management of C. R. Whitehead and Leslie Craig, the latter gentleman devoting all his time to the office and the financial department, the manufacturing being attended to by the new manager.

The woolen factory of M. S. McKay & Co. at Galt, was destroyed by fire early on the morning of the 7th inst. The building was an old frame and roughcast structure, and very dry, and some parts were soaked with oil, so that the firemen, with their most vigorous work, could not save it. The machinery was worth about \$5,000, which with wool and manufactured stock in hand makes the total loss about \$8,000. The insurance is \$2,500, made up as follows: \$500 in the Wellington Mutual, \$1,000 in the Economical, and \$1,000 in the London Mutual. The fire originated in the rear of the building in the vicinity of the picker room, but how it was caused is not known. The building and machinery were a complete wreck. Mr. McKay was in Cleveland, O., at the time of the fire, and his son was also out of town. The mill had been running overtime, on account of shortage of water. It is suggested that Mr. McKay, who is an old woolen manufacturer, would have a good opportunity at hand in the Markham woolen mills, which have not reopened since the financial difficulties of its proprietors. Mr. McKay bears a good name in business, and will no doubt resume manufacturing either in Galt or elsewhere.

For some time past the Toronto Carpet Mfg. Co. have been negotiating with the town council of Dundas for the transfer of their works from Toronto to that town. The company offer to move to Dundas if the town will guarantee payment of the company's bonds, amounting to \$60,000, the company to create a sinking fund to redeem the bonds in 20 years, the fund then to be invested in the joint interest of the company and the town. The town is also asked to give exemption from all except school taxes, and to furnish water free. The company on its part will spend \$20,000 to \$25,000 on the works. The plant is now valued at \$100,000, and the company employs 170 hands and pays out wages to the amount of \$40,000 a year. The premises that could be obtained in Dundas are those of the old Dundas Cotton Mills Co., which were partially stripped of machinery when the Canadian Colored Cotton Mills Co. absorbed the mill. The mill has still a quantity of shafting and pulleys, several boilers and dye-vats, etc., which could be turned into use for a carpet factory, and the buildings, which are brick, are in fairly good condition. The proposal has been considered by the town council and referred to a special committee, who will report in a couple of weeks. If the committee recommend it, a by-law will be submitted to the people, but the action of the town would have to be ratified by the Provincial Legislature before it could be carried out. It is said that if the deal goes through, a chenille curtain factory from Montreal will also be removed to Dundas. When Robert Fleming, assessment commissioner of Toronto, was interviewed by a *Globe* reporter, he said that Captain Murray, manager of the company, had never made any request for better terms from the council, or intimated that the factory might be removed. It would, however, be quite impossible for the city of Toronto to do what Dundas was negotiating. The city could not guarantee the bonds of any factory or bid in the way suggested for industries. He would be sorry to see the factory leave Toronto, but if it could only be retained by a guarantee of bonds, he feared the council would not take any steps in that direction. The town of Cobourg and the city of Brantford have also been mentioned in connection with the contemplated removal of the carpet factory. The premises in the first named town are those of the Cobourg Woolen Co., whose plant is now idle, and at Brantford the old Wincey mill is spoken of.

The following description of the garden bird was given by Professor Forbes at the meeting of the British Association for the Advancement of Science in Toronto. It sounded like a fairy story, only it was told by an explorer and scientist, who threw upon the canvas that positive proof—the result of his snap-shot camera, a picture taken on the spot. Away off in New Guinea—that paradise of beautiful birds—there is one gayly plumaged fellow who builds a play-house of leaves and rushes—a roomy, covered place in which he may fly about and show himself off before his more sombre-hued mate. In front of this house he makes a garden, bringing bits of green moss to make a lawn, then going into the woods in search of brilliant wild flowers, which he snaps in his beak and carries to stick in gay array in the little moss lawn. The greater marvel is that each morning, at sunrise, he goes over his garden, picks out the withered flowers, deposits them in a heap in rear of the play house, and puts in fresh ones. It is hard to believe, but it was Professor Forbes who told us, and there was the evidence of his camera—play house, little mossy lawn with planted flowers, and the gay little gardener bird himself.

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**THE WOOL MARKET.**

**TORONTO.**—The demand from manufacturers continues brisk, and the tone of the market is healthy and firm. The demand for foreign wools is considerable, and somewhat larger lots of foreign than domestic wools are changing hands. Although the manufacturers are now paying more for their supplies than a year ago, they are still satisfied to book orders at the old prices. They should demand more. Manufacturers are now paying for fleece and tub-washed, 22 to 23c; pulled, 21 to 22c.; extras, 22 to 23c.

**MONTREAL.**—The stock of Cape wools, at Montreal, is nearly exhausted. The advances at the London sales have affected the market. B.A. pulled wools have advanced in Europe, and are held here at 29 to 36c.

—Hamilton, Ont., papers are vigorously protesting against the rumored placing of the military clothing contracts with Montreal manufacturers.

—Wm. Hirsh, late of the Yount Woolen Mills Co., Yountsville Indiana, has taken the position of superintendent in the Slingsby Manufacturing Co.'s woolen mill, Brantford.

—There is a large demand from Japan for woolen blankets, now chiefly supplied from Germany and England. There is no reason that Canada should not do the largest part of this trade, and find an excellent market for our Canadian wools in a manufactured state.

—Joseph Chamberlain, the British Secretary of State for the Colonies, has lost \$250,000 in an attempt at growing sisal hemp in the Bahamas. Sir Ambrose Shea says that Mr. Chamberlain's failure is due to the unsuitable nature of the ground selected for the plantation, and not to any fault of the climate or the labor supply.

—Ontario Game and Fishing Laws, by A. H. O'Brien, M.A., barrister-at-law, assistant law clerk to the House of Commons, has just been issued in its third edition, revised to Oct. 8th, 1897. This digest is supplied by the Ontario Government to their game wardens and fishery overseers for their guidance in enforcing the law. The present edition has been increased in size and the number of headings, and any information wanted concerning birds, animals and fish, can be found at a glance. Post free on receipt of price, by Geo. Rennardson, 74 Church street, Toronto, or to the publishers, the Canada Law Journal Company, Toronto.

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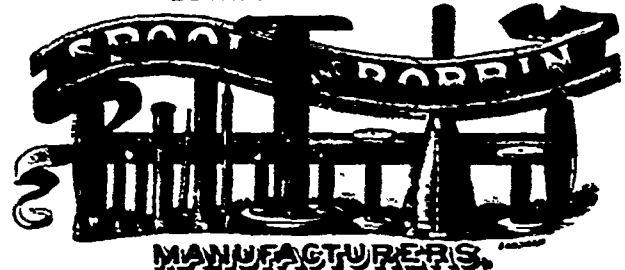
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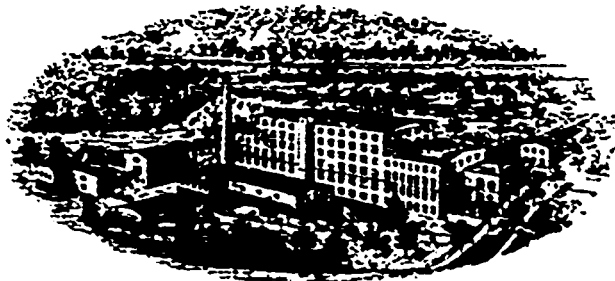
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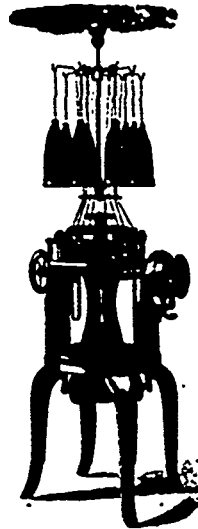
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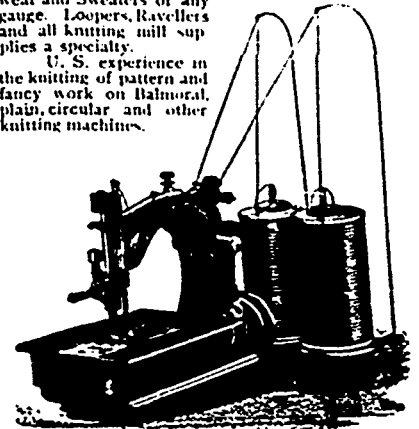
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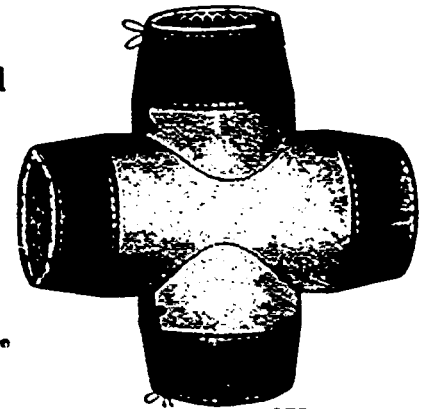


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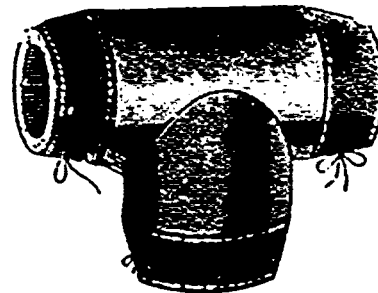
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**TORONTO**

—Samuel Reid, woolen mill, Ferguslea, has assigned to T. H. Trout

—A. Devitt, late of the Slingsby Manufacturing Co., has taken the position of superintendent in the Auburn Woolen Mills, Peterboro'.

—President G. C. Hopkins, of the New York Cotton Exchange, has advices from 200 correspondents in the cotton States in regard to the condition and prospect for the growing crop. The reports as a rule indicate that there will be no top crop, except to a limited extent in some bottom or clay lands. President Hopkins says that he sees nothing at present to warrant an immediate improvement in values, but should the crop prove as moderate as indicated by his returns, cotton during the season should sell considerably higher. The reports do not indicate a crop of over 9,500,000 bales at the outside. The conditions this year are almost the reverse of last season. Last year, after a very hot and dry spell, beneficial rains fell about the 20th to the 25th of August, which enabled cotton to take on fruit, and with a favorable autumn, turned a disastrous outlook into a fairly average yield. This season the hot and dry weather commenced early in August, after an unusual amount of rain. The hot weather and the serious drouth lasted until about the middle of September, the rain coming nearly a month later than last year, and for this reason their advices report that there is no possibility of a top crop, except in a few localities on the bottom and clay lands.

—Wool dyers have frequently expressed the desire for dyestuffs, which, when simply dyed in an acid bath, yield dark blue shades, fast to light, and which do not rub off. This has induced Leopold Cassella & Co to seek for such dyestuffs, and they claim to have succeeded in producing a new group of colors which they have named Alizarine Lanacyl Colors, and of which they at present bring the following upon the market: Alizarine Lanacyl Blue BB, pat.; Alizarine Lanacyl Blue K, pat.; Alizarine Lanacyl Navy Blue B, pat.; Alizarine Lanacyl Violet B, pat. The principal value of the Alizarine Lanacyl Colors is their usefulness for dyeing piece-goods, and for this industry they promise to become of the same importance for producing blue shades as our well-known Naphthol Blacks and Alizarine Blacks have become for dyeing blacks. Also for yarn dyeing they will become of great interest for producing blue shades, which are to be fast to light and which do not rub off.

—A friend of mine, has recently placed in her parlor a spinning wheel reputed to be more than one hundred years old, says a correspondent of the *Carleton Sentinel*. It has evidently seen a good deal of service, yet it is in perfect order, and I doubt if it could be improved upon, it was a perfect wheel, though the ploughs, and rakes, and hoes and pitchforks of its day were very clumsy and imperfect. Some of the spinning wheels of our grandmothers were elaborately carved and were full of music, to the rooms which they occupied they were the chief ornaments, and to know how to use them was an essential part of every young lady's education, for without the spinning wheel, it would have been difficult to provide the blankets and carpets in which she exulted, and the greater part of the wearing apparel of the household. Fifty or sixty years ago there was hardly a farm house in this country or New England without its spinning wheel. The farmer and his sons washed and sheared the sheep, his wife and daughters carded the wool, spun it, dyed it, wove it into cloth and made it into garments of various sorts, in fact into almost everything used in the household that was made of wool. Then came the carding mill, and later the factory at which the farmer exchanged his wool for "factory cloth," whereupon the hand cards and the hand spinning wheel and the hand loom were hustled into the attic, to be resurrected by their curious grandchildren. It is not certain that happier women have ever lived since, than were the spinners. They were artists too, in their way. With the bark of the hickory and butternut they dyed many agreeable shades of brown, with the flowers of the golden rod and the berries of the sumac they produced a number of brilliant colors, and with red oak bark they evolved a permanent black, as well as a fair quality of writing ink. In knitting caps, mittens, mufflers, children's stockings, and various articles of ornament, yarns so colored were brought into use, sometimes with startling effect.

—A writer in the *Farber Zeitung* notes that the naphthol-azo dyes have not been used in wool dyeing, because the process of production necessitates a strongly alkaline solution, and this has a hurtful action on the wool. He suggests that this difficulty could be got over in two ways. In the first method the wool is treated in a hydrochloric acid solution of the amido body, say paranitraniline, and, after washing thoroughly well, the diazotising is carried out. With paranitraniline the wool first dyes yellow, then turns to a dull brownish yellow on diazotising. It is then developed in a beta-naphthol solution and washed in a slightly acid bath. In the second method he suggests a diazo solution being first prepared and the wool dyed in this, after which it is rinsed and developed in a beta-naphthol solution, and washed in a weak acid bath as before. In this way very useful pink, red and brown shades can be obtained with paranitraniline, and pretty violet to blue shades with dianisidine. These have all the usual fastness of shades developed on the fiber.

### CHEMICALS AND DYESTUFFS.

The demand for chemicals is better, buyers evidently anticipating their fall requirements. Castor oil is higher than ever and the market very bare of any stock. Sugar of lead has advanced £3 10s. per ton. Sal soda is firmer in Liverpool; no quotable change here yet. Sumac is firmer; \$50 now asked. The following are current quotations in Montreal:—

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Bicarb. soda .....	2 25	" 2 30
Sal soda .....	0 75	" 0 80
Carbolic acid, 1 lb. bottles .....	0 32½	" 0 35
Caustic soda, 60° .....	1 80	" 1 90
Caustic soda, 70° .....	2 25	" 2 35
Chlorate of potash .....	0 15	" 0 20
Alum .....	1 35	" 1 50
Copperas .....	0 70	" 0 75
Sulphur flour .....	1 75	" 2 00
Sulphur roll .....	1 75	" 2 00
Sulphate of copper .....	5 00	" 6 00
White sugar of lead .....	0 07	" 0 08
Bich. potash .....	0 10	" 0 11
Sumac, Sicily, per ton .....	52 50	to 60 00
Soda ash, 48° to 58° .....	1 25	" 1 50
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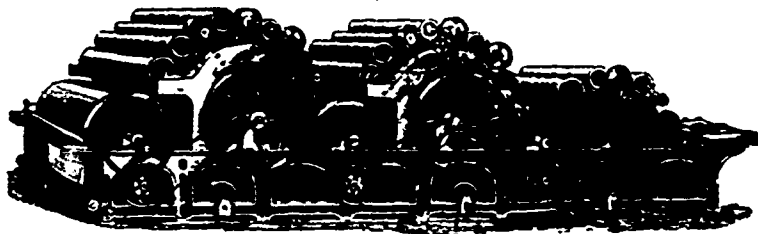
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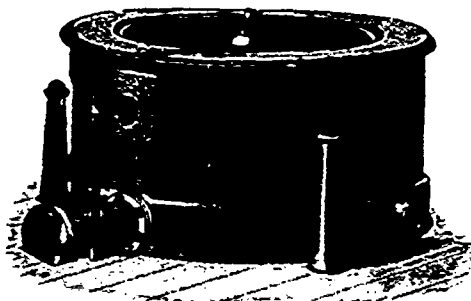
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—A pattern card has been issued by Messrs Leopold, Cassella & Co., showing the use of their dyes in the dyeing of mixed wool and cotton figured dress goods in which mercerized cotton has been used. The effects obtained are good; in some patterns solid self shades are shown; in others the wool is dyed one color, the cotton another. W. J. Matheson & Co., Limited, are sole agents in Canada.

—Sunder, in the *Journal* of the Mulhouse Society, records a large number of experiments made with the object of ascertaining what addition will best preserve peroxide of hydrogen. He finds that alcohol and ether are the best that can be used for the purpose, and of the two alcohol is evidently by far the better. In fact two per cent. of alcohol having been added to peroxide of hydrogen, it lost less than 5 per cent. in strength after 12 days, and about 15 per cent. after 64 days. Sunder concludes that the best means of preserving peroxide is to add about 2 per cent. of alcohol to it and keep it in a cool and dark place.

—The negro labor question has been much discussed of late in the Southern States. Among the more prominent reasons for the agitation being the employment of negro labor by the Charleston Cotton Mill, of Charleston, S.C. In conversing of late with some of the prominent cotton mill presidents in the South, a correspondent of the *American Wool Reporter* says he has gained much light upon this sub-

ject. None of these gentlemen were in favor of employing indiscriminately negro labor to work in the cotton mills with white men, and especially with white women and children. The latter is what the white labor is mostly concerned about. Several of these manufacturers interviewed, however, employ the negro for such work as shifting freight, cotton bales, and coal. White labor is not even content, as a rule, with letting the negro have even this rough work. Such discrimination is unjustifiable. The many thousands of negroes in the South should be given all possible opportunities for employment. When the correspondent referred to first visited the South, he asked how all the negroes he saw hanging about the streets and railroad stations obtained a livelihood. He was informed that a large percentage of these people existed by begging and stealing, and has since learned that this is a fact. The state or condition which will discourage the relief of this state of affairs is existent among the poorer white people, commonly called the "poor white trash." The negroes have always considered themselves equal, if not superior, to this class, even in slavery days. The educated classes of white people, however, are considered by them to be a very high order of beings, to be honored and respected at all times. Between the two lower classes of Southern people, therefore, there exists much jealousy and bad feeling.

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—GO., LIMITED.

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If so, you need this Book and you ought to be in it.

## SOME QUESTIONS

THE first edition of the **Canadian Textile Directory** was published in 1885, and made a work of 318 pages. It has since grown till it has made a volume of 486 pages, and the coming edition will probably be larger still. Some new features will now be added, and every pains will be taken to make it comprehensive and correct.

Taking it all round, there is no work published containing the amount and variety of information on the textile and allied trades that will be found in the **Canadian Textile Directory**; and the number of copies ordered from abroad for purposes of reference is continually increasing, the last edition having been exhausted some time since by such calls.

The advertisers who patronize it, are, as a rule, the very best in the trade, and the number of the firms represented in its advertising pages has increased with every issue.

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—Among those reported as generously aiding the sufferers by the recent fire near Ottawa, Samuel Carsley, Montreal, sent a cheque for \$100; Millichamp, Coyle & Co., Toronto, have sent a bale of boots, blankets, shirts, etc., together with a quantity of cloth samples which can be made into garments; the T. Eaton Co., Toronto, also generously refused payment for a supply of large tents ordered by the Ontario Government.

FURS, rugs, and valuable woolen goods are now preserved during the summer heat in refrigerated chambers. In the United States experiments have been made to find out the proper temperature at which to keep such articles safe from clothes moths, black carpet beetles, leather beetles, the dark meal worm, and a cabinet beetle. It was found that a temperature of 40 to 42° F. in summer is sufficient. The cold storage companies have hitherto kept them at a temperature of 12 to 20° F., which is more than enough.

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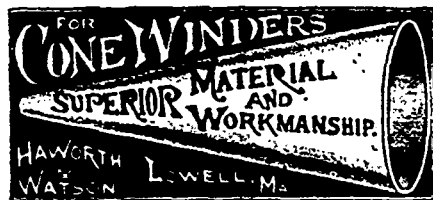
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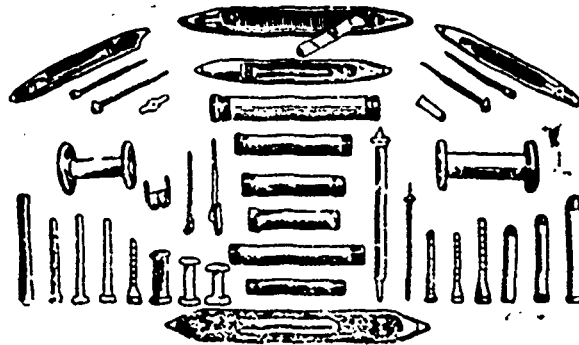
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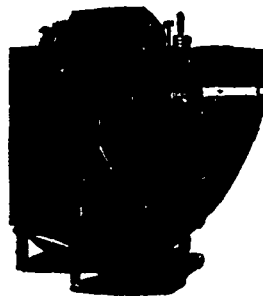
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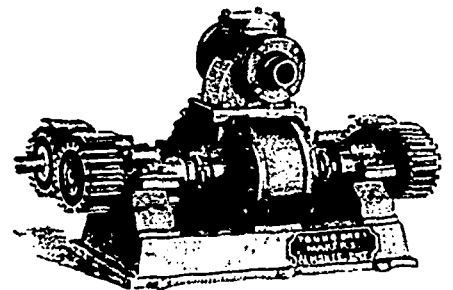
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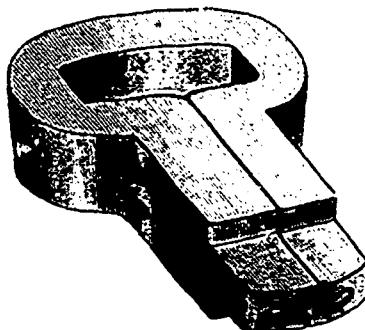


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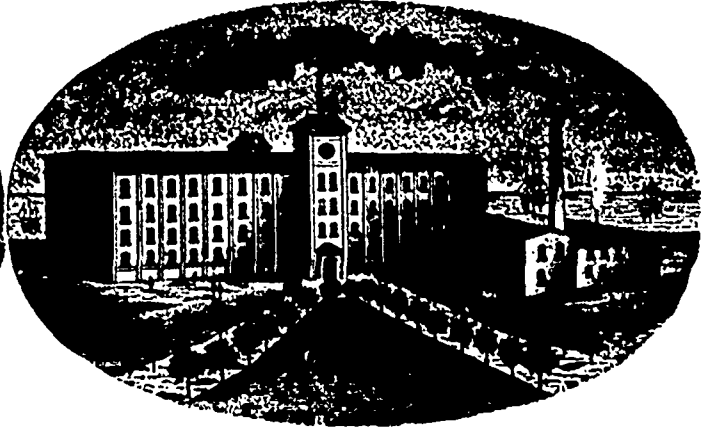
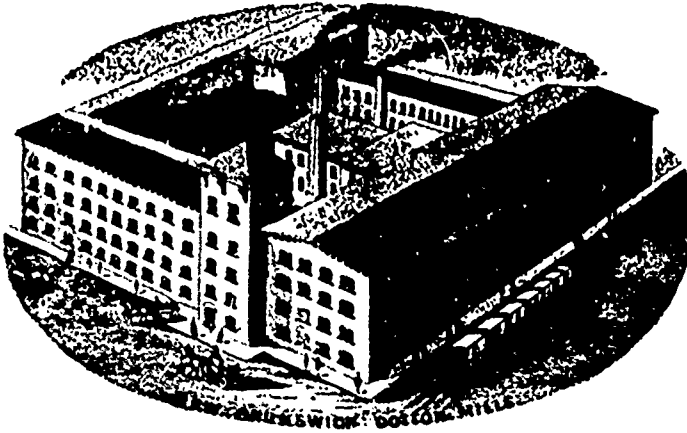
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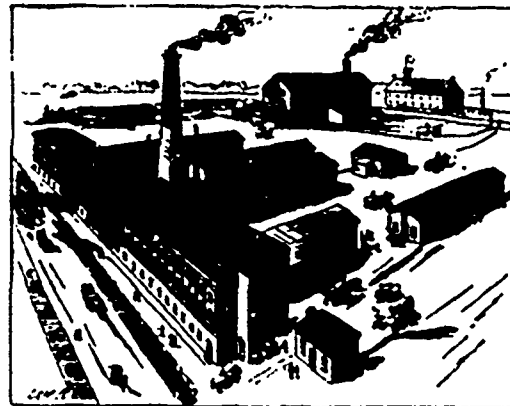
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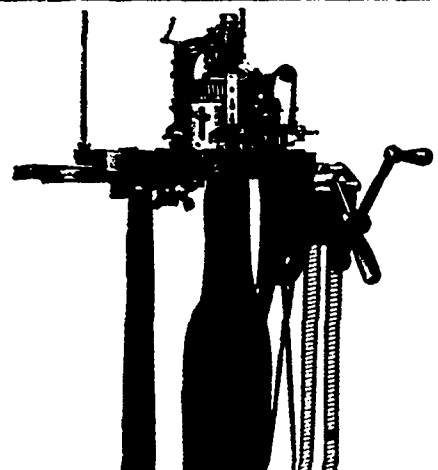
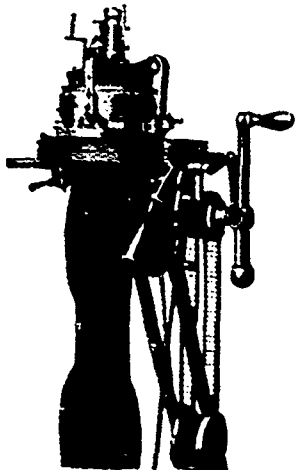
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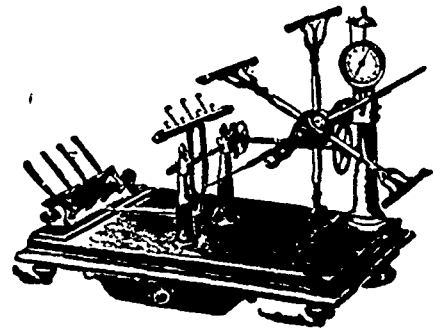
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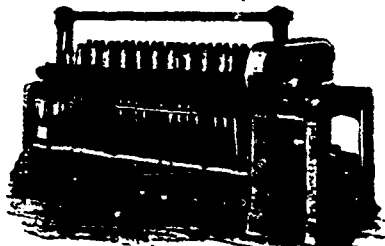


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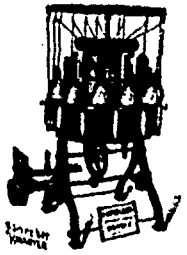


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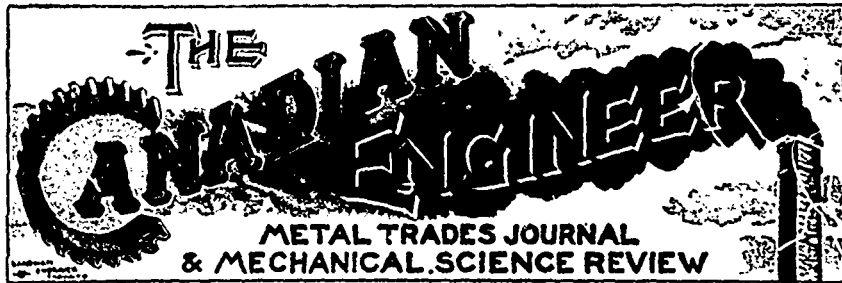


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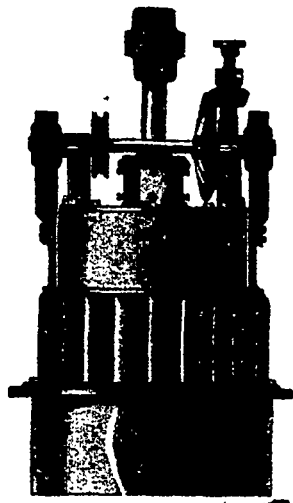
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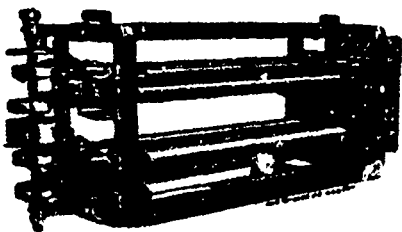
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