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CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, NOVEMBER, 1899.

No. 11.

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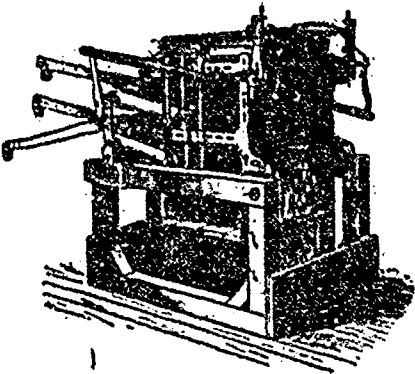
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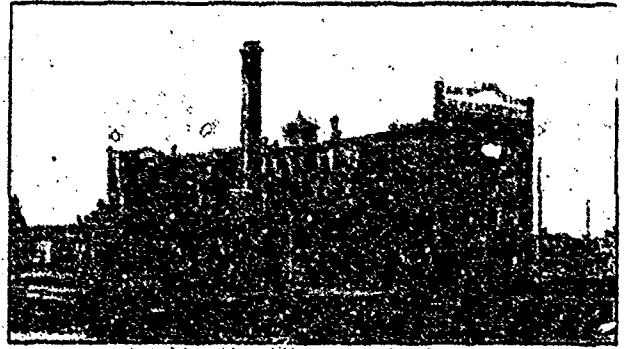
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MODERN FLAX SPINNING.

By H. R. CARTER.

(Continued from last issue)

THE FLAX DEPARTMENT OF A MODERN MILL.

Another method, which, as far as the writer is aware, was introduced by him on the Continent, consists in using a specially large hackle and leaving the droppings in it until sufficient fiber has accumulated to form a piece, when it should be worked free from tow and the resulting

pieces of "shorts" made into a bunch and worked upon the machine by themselves, thus minimizing the loss of short fiber and increasing the yield of "line." Upon the Continent, flax, if roughed at all, is often pieced out in double pieces, or say four per lb., one piece only being put in the holder of the machine, instead of two. This method of course lessens the cost of roughing, but single pieces have many benefits, the chief of which are as follows. (1) More justice can be given to the piece by the rougher when he has only to drop and square a small portion at a time, (2) the pieces when they reach the sorter are more even in bulk and weight, as in screwing the double piece into the holder the machine boy is apt not to split the piece evenly in half, (3) single pieces may be made of more equal quality throughout each piece, since if the rougher choose he can gather the dirty or otherwise defective fibers into a piece by themselves, instead of allowing them to remain mixed with the good and thus spoil the "sort." I say "may" and "choose," since very few roughers would take the trouble to do it, maintaining that it is the sorter's work to sort the flax. The separation of the dirty or badly scutched fiber into one piece is of great importance when, as is now often done, the flax is "spread" from the machine room "tipple" without passing through the sorter's hands. If the dirty flax be in separate pieces, the machine boys can be got to separate it, thus maintaining greater uniformity of quality in the "unsorted" fiber. In Ireland the Roughers' Society has always fought against "double pieces" and "piecing out," since these systems entail the employment of fewer hands in the roughing shops. During the last few years a roughers strike having temporarily led some of the leading Irish spinners to do without roughers, they found that in dealing with fiber which had received due care in the preliminary processes roughing might often be dispensed with. Courtrau, Flemish, and Dutch are, as a rule, sufficiently well handled, while Baltic, besides being usually pretty square in the end, is easily pieced out. In the latter flax, the difference in value of the tow and line being relatively small, the slight loss in yield of untouched pieces is covered by the saving in roughers' wages. So long as Irish flax, however, is prepared for market in the present careless fashion, it must receive a certain amount of straightening to facilitate its separation into pieces, and to save a large amount of valuable fiber from going into tow in the hackling machine.

Flax fiber is seldom or never of equal quality from

root to top. The middle portion of the stem contains the soundest and purest fiber, since the root end becomes ripe first and the top end is more or less branched. In preparing fiber for the very best quality of yarns, the flax is cut into three, the top and root being cut off and a comparatively long and pure "middle" left. Flax intended for cutting is "stacked" or pieced out in large pieces and straightened by one or two blows on the hackle. The cutter consists of two standards or gables of cast iron supporting the two ends of the cutter shaft, the four pairs of holding rollers, and the gearing. The cutter blade of the best make consists of three discs of steel, each about $\frac{1}{2}$ in. thick and 20 in. to 22 in. diameter, placed closely side by side and keyed on a shaft supported by gables and carrying the driving pulley keyed on one end. From the other end of this shaft a retarded train of gearing drives the bottom holding rollers, which are of cast iron 1 1/2 in. to 1 3/4 in. diameter and 2 in. broad in face, with vertical or circumferential grooves or flutes of 1 in. pitch. The bottom roller has two flutes with a groove between them, and the top roller correspondingly two grooves and one flute in the centre. Each pair of bottom rollers is keyed on a shaft at any required distance from the cutter, the ends of the shaft being supported by blocks or brasses set in the gables. The top or pressing rollers are free to move up and down in slides. Pressure is applied to them by means of links, levers, and weights, the total pressure on the rollers at each side being frequently over 1 1/2 tons. The "nip" or point of contact of the retaining rollers should be in the same horizontal plane with the axis of the cutter, and in a vertical plane falling about 1 in. within the periphery of the cutter blade. These retaining rollers are set one on each side of the cutter, and at a distance of about 3 in. from it. Upon the rim of each plate composing the blade are projecting teeth of diamond-shaped section, and placed at distances of about 3 in. apart. It is most important that these teeth should be the proper shape and bluntness, that they may not shear or cut the fiber, but give a good broken end. In practice the knife should make about 600 revolutions per minute, giving a surface speed on periphery of 3,400 feet per minute. The speed of the feed or retaining rollers is usually 1 1/2 to 2 1/2 revolutions, giving a surface speed of 6 to 10 feet per minute. The pieces of flax are passed horizontally between the two pairs of holding rollers in such a position that they may be drawn in contact with the revolving cutter and cut at the required point. A skillful boy should cut about 8 cwt. per day. The cut flax is then separated into pieces of suitable size for the hackling machine, the pieces being merely crossed "tupple" fashion so that they may be easily lifted.

(To be continued.)

Ernest Rolph, of Sprout & Rolph, architects for Lever Bros., of Sunlight Soap fame, has let the following contracts, amounting to over \$140,000. Carpenter work, W. & J. Clarke, Toronto; masonry, Cannon & Sons, Toronto, steel structural work, about \$50,000, Hamilton Bridge Co., Hamilton, roofing, Forbes Roofing Co., Toronto; galvanized iron work, Douglas Bros., Toronto, soap machinery and soap pans, Jno Inglis & Sons, Toronto, Heine boilers will be used.

THE ECONOMY OF USING TURBINES AT FULL GATE.*

FRANK P. VOGL, CLAREMONT, N.H.

The following memorandum is given as an example of the several advantages accomplished by the use of water wheels at full gate. The use of the steam engine as auxiliary to water wheels gave an easy means of making the test by the indicator cards, showing the value of the use of the water at full head on one pair of wheels, rather than dividing it between two pair.

The Monadnock Mills have two pair 54 inches, Humphrey horizontal wheels under 20 foot head, and giving, at full capacity, sufficient power to operate the mills. As auxiliary power a 24 by 48-inch Brown engine is used and this supplies enough power to keep water level with top of dam; thus giving full head to water wheels. Both pair of the water wheels and the engine are belted on to the same main shaft and the engine does the regulating when used, the gates of wheels being hoisted just enough to keep the water level with top of dam. June 9, 1899, with both pair of wheels in use the indicator showed engine 120-horse power. With one pair of wheels in use the indicator showed engine 83 1/2. Showing a gain by using all the water on one pair of wheels of 36 1/2-horse power. This shows a gain of 30 per cent. in power required by steam and a consequent better use of the water. I submit the foregoing as being an example of actual use and which may be of value to some member of the association in putting in wheels, where used with auxiliary steam power, and is also submitted at the request of the Board of Government for a practical paper on a practical subject, and I trust it may be so considered and that it may encourage other members to relate similar occurrences that come up from time to time.

SOUTH AFRICA, ITS PEOPLE AND TRADE.

CAUSES OF THE BOER WAR.

ARTICLE II.

In our article last month, a brief sketch was given of the beginning and rise of the European communities in South Africa. The history was brought down to the annexation and retrocession of the Transvaal. As there exists a great deal of misconception about the causes of the present war, we shall endeavor to review the main facts.

What led to the annexation of the Transvaal? It was not lust of gold, for only small alluvial diggings had been found as yet, and the great gold reefs of Johannesburg were then as little dreamt of as the Klondyke of Canada. It was because the Republic was bankrupt, the Boers in many districts having refused to pay any more taxes, the country reduced to a state of anarchy by the incapacity of its administrators, by fac-

*Read before the Cotton Manufacturers' Association.

*The Government £1 notes or "blue backs" then sold at a shilling, or say five cents on the dollar; while the salaries of the civil servants were three months in arrears.

[These papers have been issued in pamphlet form, containing a glossary of Cape Dutch and Kafir words and phrases in common use. Biggar, Samuel & Co. 62 Church Street, Toronto. Forty pages. 10 cents.]

tions bitterly antagonistic to each other, and threatening civil war, and the failure of the Boer commandos to subjugate the native Chief Sekukuni, who was bringing other native tribes down upon the territory, the principal danger being threatened by the Zulus, under Cetywayo. This renowned Zulu King was anxious to pay off old scores with the Boers, who had constantly encroached on his territory, and frequently captured and enslaved his people and robbed them of their cattle and lands. The British Government might have allowed the Boer Republic to find its own way out of its financial difficulties, but when it came to their relations with the natives there was danger that once the Zulu King had overrun the Transvaal, with his 40,000 warriors, he could not restrain his army at that achievement, but it would then turn upon the British colony of Natal, which was neighbor to both, and which then had a white population of only 30,000, against a native population of 300,000. Under these circumstances, and considering that a petition for British intervention had already been signed by 3,000 out of 8,000 of the voters of the country, Sir Theophilus Shepstone, who had been authorized by the Home Government to act as he thought wise, annexed the country, without any force other than a personal escort of twenty-five mounted policemen. The British then took in hand the conquest of Sekukuni, which the Boers had failed to achieve, and then had to deal with Cetywayo, who, robbed of his revenge upon the Boers, now turned sullen towards the British. The next act in the drama was the great Zulu war, which was fought with no help from the Boers, except that given by a single family, Piet Uys, and his sons. These people, forgetting their rescue from certain destruction at the hands of the Zulus, no sooner found this dreadful menace removed, than they began to agitate against British rule. As stated before, they had one real grievance in the dilatoriness of the Imperial Government in granting them a local legislature; but this at last was being framed when rebellion was brought about through the enforcement of taxes, which the Boers refused more obstinately to the British than they had done to their own authorities.

In this rebellion they were led by a man, who, when the history of that land comes to be written, will be set down as the evil genius of the Dutch race in South Africa—Paul Kruger. This man, who was born a British subject in the Cape Colony, first came into prominence among his countrymen as a hunter and fighter—a fighter first against the Kafirs and then against his own people, as well as the English, whom he hates as cordially as the British sailor of Nelson's day did the French and Spaniards. It seems curious that a man of Kruger's pretenses to piety should be so tenacious of liberty and natural rights for himself and his fellow-Boers, and yet refuse the most elementary

rights to British people in his country; and that he should see nothing but iniquity in Dr. Jameson's quixotic dash to rescue the Outlanders from misgovernment, and yet see no wrong in his own invasion of a friendly State with no better motive than a lust of power. Some forty years ago, at a time when the Transvaal and the Orange Free State (a neighboring Republic, composed of his own fellow-countrymen), were at peace, Paul Kruger formed a plot with M. W. Pretorius, another Boer leader, to overthrow the government of the Free State. While Kruger invaded the country, at the head of a commando, inciting the Free State Boers to rise, as he proceeded, Pretorius was set to instigate the Free State natives to revolt. The Free State forces were, however, brought together in much quicker time than he anticipated, and when Kruger saw himself confronted with double the number of cannon his own force had, he discreetly withdrew.

That Kruger's intrigues during the days of the first Republic were a cause of the country's troubles is shown by the statement of the last President, Thomas Burgers,* who, referring to the events that led up to the annexation, said: "Fruitlessly did I press upon him (Kruger), the fact that by showing how our danger lay in want of unity, the British Government would have cause to step in, on the ground of humanity, to avert civil war, and to present a general rising of the natives.

* * He would not hear of retiring. Had I not endured in silence, had I not borne patiently all the vile accusations, but out of selfishness or fear, told the plain truth of the case, the Transvaal would never have had the consideration it has now received from the British Government. However unjust the annexation was, my self-justification would have exposed the Boers to such an extent, and the state of the country in such a way, that it would have been deprived both of the sympathy of the world, and the consideration of English politicians."

After the annexation, he was appointed field cornet (a position corresponding to our sheriff, but including also the duties of tax collector and other functions), of his district, at a salary of £200, which in those days was a good income. By false representations, however, he drew £300, or what came to the same thing, withheld tax moneys to that amount over his salary. The administration called upon him to make good the amount,

* In the course of his last address to his Volksraad, President Burgers said: "I would rather be a policeman under a strong government than the President of such a state. * * * You have ill-treated the natives, you have shot them down, you have sold them into slavery, and now you have to pay the penalty. * * * The fourth point which we have to take into account affects our relations with our English neighbors. It is asked, what have they to do with our position? I tell you as much as we have to do with that of our Kafir neighbors. As little as we can allow barbarities among the Kafirs on our borders, as little can they allow that in a state on their borders anarchy and rebellion should prevail. * * * To-day a bill for £1,100 was laid before me for signature, but I would sooner have cut off my right hand than sign that paper, for I have not the slightest ground to expect that when that bill becomes law there will be a penny to pay it with." President Burgers—who left the Transvaal broken-hearted, not because of the annexation, but because of the intriguing which brought about the condition of things rendering that step inevitable—just before he died left a statement of the case for the benefit of posterity in which he shows how Kruger plotted with the annexation faction in order to oust Burgers and get the presidency for himself. Kruger overdid his part, but though his ambition was balked for the time by the annexation which he did not count upon, he continued his intrigues against the British with the result which history tells.

but he did not do so then, or since. He only met the Government's request by demanding an increase of salary! The correspondence in the case is on record. How much the consciousness of this fraud had to do with the intrigues he engaged in against the British Government, it is hard to say. At all events, while holding an office under the British Government, he was engaged in agitations against it, and became the leader in the armed rebellion that followed. After the British defeats in the skirmishes at Laing's Nek, Majuba Hill and Ingogo, and while British reinforcements, to the number of 10,000 men, were gathered, the Gladstone Government stayed the sword-arm that was ready to strike back, and an armistice was arranged, followed by the convention of 1881,

and hence began the evasions and trickery by which the plain intentions of the negotiators of the original convention were to be thwarted. His ambition did not stop here. He purposed the formation of a great military state, which would centralize the Dutch influence in South Africa, and establish a Dutch republic extending from the Cape to the Zambesi, with Pretoria as the capital. For a long time this ambition, though steadily pursued, was concealed, and even now there are many well-informed public men in England and America who have either not grasped the situation or refused to believe the designs so steadily pursued by this cunning trickster. The people of the Orange Free State, under the misleading influence of their present head, President Steyn—a third-rate attorney, possessed of



SCENE—MARKET SQUARE, JOHANNESBURG.

by which the Republic was restored, subject to the suzerainty of the Queen. By this instrument, the right of internal self-government was given to "the inhabitants" of the Transvaal, without prejudice as to nationality, and in the discussions by which the intent of its provisions was explained, Mr. Kruger distinctly declared that all would be put on an equality, as regarded the franchise and other rights. These discussions were taken down at the time, and form part of the records in the colonial office. At that time the Boers were in a large majority, and it is possible Kruger might have kept faith had the population remained thus, but Englishmen began to come to the country in greater numbers, and in 1886 the discovery of the now celebrated Witwatersrand gold fields brought people from all quarters of the globe, until the alien or outlander population, which of course included Englishmen, outnumbered the Boers. Kruger had from the first aimed to keep all power in the hands of the Dutch,

none of the commonsense statesmanship of the late Sir John Brand, who so wisely guided the little State for twenty-five years previously—were easily led into these designs, and in the Cape Colony, the widespread ramifications of the Afrikaner Bond—a sort of granger organization, having for its motto: "Africa for the Afrikaners"—afforded good ground to work upon, as its membership was almost exclusively Dutch. The plan, as regarded Cape Colony, was to overturn British authority gradually, allowing Britain to retain the naval station at Simon's Bay, and a certain "suzerainty," which could be strained to the breaking-point as time went on. Steyn, the Free State president, with his usual lack of diplomacy, gave a plain statement of these designs in a speech just a year ago, and anyone who studies the wording of most of Kruger's recent despatches and his replies to the enquiries of American and other newspapers, will see how he claims to act as champion of the whole of South Africa, though the

difficulty is supposed to be with the Transvaal only. It was made plain to the British element in South Africa, and to the Home Government, that Britain must either make good her claim of paramountcy or give over the rule of South Africa to the Boers. As one of the Boers put it, there could not be two "bosses" in South Africa, and it became a question, which was it to be, Boer or Briton?

(To be continued).

VALUATION OF MANUFACTURING PROPERTY FOR TAXATION.*

CHARLES T. MAIN, BOSTON, MASS.

As every item of expense which enters into the cost of goods is now closely scrutinized, the item of taxes had received considerable attention from some manufacturers, and more will be heard from in the future. With taxes ranging above \$15 a thousand and a high valuation on the plant the item of taxes is a very appreciable one in the general expense account. There are very good reasons for thinking that the valuation is placed too high in many instances, particularly with old plants, and it is the purpose of this paper to explain these reasons, and to show the methods used in determining the value in two cases which are now before the court, the decision of which is awaited with a good deal of interest, as the cases for the mills have been put in on somewhat new lines. Some portions of this paper have been reprinted from a paper presented by the writer to the American Society of Mechanical Engineers in December, 1897.

The public statutes of Massachusetts state that the assessors shall make a fair cash valuation of all the estate, real and personal, subject to taxation. Strictly interpreted, cash value means market value, and market value has been defined by the court, substantially, as the sum which one party, who has the capital and who desires to purchase, would be willing to pay for a plant, the owner being willing, but not forced, to sell.

Into the market value of a plant enters the broad element of location, with its varying hours and price of labor; skill and abundance or scarcity of operatives; cost of transportation of raw material, supplies, and finished product; cost of fuel or power; cost of construction and equipment; and rate of taxation. Also the narrower and more restricted element of the physical condition of the plant and its relative value to a new plant constructed upon modern principles, and constructed with all regard to the economical production of a finished product of the best quality of the goods manufactured. The standard of value should be a modern mill constructed as described above, and located so as to avail itself of as many combined advantages as possible. The ultimate value of a plant is its capability of producing a profit and into the possibility of producing a profit enter all of the above items and perhaps some not mentioned.

It would seem that some of the items which enter into the market value must be ignored in determining the taxable value. The element of location and its effect upon the running expense must be eliminated from the problem, and the assumption made that the location is a favorable one for the transaction of business. It is not at all improbable that some mills which are running at a loss, or making a slight profit, would be better off to abandon their present site and move their machinery to some more favorable location. It may have been that when such a ruling was made by the court the choice of locations was not as wide as now, or that it was made to cover all property in a general way, much of which is not affected by these questions, and that it was intended not to consider such broad questions as

must be considered by a purchaser, and which to him might render a property of no value, and yet it might represent a large amount of property. It would seem, therefore, that in considering the taxable value of a mill, the assessors must ignore the broad questions of labor, location, transportation, etc., and confine themselves to the physical condition of the plant existing at a certain place, which place is assumed to be advantageous to the carrying on of the business. Assuming that this is correct, the problem is very much simplified, but is yet complex enough to suit any one, and can be viewed in different ways from different standpoints. This great difference comes in the manner of interpreting the words "physical condition," as to whether the interpretation stops in describing so much plant consisting of buildings and machinery and the condition of the same, or whether it not only describes the plant and its condition, but also the effect of its condition with regard to arrangement and character of buildings and machinery upon its earning capacity. In each of the cases which are now before the court the representatives of the mills have maintained that the proper measure of value is a modern mill capable of producing the same product in quantity and quality as the present mill produces. The representatives of the cities have maintained that the measure of value is the cost of reproducing the existing mill at the time under consideration. If these two lines are followed out with an old mill the results will vary very widely, and the question for the court to decide is which one of these methods is the proper one for determining the taxable value.

There can be no doubt that the former method, or that used by the mill, is the proper one to use to determine its selling value. It is the method which the prospective purchaser would use.

In determining the valuation, comparison is made with the cost of a new and model plant, and between the costs of operating the old and new plants in so far as the organization of the old plant is detrimental to economical running, when such poor organization cannot be rectified. When it can be changed to a proper organization, the cost of making this change must be deducted from its value, if such defects did not exist. The value does not necessarily depend upon the first cost of the property under consideration, which might have been excessive at the time of its inception; nor necessarily upon the first cost to-day of a plant identical to the one under consideration; for a smaller plant, owing to improvements, might be installed to-day which would produce the same results as the one under consideration. The first cost to be used in comparison, then, is the cost to-day of a plant which will produce equal results in quantity and quality as the one under consideration.

The value is determined by comparison with the cost to-day of a new structure with all modern and improved ideas with regard to style of construction, large amount of window area, arrangement and size of rooms and buildings with reference to convenience and cost of operation and space occupied. A mill or building with the old style of joisted construction, with low stories and small windows, and with a large number of small rooms, even if new, would not have the value of a modern mill building, with higher stories, large percentage of window area, and large, clear floor areas. To get the value of a building, the cost of a new and modern building should be depreciated. First, for the difference in style of construction; second, for lack of light which makes it necessary to produce more artificial light; third, for the amount of floor space which is unavailable due to the subdivision of the space or to the style of construction; fourth, for the increased cost of operation due to inconvenience of arrangement of rooms or buildings; fifth, for the increase in cost of insurance over that on a modern mill.

The proper rate at which to capitalize these amounts would vary according to the idea which a person might have as to a

*Read before the Cotton Manufacturers' Association.

satisfactory return for the money expended. This as very much discussed in the two cases mentioned. The amount used by the witnesses for the mill was ten per cent. on the assumption that anyone would be willing to make an expenditure towards new buildings which promised an immediate return of ten per cent. on the investment, but would not be willing to invest in property of this sort, whose value rapidly diminished and the relative return in comparison with that from newer structures would soon fall off. It was claimed by the counsel for the cities that five per cent. was a proper rate to use, and if this rate had been used instead of ten per cent. that the total value of the property would have been destroyed, and that the taxable value would have been found to be nothing. It might be possible by certain changes to make the buildings as light and convenient as modern buildings, and if new, they would be equal to the cost of such modern buildings minus the cost of making the changes. After determining the value of the buildings, if they were new, according to the above method, there remains to be applied the depreciation from age. This to a certain extent must be an arbitrary quantity, but based upon the average life of buildings of the character of those under consideration. It would seem that one per cent. a year is little enough for brick buildings substantially built, credit being given for any extraordinary repairs, renewals, or additions. We must not lose sight of the fact that, although a building may not at the end of 100 years be completely worn out, the character of the business may so change that the buildings are not adapted to it, and that they will be rebuilt, as we have seen the older buildings replaced with new ones of different styles. The depreciation of wooden buildings is greater than brick, depending upon the purpose for which they are used. Buildings which are kept dry, and not subjected to much wear and tear, would, if well built, last a hundred years; while wooden dye-houses, subjected to steam and wet, will not last over, say, twenty-five years. The length of life depends largely upon the care which has been given to repairs. If the roof is kept in good condition and woodwork well painted, the depreciation is less than if no care is taken. If any marked renewals have been made, credit should be given for them. A whole new floor or roof may have replaced an old one, thus making that portion practically as good as new. The first cost of a modern mill is the measure of value for the building under consideration, and not the first cost of this particular building; for the building may have been built in a very expensive way, highly ornamental, or in a location which caused very expensive foundations. None of these extra costs add anything to the productive value of the plant, and therefore must be sunk out of sight.

The two most important things which determine the market value of machinery are: First, its comparative ability to turn out a product in quantity and quality equal to that of the most improved machines; second, its actual condition with respect to wear and tear. Although a machine may not be worn out, or even may have been run but very little, it may be unprofitable to run, because other machines have been introduced which do so much more or much better work. These machines may be used to advantage in some other concern, and may on this account have more value than scrap. Parts of machines have been improved so that these portions may be changed while leaving a portion of the machine as before; as for example, cotton spinning spindles, so that depreciation might be applied to a portion of a machine instead of to a machine as a whole. The depreciation for actual wear and tear will vary with the severity of the work done, speed of the moving parts, the care taken in the running, and the amount laid out in repairs. It seems to me impossible to separate the depreciation from wear and tear altogether from that due to improvements in arriving at its present value, and it is customary to treat them in a gen-

eral way, allowing a definite depreciation to cover both. Any concern which does not lay aside, at least five per cent. of the total value of its plant if new, and apply the same at intervals towards the renewal and improvements, will find itself at the end of twenty years in a position not able to compete with success with modern equipped concerns, and it will be necessary to make radical changes at great expense calling for new capital. It is often stated that there is no depreciation during the first year of running; that the machinery will do better work after it is limbered up and adjusted than when it is set to work. As a matter of fact, depreciation does begin immediately, although not perceptible. After the first year, depreciation is charged sometimes at a uniform rate of five per cent. over all the machinery, due allowance being made for any renewal of parts outside of ordinary repairs. I have used in several cases a depreciation of five per cent. up to the dressing room, and four per cent. for the dressing room and beyond. This view has been presented to me by a member of the Society of Mechanical Engineers, that after the first year the depreciation should be marked off five per cent. to ten per cent. a year until the value is brought down to one-half the original cost; then to maintain its value about level for a while, until it becomes apparent that it would soon be profitable to replace the machinery, when the depreciation goes on at a more rapid rate. This method may be profitable for a mill to pursue in its own bookkeeping, but it is not quite definite enough in making up a valuation for purchase, etc. It is sometimes the case that some of the machinery is older than these rates would allow them to be in existence, but they may be still there, perhaps for the same reason that the bridge remained which the engineer had figured could not hold up its load. When asked how he explained the fact that it did stand up, he said the only reason that he could give was that it stood from force of habit. Some machines remain and do work long after it would be profitable to replace them. The value of such machinery to a purchaser is practically nothing, except that it may complete the organization of the mill and allow it to run until it can be replaced by new machinery. If a sinking fund is created for replacing the machinery, three per cent. of the cost would replace it in twenty-four years. There is usually some value to machinery in a mill, even if the property were to be dismantled; but old machinery has no value except for scrap, which is very small, as the cost of taking down is about as much as the value of the scrap.

In an ordinary white mill it is known approximately how much these items should amount to if new. It is possible that more than is actually needed to do the work has been installed, and although the cost may have been more, the value would be no greater than if the proper amount required for a modern mill had been installed. In fact, it may be a detriment to the mill to have more shafting and belting than is required to transmit the power in a well-designed mill, inasmuch as more power is required to drive the mill than would be required with a more simple arrangement. In a mill which is not a plain mill, the safest way is to make a schedule of all shafting, belting and piping, and to make an examination to see if they are of the proper size and strength, or if they will require replacing, and to see if the bearings for shafting are such as to produce a minimum of friction and maximum economy of oil, and to see if it is worn. With belting, if a mill has been running for some time, it is customary to place its value at one-half the cost if new, for the machine belts are being renewed occasionally. With piping the examination should be made to see if the steam pipes are proper for the most economical method of heating, or if they would have to be replaced, and if the pipes for hydrants and sprinklers themselves are such as would be approved by the factory insurance companies, or would have to be replaced, and to see what the condition of the pipe is. It should also be noted if the steam pipes are properly covered to prevent radiation.

It is also known about how much is required to equip a new mill with supplies, but probably the safest way to put a valuation upon these is to make a schedule and note the general condition. It is customary to call the value of supplies one-half their cost new, as they are constantly being renewed, and that is probably as good an average value as could be given for a mill which had run for some years. In most cases it would not be necessary to schedule shafting, belting, piping and supplies, but it would be near enough, and within the limits of error on the larger items of value to treat them in a general way.

The value of the land where restrictions are placed upon it in connection with water power is a nominal sum, and the burden of taxes might be great if the values were placed as high as adjacent land used for other purposes and unrestricted. It is of no more value for manufacturing purposes than a lot in an open field, instead of being located perhaps in the congested portion of a city. The valuation should be moderate in order not to make the tax too great in proportion to the purpose to which it is put.

The taxable value of a water power privilege should be ascertained in comparison with the cost of steam power produced in the most economical method at any convenient location where coal is cheap, or by comparison with the cost of other water power favorably located. Unless this is done false values will be obtained. If the value of the water power varied directly as the cost of fuel, then the farther from a railroad the power is located, and the more it costs to haul coal to it, the more valuable would be the power. If raw material is to be brought to the mill and finished product to be taken away, it is a self-evident fact that the nearer the railroad or seaport the mill can be located the more valuable the power which drives it.

Summary of Methods Used by Mill.—1st. Determine amount of machinery required to produce the same results as the mill under consideration; 2nd. Determine floor space required for this machinery if arranged in rooms of proper size; 3rd. Determine savings which could be made by having well-arranged buildings and rooms; 4th. Capitalize this saving at ten per cent. and deduct same from cost of buildings of modern mill. The result is the value of present buildings if new; 5th. Depreciate buildings still further if necessary for poor style of construction, bad light, etc.; 6th. Depreciate still further for age. This final result is the present value of the existing buildings; 7th. Determine savings which could be made by having modern and well-proportioned machinery; 8th. Capitalize this saving at ten per cent. and deduct the sum from the cost of proper amount of modern machinery to do same work as present machinery. This gives the value of present machinery if new; 9th. Depreciate this value if new for wear and tear and this gives the value of the existing machinery; 10th. To the 6th and 9th results add the value of shafting, belting, piping and supplies, which are based on the cost of same for a modern mill, also the value of the land, water power, water power plant, and any other taxable property which the mill may own.

Although the arguments have not been made yet, it appears that the chief criticisms brought against the methods are as follows: 1st. That the witnesses do not know whether any or all of the present machinery is working to its maximum capacity, and therefore do not know but what a greater product could be turned out with the existing machinery, and if the mill could be made to produce more, the size of the modern plant with which it is compared should be increased. 2nd. That it may be possible to run the existing mill with a less number of hands, and that the saving with the modern mill is not as great as it would appear to be. The answer to this is that the effect of personal management must not enter into the problem, and that it is not a difficult matter to tell how much labor could be saved when running the present and modern mill under the same kind of manage-

ment, which is assumed to be good. 3rd. The method of capitalization is quite a bone of contention. 4th. The depreciation for age it is claimed should be made for only such depreciation as is visible.

Method Used by Cities.—The testimony for the defendant in one of the cases is not all in, and for the other case it has not been commenced. The writer is, therefore, anticipating some of the methods which will be used, and may be in error, but in general it will probably be as described below. Determine the cost of reproducing the plant exactly as it stands on the date under consideration, and depreciate this for such wear and tear as is visible to get the present value.

An estimate is made of the cost of reproducing the buildings exactly as they exist. If they are small and narrow buildings with many rooms, where a few large rooms would be proper, the cost per square foot of floor space would be more than that for larger and wider mills; and the value of the old mills is represented as more than that of a modern mill. More square feet are required per spindle because of waste room caused by the subdivision, and the value is thus again represented as more than for a modern mill. Any especially expensive work which it has been necessary to do in the way of extra heavy foundations, piling, bad soil for excavation, etc., are clearly a part of the cost, but do not add anything to the value. After determining the cost of replacing these buildings, which is called the first value, or value if new, depreciation is allowed for wear and tear, which is determined by an examination of the buildings and estimating what sum would be required to put them in as good condition as new, as far as such examination is able to reveal. This amount, deducted from the first cost, gives the present value. No depreciation is made for any other reason. This method is improper because depreciation is going on which is invisible. An examination may show how much top floor must be relaid, but it does not show the condition of the planks or timbers. There may be no visible sign of depreciation of masonry, which if properly built will last a very long time, but not forever. There is no allowance made in this method for the advance in the art which in itself alone will in time require remodelling or rebuilding of the buildings.

An estimate is made of the present cost of installing machinery identical with that in the mill. This is called its value if new. An examination is made of this machinery to see what its physical condition is regardless of its age, and if frequent repairs have been made on it its value is said to be equal to new. Some slight depreciation may be allowed for wear and tear, and this depreciated value is called its present value. No depreciation is made which is not visible, and no depreciation is made for the advance in the art. Depreciation does, in fact, begin immediately, and no one can escape the decrease in values due to improvements in machinery, which increase the product and decrease the cost of production.

Shafting, Belting, Piping and Supplies.—A schedule of these is made and their first cost estimated, which is called the first value. This is depreciated for wear and tear. In an old mill poorly arranged and with more machinery than would be required in a modern mill, all of the above are in larger quantities than in the new mill and apparently the value is greater. The fact is that instead of being of greater value they have less value for producing the same results, for the expense of running and maintenance is greater than with the smaller and less complicated plant.

The value of the land is determined by comparison with the value of adjacent land, or by sales of similar land oftentimes unrestricted and to be used in smaller lots for a different purpose.

The value of the water power is determined by estimating the cost of producing steam power at this particular location without reference to any other uses of steam. This yearly cost

is capitalized at four or five per cent. and the sum is called the value per horse power of the water power. This method does not take into account the cost of producing water power, the cost of maintaining and running in nearly all cases of a supplementary steam plant, or the uses for exhaust steam. It assumes that the value of water power increases with the increase in cost of coal. The latter is true if the location is fixed, but it is not true, as stated before, that a remote water power is more valuable than one near a city because of the fact that it costs more to obtain coal at this remote place. There are other considerations which tend to reverse the proposition and make a water power of more value which is near a city than one which is remote. The method of capitalizing at a low rate forever implies that the future relative cost of steam and water power will remain as at present, which does not seem to be at all probable.

Summary of Method Used by City.—1st. Determine cost of reproducing existing buildings exactly as they are constructed. This is the value if new. 2nd. Depreciate value if new by an estimated amount determined by an external examination of the various parts which can be seen. This gives the present value of buildings. 3rd. Determine cost of replacing the machinery in the mill by similar machinery. This is the value if new. 4th. Depreciate value new for wear and tear by an estimated amount determined by an examination of such parts as can be seen. This result gives the present value of the machinery. 5th. Make a schedule of shafting, belting, piping and supplies and estimate cost of installing same. 6th. Depreciate first cost for any visible wear and tear to get present value. 7th. Estimate value of land from value of adjacent land. 8th. Estimate value of water power by capitalizing yearly cost of steam power at a low rate of interest. 9th. Estimate cost of reproducing water power plant as it is, and depreciate for wear and tear as above. 10th. To above present values add value of any other property belonging to mill. It is substantially between these two methods that the Court must now decide, and this decision, which is of much importance to manufacturers, is awaited with interest.

THE NEW ENGLAND COTTON MANUFACTURERS' ASSOCIATION.

The semi-annual convention of the New England Cotton Manufacturers' Association was held at the Windsor Hotel, Montreal, October 5th and 6th, and was replete with interest, not only to the trade itself, but to all who take an interest in the manufacturing development of the continent. Indeed, it is difficult for a comparative outsider to understand how so much practical good, so much thorough knowledge, and so wide and far reaching exchanges of ideas could be crowded into the short space of time which the convention had at its disposal. As is always the case when a representative association meets in Montreal, the mayor and chairman of the Reception Committee of the Council waited on the delegates to tender them a hearty welcome to the city. The ceremony took place in the Ladies' Ordinary of the Windsor, where the convention had arranged to hold its sessions. Mayor Prefontaine and Ald. Stevenson were introduced by A. F. Gault, president of the Montreal Cotton Company, and A. A. Ayer, president of the Merchants' Cotton Co., to the president of the Association, Frederick E. Clarke of Boston, Mass., and by him introduced to the convention. In the course of his speech the mayor said: "I have a most agreeable task to perform, both as chief magistrate of this city, and on behalf of the citizens of Montreal. It is to extend to you a most cordial welcome. You have assembled here to hold the 67th annual meeting of your organization, and I can assure you that we are proud to have you in our midst. Your association, considered in its objects and in the results of its labors and the vast interests which it represents, is of the utmost

importance in this country. During your stay in Montreal you purpose to discuss questions of great moment concerning the industry in which you are interested, and I know that practical results will follow from your deliberations. I am all the more happy at being called upon to address your association to-day, because the cotton factories of New England provide employment for thousands of Canadian families. It is true that a very laudable effort is being made to prevail upon our people to return to Canada in as great a number as possible, and help us to build up a Canadian nation, but we cannot overlook the fact that the artisans of Canada, who have gone to the United States to add to the strength, power and wealth of a foreign nation, are well looked after by our American cousins, and treated on every occasion as if they were their own." In conclusion the mayor expressed the hope that the members and their wives and other ladies by whom they were accompanied would consider themselves at home in Montreal, the commercial metropolis of Canada, and he earnestly trusted that the meeting would prove fruitful, and would result in good to them as a body, and to the community at large. The mayor's remarks were heartily applauded, after which Messrs. Gault and Ayer both followed in a strain similar to the mayor, endorsing his sentiments, and adding their quota of welcome. This incident closed, the association at once proceeded with business. According to C. J. H. Woodbury, the able secretary of the organization, there were fully one hundred members present, the ladies accompanying them being about seventy-five in number. The president's semi-annual address was read. His allusion to Her Majesty the Queen was greeted with loud applause, the ladies present, of whom there were a goodly number, waving their handkerchiefs at the mention of the name "Victoria." President Clarke's speech was partly as follows:



F. E. CLARKE,
President of the Cotton Manufacturers' Association,
who died at Lawrence, Mass., Nov. 7th.

PRESIDENT'S ADDRESS.

A member of the organization from its first meeting in July, 1865, I well recollect its earlier meetings, presided over by Ezekiel A. Straw, Manchester, N.H. I was a young man then, having taken upon myself the care and direction of a cotton mill, and while I learned much from the papers read and the able discussions which followed, I drew inspiration and encouragement which enabled me to solve many problems in my work. Since that time I have been a close observer of the proceedings of the associations. One cannot look through the records of our transactions without being convinced, not only of the magnitude and diversity of our work, of the knowledge and wide scope of investigation shown in the many papers read, of the thorough

familiarity displayed in the topical questions discussed, but also convinced of the great encouragement and stimulus its doings have given to improvement and perfection of method and machine in all branches of cotton manufacturing. There is not an avenue in the realms of science but may be explored with profit to the manufacturer, and while he labors industriously in his application of the laws of mechanics, of the results of investigations in science, and of the deductions from varied experience, he must also give his deep and earnest thoughts to the social, educational, and moral welfare of his workpeople, that they too may have the upward impulse of improvement and maintain their superiority to the machines they watch over and direct. From the time when Pearl and Sayer first reduced the size and weight and increased the speed and production of the spindle, up to the present, there has been a steady advance all along the line. All through the long list of operations, from the opening of the cotton up to the last touch given to the finished goods for the market, improvements have been made in machinery and in treatment which have diminished the cost and enhanced the quality and value of the goods. While yesterday the ring spindle seemed to have attained the highest perfection in the art of spinning cotton yarn, to-day we hear rumors of still greater improvements, which if materialized will again revolutionize the spinning-room. The manufacturer himself or the manager at the mills, the supervisor of a department, the operative who tends the machine, as well as the inventor from the outside, are all keenly alive to the possibilities and desirabilities in the great field of machinery improvement, and each and all are striving towards better results in every process. Constant progress has been the watchword of the last quarter of a century, and will lead in the next, so near at hand. Mr. Draper puts the Northrop loom, the latest production of his model shop, into your mill to-day and starts it with amazing success, but while this pattern, the product of many years of hard work of the inventor, with the added talents of many mechanics, has been in course of construction, a new and better way has been devised to accomplish desired results or to overcome some slight defect obvious in your lot of looms. And you are told that in the next lot of looms built these defects will be remedied, and too late you regret that you had not waited before giving your order. The difficulty, however, is inevitable. Evolution is constant in everything to which the mind devotes itself earnestly, honestly and persistently—and each lot of looms turned out will naturally be superior in some respect to that which preceded it. Daniel Webster told the young lawyer who said there was no room in the legal profession for a young man, that there was always room at the top. And while that is true it is also true that there is no abiding top. The inventor who produced the intricate machine which revolutionized one of the great industries of the world, when he had finished it felt he had accomplished his purpose and attained perfection, but as he saw it working he discovered imperfection after imperfection, and the light faded from his eyes ere he could remodel his wonderful invention.

The quantity and quality of the fabrics produced have to-day reached their highest point in the history of the world, but the limit is not yet attained. The dawn of a new era in civilization is penetrating the superstition, ignorance, and barbarism of some of the older nations, and awakening them to a consciousness of a better condition of life. New ideas, new habits, and new customs will follow, and as intelligence combined with industry multiply the natural products of their soil, and promote intercourse with other nations, the use of cotton fabrics will grow and create large demand in the producing districts of the world. We hold to-day our first meeting outside the limits of the United States. We bring our warm greetings to the people of this beautiful city, and of the Dominion of Canada whose realms are subject to the flag of Great Britain—and we would pay our

tribute of respect and honor to Her Gracious Majesty, Queen Victoria, whose pure life, devotion and loyalty to the social, moral and material interests of her subjects have enshrined her in their hearts and made her the model queen of history. The wise, prudent and comprehensive policy of her merchants and manufacturers has made her people foremost in the manufacturing industries, and built up the largest trade in cotton fabrics of any nation in the world. We have unbounded admiration for the energy, industry and sagacity which have accomplished such wide and far-reaching results, and while we profit by their example we mark out our own course, and governed by similar characteristics, we will continue to supply, to a large extent, our home markets, and open for ourselves new paths into the trade of the world.

The papers read at the morning session were entitled: "Export Trade," D. A. Tompkins, Charlotte, North Carolina; "Valuation of Manufacturing Property for Taxation," Charles T. Main, Boston, Mass.; "Various Systems of Computing Costs of Manufacture," James G. Hill, Lowell, Mass.; "Textile Education by Mail," Christopher P. Brooks, New Bedford, Mass.

The second session opened at half past two in the afternoon, when the following papers were read: "Eli Whitney and His Cotton Gin," M. F. Foster, Milford, N.H.; "Cotton Ginning," J. E. Cheesman, 27 William street, New York; "The Round Bale," Louis Simpson, Valleyfield, Que.; "The Dederick Bale," W. H. Perkins, Boston, Mass. In the evening the members proceeded to the Montreal Temple Club, where they indulged in the pleasure of smoking while listening to another series of papers. There were four in number: "What Must be Done to Spin Fine Yarn on a Filling Frame," Arthur H. Gulliver, Ashton, R.I.; "Oiling Fly Frame Spindles," Russell W. Eaton, Brunswick, Me.; "Practical Results Obtained in the Drying of Textile Fabrics with the Assistance of a Vacuum," Charles H. Fish, Dover, N.H.; "Description of the Electric Power Transmission Plant at Valleyfield," by Louis Simpson, Valleyfield, Que. Interspersed between the papers at the various sessions topical questions were discussed, mostly of a technical nature. On Thursday evening, the ladies attended the Academy of Music to hear the Alice Neilson Opera Co. while their husbands and fathers were at the smoke talk.

Friday morning was devoted to a trip to Valleyfield, the General Electric Company of Schenectady, N.Y., and the Canadian General Electric Company, of Toronto, having placed a special train at the disposal of the delegates and their ladies. The special object of the trip to Valleyfield was to inspect the electric power plant of the big mills, the finest of its kind in Canada, and hardly equalled in the United States. At Valleyfield the party were the guests of Louis Simpson, general manager of the mills, and Fred Lacey, general superintendent of the Montreal Cotton Co. The delegates were loud in their praises of what they saw, and came away thoroughly impressed with the immense strides Canada has made in the manufacture of cotton and other textile fabrics.

Friday was in great part devoted to pleasure. It is true that there was a business session in the afternoon for those who desired it, but the great majority spent the whole day either on the river, running the rapids, or driving around Montreal visiting the places of interest.

There were three papers read at the Friday afternoon session. They were: "Economy of Using Turbines at Fall Gate," Frank P. Vogl, Claremont, N.H.; "Advantages of Coke over Coal as a Fuel for Generating Steam," Arthur C. Freeman, Waltham, Mass.; "Mechanical Stokers," Byron Eldred, Boston, Mass.

In the evening there was another theatre party to witness "The Sign of the Cross." This wound up the proceedings of the

convention. On Saturday morning the only member remaining at the Windsor was Secretary Woodbury. He told your correspondent that he would never forget his visit to Canada, and that both his fellow members and himself intended to visit the Dominion again, Toronto being probably the next place of call.

While in Montreal the association was the guest of the Canadian Colored Cotton Mills Company, the Dominion Cotton Company, the Merchants' Cotton Company and the Montreal Cotton Company. The local committee who had charge of all arrangements were Alfred Hawkworth, convener; A. W. Stevenson and Mr. Fred. Hawkworth. Nobly did they fulfil their trust, and the result of their untiring efforts has gained for them the heartfelt thanks of their guests, who passed a sweeping vote of thanks to them and the corporations they represented, for their manifold courtesies.

TEXTILE INSTRUCTION BY MAIL.*

C. P. BROOKS, NEW BEDFORD, MASS.

The subject of textile education has been discussed so frequently at the meetings of this association, that were it not for the fact that this society always welcomes the reports of experiments or new departures, the introduction of the subject again, even from a new aspect, would almost be a trespass on the time of the meeting. The subject of teaching textiles by correspondence has not as far as I am aware, been referred to at any previous meeting of this association. The subject of textile technical education in general has been discussed and favorably reported and commented upon, and judging from the number of textile schools, which for a lack of a better name, I will call "Residential Textile Schools," now in operation or being promoted, apparently the subject has met and is meeting with the highest approval of textile manufacturers. Five years ago there was only one textile school in America. Now there are five in active operation, and probably by the end of the century there will be more.

A residential textile school is limited in its scope. At its best it is practically and essentially a local institution. In the interests of the state or city that founded it, it is best for it to be developed as a local institution. A small proportion of its students come from a distance. For each day student there are six or more evening students, workers in the local mills and machine shops who combine work and study—working in the day time, studying at night. The reason for the small numbers in the day classes is that there are few men who can afford to leave their work, lose their salary and pay for tuition, board and rooms in order to devote their whole time to studying the day course of instruction in a textile school, while there are thousands of men who hold responsible positions, or who are aspiring to responsible positions, to whom the earning of a daily wage is an absolute necessity to their existence; or who hold a position that they do not desire to sacrifice, and yet who desire to attain a technical education and are willing to devote any amount of time and any possible sacrifice to obtaining same. These facts have been impressed upon me very frequently in my connections with the Lowell and New Bedford Textile schools, and by the occasional criticisms that I have met with that textile schools as at present conducted do not reach the masses of people, and are not broad enough in their scope. These circumstances two years ago induced me to investigate the possibility of teaching textiles by correspondence. At first I opposed and was prejudiced against the idea, but on investigation, I found not only was it possible to teach similar subjects by correspondence, but that it was actually being done—that electrical schools, mechanical schools, engineering schools, were in existence and doing

good work in teaching subjects as difficult to inculcate as textiles, and that thousands of students all over the country were receiving very great benefit from correspondence schools of various kinds.

In the cotton mills of America there are plenty of men who are working in one department, or on one machine, and who know nothing of other departments or other machines, and yet they are well aware that unless they obtain this knowledge they cannot hope to be promoted to positions of responsibility. There may be no textile school in their vicinity, and they have not the means to attend a residential textile school. They are sometimes repelled when they seek information from their overseers, and it is a difficult thing for a young man of this personality, without influence or wealth, to obtain the necessary information and to climb the ladder of success. Not only so, but there are many persons whose general education is good, who even have graduated in the higher branches of scientific and classical education, who are placed by accident or influence in a position of extreme responsibility, and who feel the need of knowledge in special branches of their work that they have not an opportunity of attaining simply because they cannot leave their positions in order to attend a textile school. Alike to the struggling, ambitious worker in his desire for higher position and higher pay, to the man who is already in a good position and wishes to perfect himself, or bring his knowledge up to date; to the manufacturer who wishes to branch out in new lines of industry, to the jobber, the converter, the dry goods merchant, the mill supply dealer, the textile machinist or any person connected in any capacity or in any way with textile manufacturing, there is a want that the residential textile school, admirable as it is, does not fill. It is to these men that a correspondence school appeals.

The method of giving instruction in textile correspondence schools generally adopted throughout America is simple and effective. Specially prepared instruction papers are printed and issued to each student, which contain in simply expressed, clear and concise descriptions and carefully worded explanations of the subject matter under consideration. If it is a machine, the principles of its construction, its objects, the use of each part and each motion, the method of operating it, and a score of other details in connection with its construction and economical and effective operation and management are explained. It is not necessary to make a comparison of correspondence schools with a regular residential textile school; each has its own field of labor. The residential school caters for the local mill help and for those men who are fortunate enough to be able to defray the expense of a two years' or three years' course of instruction which occupies their whole time, and if taken in a well equipped and well managed institution with a good staff of instructors, is undoubtedly one of the very best methods of obtaining a textile education. The correspondence school on the other hand aims at educating those men who have their living to earn, and who wish to learn while they earn; who study at night and put into practice in the day time what they have been studying.

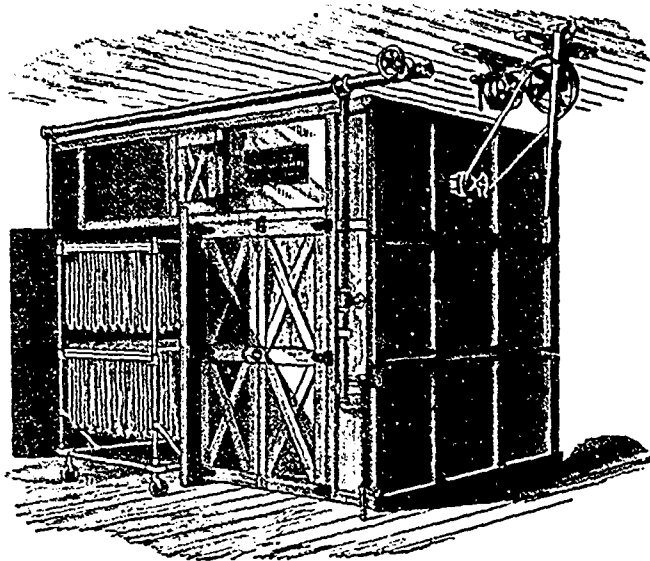
IMPROVED MACHINERY FOR DRYING YARN.

All materials to be dried economically must be subjected to a sufficient air movement so that the moisture shall be rapidly carried off, and at a temperature sufficiently high to assist the evaporation, but with proper care taken that the quality of the material shall not be injured. In drying yarns in the open air it is a well-known fact that much more rapid drying is accomplished in the spring, when a good strong breeze is blowing, even if the weather is cool, than in the summer, when the air is hot and sultry. This is easily explained from the fact that cool dry air, when moved rapidly through any wet material,

*Read before the Cotton Manufacturers' Association

will absorb and carry off considerably more moisture than a motionless atmosphere, even though its temperature be much higher.

The Philadelphia Drying Machinery Co., 6721 Germantown Avenue, Philadelphia, have applied this principle of rapid air movement with great success in the Hurricane dryers, of which we here illustrate the truck system of yarn drying. After the



HURRICANE TRUCK YARN DRYER.

yarn is poled, it is placed on trucks and wheeled into the dryer, where the air is recirculated in immense volumes alternately through the wet yarn and the steam coils, the latter being located on each side of the machine. The greater part of the hot air is thus recirculated over and over again, but through a small opening at the top of the machine, the surplus of the moisture is driven off and carried away through an ordinary sheet iron pipe. The drying atmosphere is thus maintained at the point of humidity, it is claimed, for the most economical drying results, hence the greatest amount of work is accomplished with the least amount of steam. The skeins dry with perfect uniformity in all portions of the truck, and thoroughly around the poles, as a perfect circulation is obtained. Steel blade fans in this improved construction are mounted on a horizontal shaft which extends to the outside of the dryer, and has a pulley attached. A system of direct driving from a countershaft overhead is thus obtained, doing away with the many annoyances of an indirect carrier-pulley drive, and the consequent wear on the belt. The fans are located at a considerable distance away from the yarn, and as the bearings do not overhang the latter, there is no possible danger of the yarn being caught in the fans or of having oil or grease drop on it, as special means are provided to secure cleanliness, and give positive oiling. As soon as one truck load is dry it is drawn out, thus avoiding all danger of the yarn baking, and one of the extra trucks, which are provided with the machine, is wheeled in. This class of machinery can be located in the same room with other machines, without making practically any difference in the temperature of the room, for a remarkable feature of this system of recirculation is that practically no heat escapes from the dryer even when the doors are opened.

The savings in steam, power and floor space, together with the added comfort secured to the operatives, as well as the small amount of labor required, have all aided to make these Hurricane dryers popular machines and practical necessities in up-to-date plants. For yarns, warps, wicks, braids or piece goods, in quantities from 500 lbs. to 5,000 lbs. per day, the truck system is said to be particularly adapted. Special forms of automatic

dryers, however, are built by the Philadelphia Drying Machinery Co., for larger quantities. Their automatic yarn dryer is arranged to carry the yarn continuously through the machine on poles, by means of special chain conveyors with roller bearings, the yarn being subjected to a rapid recirculation of air as it travels forward through the machine. A valuable feature of this latter machine is the extension attachment, by means of which the feeding or delivering can be done on another floor than that on which the main body of the machine is located, and an elevator is frequently dispensed with.

COLOR ABSORPTION.

One of the strangest qualities of the wool fiber is the absorbent quality which it presents to various colors. The very same fiber will absorb one dye more readily than it will another, and the same stock will take up more of one particular color or shade than it will some other. But the feature that most frequently bothers the dyer and finisher is the fact that different fibers from different stocks, but of about the same grade, will have different absorbent powers. It is in this direction that much difficulty is very frequently experienced, says a writer in *The Boston Journal of Commerce*. A batch of wool or a line of piece dyes will come along and take the color all right. Then a second batch, made so far as can be ordered of exactly the same quality of stocks, will come along, and with exactly similar treatment show results that are more or less diverse. There is no reason for this strange state of affairs except the different absorbing qualities of the fibers. This is a difficulty over which the dyer has little or no control, and it is a trouble that is very hard to handle. It is difficult to predict when the difference is likely to appear, and nothing but the most careful observation and experimenting can possibly show the seat of the evil. In an instance of the above kind the fault of the dyer is always cited as being the cause of the difficulty. He may weigh his colors, his drugs, and watch his vats and kettles. He may have his operation in all its details most completely and thoroughly in hand, and yet in spite of all he can do the difference in shade will manifest itself.

There is only one way out of a case of this kind, and that is really not a way out after all. It is to color up the yarn or wool or goods to another shade. If the wools are already woven in the cloth, it will be a good thing for the dyer to test his operation and determine, if possible, where the real difficulty lies. He should take some of the yarns that have entered into the goods, using hanks of each kind in equal weight. Then he should scour them and dye them in exactly the same baths, and with the same treatment in every detail. If the cause of the difficulty lies in the absorbent qualities of the yarns there will be no question of its effect upon the shades after such a test as this. If there is a difference in shade under these circumstances there is no doubt whatever but that when the yarns are in the form of cloth there will be a marked off shade effect which will entirely spoil the dyer's work. If the weave is of a certain kind this difference of shade will take the form of specks on the surface; if other kinds it will appear regularly in the goods wherever the dissimilar yarns appear in the face of the cloth. If the different yarns occupy quite a large place in the face of the cloth the result will be a thorough change of shade throughout the whole cloth. There is, thus, a deep and important need that whoever has the make-up of the cloth in hand, or the selection of the stock which goes into its construction, must have a careful eye to the dye-absorbent qualities of the fibers. Every dyer knows how frequently it happens that it is very difficult to get your samples to shade first alike in all respects. You may have your formula all right, you may have the colored yarn sample at

hand like which you wish to make your yarn. You exercise careful attention in all details as to weighing out drugs and temperatures and all the other details, and yet, after you are through and have apparently done everything according to formula and directions, your samples will turn out darker or lighter than the sample like which you wished it to look, according as it absorbed more or less of the dye. Where samples have got to be matched in this way, as is oftentimes the case where colors are taken from sample cards or dye-people's shades, it is always essential that this quality of the wool fiber be kept in mind. It will lead to endless annoyance and expense if it is not regarded.

It is quite evident that this same condition of affairs will have its effect in all printing operations, where colors are used in printing wool yarns. Any printed cloths, like carpets or other similarly treated fabrics, are open to this difficulty. It is thus needful that the printer govern his colors according to the qualities of the yarn with which he has to deal, and it may even be necessary in some cases that he change the strength and character of his coloring entirely to bring out uniform results if the absorbent qualities of the different yarns are too diverse. Whenever changes of stock are contemplated in the making up of these fabrics, it is absolutely essential to successful results that the color mixer should know of it before it is too late for him to govern himself accordingly. It is a well-known fact that whenever differences of color make their appearance in a line of fabrics or of yarns or of wools, in the vast majority of instances the first and usual impulse is to blame the dyer with bad work in the manipulation of his dyes and in the handling of the goods. So usual is this that it is decidedly the exception to refer such differences to a difference in absorbent qualities of the yarn or fiber. But if the truth were known, and if the facts were traced to their real source, it would be found that perhaps in more than half of the cases where differences appear the causes are in the fiber qualities and not in the color manipulation. A like difference in stock qualities manifests itself in the length of time it takes to fix the color thoroughly to the fiber. Certain good absorbing stocks will require very little time in the steam before the colors are thoroughly set, while, if there is a laxness in the absorbing of the color, it will require more vigorous fixing treatment to lead to enduring and permanent results. Thus all along the line this peculiar quality of the wool fiber has its influence and its effect.

COMBINATION OF COLORS.

Colors which are found difficult to harmonize may, with the aid of one thread of black or white between, afford a combination of great delicacy and beauty. Orange and red do not accord well together because they are closely related and when put together become confused. Now, one single thread of white between them not only separates them but deepens and enriches their tone according to the value of the contrast, but a black thread would be more powerful in brightening both colors because it would be the strongest contrast to orange as well as the red. Black would not be useful in separating blue and violet because they are too closely related to black, therefore white would at once deepen the colors and at the same time acquire a decided tinge from both, which is called "simultaneous contrast." Now blue, white and violet are good, yet a better triple combination may be formed, especially for male clothing, by substituting gray for white; the contrast becomes less prominent and more agreeable. Color elements are beautiful by themselves, and in a large number of simple combinations the assorting of colors in obedience to certain principles will always produce fresh effects. The most brilliant, such as yellow, must be used sparingly. Colors of intermediate power, such as reds,

can have a larger quantity of space, while a deep and more retiring blue ought to have at least as much space as that occupied by both the yellow and red, very little of white and black. It is by an arrangement of this nature, remarks a writer in *The Indian Textile Journal*, that the real value of the designer's friends exhibit their power—the gray and tertiary hues. If it is desirable to convey some particular impression by a color arrangement, we can easily do so without disturbing the balance of color by introducing gray alone or a broken tone—suppose a quiet combination; then citrine and a complementary violet will subdue any yellow band or stripe. Of course, the consideration of the texture of the colored material, its lustre, etc., will to a great extent determine the effects. To ornament is to beautify. To decorate is to ornament. But no textile surface can be beautified unless the forms upon it are at once bold, vigorous, true and graceful, and the applied colors harmonious. If new arrangements are required, let the designer proceed as an artist ought to do, and not as a mere mechanical drudge; let him think out something that will give not only ornamental, but also a commercial value to his work. The very best patterns may consist of somewhat strong colors in very small masses—so small, indeed, that the general effect shall be rich, low-toned and neutral, and still have a glowing color bloom. Every material has its own distinction of character which can be rendered beautiful by a very small degree of taste and judgment.

There is no doubt that bad patterns sell equally as well as good, perhaps more of the indifferent, if not of the very bad, than of the good, but this taste is disappearing gradually, and the general public are becoming more and more enlightened in their choice. In all our textile productions the greatest errors and most glaring inconsistencies occur in the production of carpets. The grounds are often out of all harmony with the superimposed, or rather colors placed upon the ground. It may be said the public demand is for such, but then why not show them something better? A white ground on a carpet cannot look well; a light ground but not white is passable, such as light creams, grayish or green whites; but even in this way it is a very difficult matter to make the carpet appear as a suitable background for the furniture of the rooms. If a close-fitting, well-studded pattern be so arranged in small sections of bright colors to fall on a ground of very dark brown, chocolate or indigo blue, a beautiful, bloomy effect may be obtained. In fact, the most satisfactory carpets are all colored upon this system. It would seem that there is a timidity of new things among designers and manufacturers. It is better to have some daring than be continually reproducing the old lines over and over. Much more might be said respecting the adaptation and combination of colors for fabrics, but no amount of writing can supply the information gained by practice and careful observation; no rules can be laid down to supersede good taste, judgment and experience. It may be that a good thoughtful designer will find himself hampered by various difficulties, or, rather influences, tending to make his best efforts impracticable. The man who has a delicacy of taste possesses also a natural sensibility on which this taste is founded. When, therefore, he finds his best efforts marred by positive orders to introduce the bold and vulgar monstrosities, he of course gives up in disgust and his place is filled by an incompetent person. The result follows of a penny-wise and pound-foolish policy, and we gladly pay yearly to French designers enormous sums of money for what could be easily produced by our own efforts, if properly fostered and cultivated.

Fisk & Co., curriers and fine leather makers, Montreal, are asking Lachine, Que., for a bonus of \$25,000 to establish a factory in Lachine to employ 60 people, and pay \$35,000 annually in wages.

Foreign Textile Centres

MANCHESTER.—The home trade continues active, and there has been nothing so far of moment to darken the season's prospects. The position of the South African trade is of course unsatisfactory, but there is a bright side to the picture even here. There have been enormous orders for khaki placed by the War Office during the past few months, and some firms must be making enormous profits out of the business. Khaki has evidently come to stay for a long time. One firm has been "boomed" in connection with the application of his rain-proof process to khaki cloth, the use of which for tents and overcoats has recently been recommended. The silk departments are fairly busy. The houses at home seem to be pretty well employed. Egyptian yarns remain strong. The demand for special mercerized cloths has greatly increased the enquiry for Bolton counts. The statements recently put in circulation to the effect that mercerized goods are now being shipped largely to the East require taking with caution. It must be remembered that mercerized goods are comparatively expensive, and that the bulk of the Eastern demand is for cloths of a low or medium class. I have only been able to see two shippers on the subject before despatching this report, but both coincide with the view given above. The Anglo-Indian and better-class native community in India will, of course, buy mercerized goods. The Parsee community may be safely reckoned on to patronize the better-class Bombay shops, and to order such makes if not already in stock. But there are not 100,000 Parsees in India, and over 200,000,000 of consumers who only want the cheapest goods.

LEEDS.—In Leeds the clothing factories are very busy, and there are many complaints of the scarcity of hands, a difficulty which is also present in the weaving manufactories. The slightly colder weather has created a demand for heavier goods, such as overcoats, and both from the country and on shipping account there is a good business doing in suits.

Huddersfield.—In Huddersfield the recently reported activity is fully maintained and a few buyers from both London and the provinces have recently been operating in this market. There is a good demand for winter overcoatings and suitings, and for the spring orders in tweeds, vicunas, and worsted coatings have been freely placed. There are some slight indications of improvement in the United States demand for both fine worsteds and woollens.

BRADFORD.—Both in Bradford and on the principal Continental wool exchanges there has been a distinctly firmer tone in reference to all wools of the fine merino character, and the advance at Antwerp has been rapid every day this week, a fact that is more noticeable after prices there having been practically stationary since July, up to which time Antwerp had all the time been leading the way with advances of merino wools. Sellers of fine wools, tops, and yarns have now so much business in front of them that they are very indifferent about selling any more, says The Draper's Record, London, Eng. Of course, the present extremely high price of merino is driving all sections of the manufacturing trade to try and use substitutes for it whenever possible, and to this end strenuous efforts are being made to introduce tweed fabrics, both for men's and ladies' wear, and there are certainly indications that these fabrics are likely to become popular before long. Already a distinct reversion has been created in favor of worsted serges for dress goods, and this tendency has developed sufficiently to force up the prices of serge yarns fully 2d. per lb., and there is little chance of any declension from present levels as long as the prices of the merino wools remain so high. As English wools, with the exception of pure lustre descriptions and Down wools, are not so largely

used for either men's wear or dress goods, there has not, up to the present, been much advance in most of the ordinary home-grown wools. Both raw alpaca and mohair are very firm, being held at fully late rates.

HALIFAX.—The following is the Chamber of Commerce trade report for October: **Worsted Yarns.**—There has been little change in this branch during the month. Spinners are keeping well employed, and are getting better prices for super yarns, but so far are unable to keep pace with the recent further advance which has taken place in the price of wool and tops. This may be expected until the cheaper contracts for yarns have been exhausted. **Cotton.**—The increased demand for two-folds, in almost all counts, has continued through the month at slightly firmer prices. Fustian and ready-made clothing houses are all well engaged. **Carpets.**—The demand is increasing, and prospects are good. **Spun Silk.**—Machinery has been well employed during the month, and prices are advancing. **Woollens.**—There has been no change in this branch of trade during the month. Machinery is fully employed. **Dyeing.**—The dyeing trade has been fairly busy during the last month, but at present is much quieter. **Wool.**—The market has been steady and cheerful, without any change in values. **Pieces.**—Manufacturers keep very busy for the home and foreign markets, and orders are still being placed at advanced prices.

NOTTINGHAM.—Quotations for lace and curtain yarns remain nominally unchanged, but there is a little unsteadiness. Here and there spinners are willing to make slight concessions; in other cases prices are quite firm, with a hardening tendency. Buyers are placing orders to a full average, but speculative transactions are light. Merino and wool yarns for hosiery are in good request; spinners are full of orders for future delivery and prices are still firm and upward. Bobbin nets and light tulles are now steady in value at the highest quotations. There is more business doing in the fancy lace warehouses, some large shipping orders having been placed.

DEWSBURY.—In Dewsbury, and the heavy woollen district generally, business is now good, and not only are many of the mills working overtime, but stocks in the warehouses have also been a good deal reduced by fear of higher prices. Worsteds, vicunas, tweeds and serges are all in good demand, and makers of army cloths are being much pushed for the delivery of some special classes of cloth. The manufacturers in the Morley district are, as a rule, very busy indeed on light woollens for ladies' costume cloths, and some makers of special lines are quite filled with orders for months to come, and are raising their prices on account of their independent position. Both blanket and rug makers are busy in spite of the stoppage of the Cape trade, and makers of good white home trade blankets are better off for orders than for some years past. One inconvenience caused by the Transvaal War is that cypher telegrams are not now accepted to the Cape.

KIRKCALDY.—In the floorcloth and linoleum industry an excellent tone continues, and provision is being made to vastly augment the present production. Mill spinners are very busy, and yarns are commanding better prices. Linen manufacturers are also doing a large business, having many good orders in hand, and the prospect of having their machinery fully employed for a considerable time to come.

BELFAST.—This linen market continues very brisk in all branches, with a well-sustained demand at full rates, fractional advances being paid here and there, and values generally tending towards a higher level. The spinning end is active with a full demand for nearly all classes of yarns, producers holding stiffly for extreme rates, which are, if anything, the turn firmer. The manufacturing branch is without que table change in any direction; buying is well maintained, and the turnover of full aver-

age proportions. Housekeeping goods are the quietest feature at present. White goods for home consumption show further life, and the export trade tends to increase in volume.

ZURICH.—The situation in the silk goods market has improved, and there have been more buyers in the market. But by the size of their operations it seems that buyers have not yet entire confidence in the stability of the high prices. Where orders would be booked by the thousand pieces in other seasons, now it is only by the hundreds, while the prices paid are far from being satisfactory to the producers, and leave very little margin to the manufacturers. The demand has not yet increased sufficiently to procure an outlet for the full production of the looms, and some manufacturers have to still work for stock. There is a good demand for Paris, but the London market is not active and seems to be well supplied. Taffeta is still the leading fabric. Damasses are being ordered. A fair business has been done in colored damasks in the better qualities as well as in the medium grades. In raw silk there is a fair demand for local consumption and prices tend upward. There is also a better demand for organzine, but trams are neglected.

CREVELD.—The consumptive demand for fall makes the market more active, and stocks are moving rather freely, writes the correspondent of The Dry Goods Economist, New York. But while wholesale buyers are willing to take almost anything from stock at fair figures they show little disposition to place orders for future delivery and the business so far done for spring has been relatively small. Buyers buy only for immediate requirements, and do not speculate in regard to their future needs, as they have some doubts as to whether the present level of prices will be permanent. There is a fair movement in taffetas. Satin duchesse, satin liberty and merveilleux have been gaining ground in black and colors. In moire velours the demand is fair in 20-inch goods but very slow in wider widths. Moire velour has had a run of several seasons, and like taffeta it is hard to find a substitute for it. In fancies not much is being done. Damasses are liked and are well represented in the collections, medium sized effects being the favorites. Fancy plaids are also seen. The prospect for an increase of employment for the looms has not brightened, and for dress silks and linings there is room for improvement in this respect. In umbrella silks manufacturers have done well, and in tie silks the looms are fairly well employed. There is no change in the velvet market, which continues in a satisfactory condition as regards demands and prices while the looms have orders to fill.

OCTOBER FUR SALES

C. M. Lamson & Co.'s regular October fur sales were held in London on the 17th and 18th instants, and were well attended and very successful. The results of the sales as far as the peltry from this country are concerned were as follows:

Muskat—25 per cent. lower than January.
 Skunk—5 per cent. lower than March.
 Marten—7½ per cent. lower than March.
 Mink—7½ per cent. lower than March.
 Silver Fox—75 per cent. higher than March.
 Red Fox—75 per cent. higher than March.
 Lynx—75 per cent. higher than March.
 Cross Fox—100 per cent. higher than March.
 Wolverine—15 per cent. higher than March.
 Beaver—10 per cent. higher than March.
 Wolf—25 per cent. higher than March.
 Otter—Same as March.
 Bear—Same as March.

This is the last of the sales for this year, and as will be seen from the results given must have been very satisfactory to the

sellers. The most interesting feature is the great rise in the market for red fox and lynx. The long-haired furs seem to be increasing in favor. When it is remembered that the March sales resulted in even greater advances than the above on some of these kinds of fur it will be seen that the position of the market is most satisfactory to the producing industry. Some of the above advances added to those of last March make a total advance this year of over 100 per cent.

TEXTILE PUBLICATIONS.

In order to accommodate readers of The Canadian Journal of Fabrics, the publishers will be pleased to mail any book in the following list on receipt of the publisher's price, duty free. Books on technical and practical subjects, not in this list, can be obtained and mailed at publisher's prices. In ordering, please give full address, written plainly:

Worrall's Directory of Cotton Spinners, Manufacturers, Dyers, Calico-printers and Bleachers of Lancashire, giving the mills of the British cotton district, with number of looms and spindles, products of the mills, cable addresses, etc	\$2 00
Worrall's Directory of the Textile Trades of Yorkshire, comprising the woolen, worsted, cotton, silk, linen, hemp, carpet, and all other textile mills, giving looms and spindles, and the various lines of goods manufactured, etc	2 00
Worrall's Textile Directory of the Manufacturing Districts of Ireland, Scotland, Wales, and the counties of Chester, Derby, Gloucester, Leicester, Nottingham, Worcester, and other centres not included in preceding works, with capacity, products of mills, cable addresses	2 00
The Wool Carder's Vade-Mecum, by Bramwell; third edition, revised and enlarged, illustrated; 12mo.....	2 50
Technology of Textile Design, by Posselt.....	5 00
The Dyeing of Textile Fabrics, by Hummel.....	2 00
Textile Calculations; very complete; by E. A. Posselt.....	2 00

SYNTHETIC INDIGO.

The small crop of natural indigo this season calls fresh attention to the article which is made by synthetic chemistry, and is already being used extensively by dyers. A correspondent of The London Times tells that paper that at present most of the artificial indigo is made by one house, in Germany, which holds patents on some of the processes employed and keeps certain others secret. The patents will expire in about four years, but the secrets will still aid the company which makes synthetic indigo to maintain its monopoly. Nevertheless The Times' correspondent predicts that in this case, as with all other coal tar dyes, the price will steadily fall, and that it will drop more rapidly than that of natural indigo, which is now much higher.

The result of a series of tests made by Camille Kurz, of Smichow (near Prague, Bohemia), with vegetable and synthetic indigo is reported in The Times. Samples were taken from the same piece of goods and dyed with both preparations. Then they were examined day after day for three months. Mr. Kurz declares that at the end of that time the cloth colored with synthetic indigo was as dark as that dyed with the vegetable. The hue of the cloth dyed with the coal tar derivative was, after three months, more pure, more brilliant and less greenish than the other, which showed a dirty grayish tendency. The effect of washing and of soap appeared to be the same in both cases. It is argued further that as synthetic indigo is more uniform than vegetable indigo the dyer can be more certain as to results.

ADVANTAGES OF COKE OVER COAL AS A FUEL FOR GENERATING STEAM.*

BY ARTHUR C. FREEMAN, WALTHAM, MASS.

The item of fuel being one of the large items of expense entering into the cost of manufacturing, is necessarily one in which every manufacturer is interested. The most important fuel in use at the present time is coal. The cases where wood is used are exceptional, and becoming more so as the population increases, and timber becomes scarce and more in demand for structural purposes. It is only recently that the question of coke has been seriously considered by manufacturers here in New England, although large quantities are annually consumed in the West, where it enters into competition with both hard and soft coals. One of the reasons why this fuel has not been more extensively used in New England is possibly due to the fact that it is only recently that its manufacture has been attempted on a commercial scale. The heretofore high cost has also been one of the reasons for its no more general adoption.

Coke, as generally understood, is carbonized coal, or the carbon of the coal left in the ovens after expulsion of the volatile substances by heating, or, as it is generally called, coking. The volatile substances, viz., tar, pitch, gas, ammonia, etc., are smoke producers. About one-third of the weight of the coal is thrown off in the coking process; the carbon in one and one-half tons of coal is therefore largely represented by the carbon in one ton of coke. The manufacture of coke is generally carried on in heaps, retorts, or ovens, and is spoken of as gas or oven coke, referring, of course, to its mode of production. In the case of oven coke, the object is not so much to prepare coke as it is to obtain gas, tar and various other products. In the present day, coal is converted into coke almost exclusively in ovens constructed for this purpose, it having been found that by the use of ovens the operation is more readily conducted, and that a larger quantity and better quality are obtained.

Coke is prepared for various purposes: For increasing, or rather concentrating the quantity of carbon in the coal, and thus obtain a fuel which will yield a more intense heat than coal. For the purpose of converting coal into a fuel which does not become pasty when ignited. Coal in consequence of this property being unsuitable for blast, cupola, or other furnaces. Well burnt coke, or oven coke, is a hard, uniform, compact, solid mass, difficult to break, and not honey-combed, or very porous. Its color is black-gray or iron-gray, with a dull, metallic gloss. Good coke should contain very little sulphur. When discharged from the ovens, coke consists chiefly of columnar pieces about eight inches long and four or five inches thick, with smaller pieces mixed in. By a specially designed crusher, it is then broken up into various sizes, as egg, nut and pea. For boilers it is generally used as it comes from the ovens. The advantages claimed for this fuel are that it is clean, there being no dust, no dirt, no smoke, and but few ashes. It kindles quickly, makes the hottest fires, is easily controlled, and requires but little draft. It does not clog the boiler flues, thus obviating the frequent and expensive cleaning. This secures the complete utilization of the heat value of the fuel. It is smokeless. When looking at the stack of a boiler fired by coke, it is impossible to determine whether the boiler is running or not. This absence of smoke, especially around bleacheries and other places where expensive and fine work is carried on, and in thickly populated communities, where soot and smoke are so destructive, is a matter of no little importance.

Its general use would probably do away entirely with the smoke nuisance encountered in some of our large cities, and would add immeasurably to the comfort of those who travel by steam where coal is used. At the present time this question of

smoke from soft coal is receiving the very serious consideration of the municipalities of some of our large eastern cities. New York is seriously threatened with the same affliction that has beset Pittsburg and Cincinnati, and Boston is fast losing its prestige as a clean and healthful city. Fine buildings are being injured by smoke, and what is far worse trying to the individual, the interior of houses likewise suffer from the same cause. From a hygienic standpoint the health of citizens must in a measure be impaired by breathing in this soot. With the volatile substances removed, the dangers from spontaneous combustion are entirely eliminated; and it can be kept with safety anywhere, and for any length of time. Coke is a fuel unlike bituminous coal in its composition, and therefore requires somewhat different treatment when used in place of that fuel. It resembles hard coal, and should be fired in a somewhat similar manner. Some changes in the ordinary grates will probably be necessary to burn coke with maximum economy and convenience, but it can be burned on ordinary grates. The following suggestions will be found useful in learning its management:

1st. In building the fire, put the coke on lightly and often, until the fire is seven or eight inches thick. An eight-inch fire will make steam much better than a heavier one. 2nd. It is better not to disturb the top of a coke fire, therefore when firing, spread the fuel evenly, to keep the fire level. 3rd. Shaking bars are very suitable for burning coke, and they should be shaken frequently. If dead bars are used, a light poker should be run under the fire frequently to keep clunkers from clinging to the grate, and to keep them broken up. A poker is better than a slice bar for this purpose, as it is lighter and more easily handled. The object is not to bar up the fire, but to detach small pieces of clinker, and prevent them from forming and running together. 4th. It is advisable to keep water in the ash pit, or to introduce a jet of steam.

Following is the result of a test made by the Mutual Boiler Insurance Co., of Boston, on the evaporative powers of coals and coke compared with the best soft coals. Steam making value is the only criterion used in making up the table below. The coke is that of the New England Gas and Coke Co., and the value is based on boiler tests, and on proximate and ultimate analysis:

COMPARATIVE EVAPORATIVE POWERS OF COALS AND COKE COMPARED WITH THE BEST SOFT COALS.

Soft Coals.	Combustible.	Probable p.c. of Refuse	Coal as Bought.
Pocahontas	100	7½	100
Best Cumberland	100	7½	100
Average Cumberland	98	7½	98
New River	95	5	97
Clearfield	95	10	92
Pittsburg (Youghiogheny)	88	6	89
Ohio (Hocking Valley).....	80	6	82
Nova Scotia	83	10	81
Anthracite steam coals and coke—			
Coke (New Eng. Gas & Coke Co)	91	9½	89
Lykens Valley Pea	96	15	88
Lykens Valley Buckwheat .. .	96	18	85
Wyoming Pea	95	15	87
Wyoming Pea, Buckwheat	95	18	84
Schuylkill Pea	93	15	85
Schuylkill Pea, Buckwheat	93	18	82
Lehigh Pea	91	15	84
Lehigh Pea, Buckwheat	91	18	81

The boiler tests are full length tests carefully made on the type of boilers in general use, and with grates suitable for the coke. They indicate a value for the combustible portion of 86

*A paper read before the Cotton Manufacturers' Association, at the annual convention in Montreal.

per cent., both when considering the evaporation alone, and when allowance was made for the information given by gas analysis. The proximate analysis indicated a value of 92 per cent. and the ultimate analysis indicated a value of 93 per cent., from which figures we have estimated that 91 per cent. was a fair estimate for the evaporative power of the combustible. The percentage of refuse averaged $9\frac{1}{2}$ per cent. in three boiler tests. Another boiler test showed over 20 per cent. due to unsuitable grates for the size of coke used, but $9\frac{1}{2}$ per cent. appeared to be a fair figure for proper grates, making the evaporative power of the coke 89 per cent. on the basis used in the table.

The capacity of the coke appears to correspond to that of anthracite coal of similar size, and to be about 80 per cent. of the capacity of the best soft coals, such as Cumberland, Pocahontas and New River. By capacity is meant the ability to evaporate steam with a given grate area and draft pressure, irrespective of the economy. In regard to the behavior of the coke, it was found to clinker slightly in a manner similar to the Dominion coal from which it is made, but nowhere near as badly as some of the pea and buckwheat and anthracite coals frequently used.

LITERARY NOTES

Le Prix Courant has issued a special autumn number in magazine form with a pictorial cover.

Writing of the fall of Cetawayo in the November Canadian Magazine, E. B. Biggar presents a very timely article.

We have received the ninth edition of Worrall's Textile Directory of the Textile Districts of Ireland, Scotland, Wales and the English counties of Chester, Derby, Gloucester, Leicester, Nottingham, Worcester and other counties not included in Worrall's other directories. This directory gives the number of spindles and looms, the pay days, telegraphic addresses, together with the products of each mill, and is thoroughly up to date. The price is \$2, including postage, and this standard work may be had of John Worrall, Oldham, Eng., or through the publishers of The Canadian Journal of Fabrics.

The G. & C. Merriam Co., of Springfield, Mass., publishers of Webster's International Dictionary, now supply a need which is felt in most modern offices—that is, a dictionary, in handy form, and at a reasonable price, which gives the essence of the great International, with its definitions, synonyms, vocabularies of geographical, historical and proper names, tables of abbreviations, arbitrary signs, dictionary of mythology, etc. One of the special features of these appendixes is a very complete glossary of Scottish words and phrases, which will be generally appreciated in Canada. There is also a rhyming dictionary, and the definitions in the body of the book are elucidated by over 1,100 illustrations. The type is clear, the binding is unusually strong, and while, as its name, "Webster's Collegiate Dictionary," implies, it is specially adapted to the use of colleges and students, it is even better suited as a work for office reference. Although containing 1,016 pages, the work is not too bulky for convenient use, and we can endorse in the strongest terms the unqualified praise the new work has received from the highest educational authorities. It is published in three different bindings, cloth, sheep and half Morocco, with thumb indexes.

Perhaps the handsomest number of The Century Magazine ever issued is that which bears date November, 1899. The cover design includes a portrait of Cromwell redrawn on stone by Ernest Haskell and printed in four tints, while the frontispiece—also in tints—is a wood engraving by T. Johnson from Cooper's painting of the Protector in Sidney Sussex College, Cambridge. The experiment in color printing is not confined to these two portraits, nor to the illustrations in the opening instalment of John Morley's study of Cromwell, it extends also to the striking

full-page and half-page drawings and marginal sketches with which Seton Thompson supplements the work of his pen in narrating the first part of "The Biography of a Grizzly." Between these two contributions comes Gilbert Stuart's portrait of Mrs. Harrison Gray Otis, engraved by Wolf. In Timothy Cole's series of wood-engravings from the Old English Masters appear Lawrence's "Duke of Wellington" and "Old" Crome's "Household Health" and a "Windmill." Nor does this exhaust the list of full-page pictures that add so much to the handsome appearance and artistic interest of the magazine. But the main value of the number lies by no means in its illustrations, for apart from the beginning of Mr. Morley's important Cromwell series, and Mr. Thompson's bear biography, there is a hitherto unpublished poem by the late James Russell Lowell ("Verses Written in a Copy of Shakespeare"), which, with its introduction, fills two pages; the true and terrible story of the adventures of a boat-load of castaways on the Pacific is told by Mark Twain, "formerly Mike Swain;" Gov. Roosevelt writes with characteristic forcefulness of "Military Preparedness and Unpreparedness;" a poem, "The Golden Crown Sparrow of Alaska," by John Burroughs, is the mellow fruit of a recent travel trip to northern latitudes; and a humorously gruesome piece of realistic fiction by Dr. Weir Mitchell turns for us the first leaves of "The Autobiography of a Quack." In the life-story of a Maine farmer and longshore sailor living near his summer home in Maine, President Eliot of Harvard resumes his occasional contributions on "The Forgotten Millions." Captain Slocum continues his "single-handed" cruise around the world, taking the Spray this month to Robinson Crusoe's Island and Stevenson's Samoa. Fiction in short story form is furnished by Abraham Cahan, Ella D'Arcy, and Semmas MacManus, and verses, grave or gay, bear the familiar names of John Vance Cheney, Lilla Cabot Perry, Charles Battell Loomis, etc..

"The Statistical Year Book of Canada for 1898" has been issued from the Government printing bureau by the Dominion Department of Agriculture. This is the fourteenth year of issue, and, as on each former appearance, the Year Book is more interesting than before. A neat folder gives statistics for the past thirty years of the population, revenue, expenditure, public lands, lands in cultivation, postage, shipping, imports, exports, public debt, expenditure on railways and canals, the working expenses of all our railways, their earnings and profits, full details of chartered banks and postoffice savings banks. Geo. Johnson, F.S.S., is to be congratulated upon the excellent work he is doing in preserving in so compact and convenient form the statistical history of the country.

FABRIC ITT 'S.

The death of Thomas Dickenson, of the firm of Dickenson, Nicholson & Co., wholesale dry goods and millinery, London, Ont., occurred Nov. 10th. About a year ago Mr. Dickenson, while returning home from a business trip to Pennsylvania, fell from the train and received serious injuries, from the effects of which he never fully recovered, and complications, which set in lately, were the immediate cause of his death. The deceased gentleman was widely and favorably known in both Eastern and Western Ontario. He was 54 years of age.

At a meeting of the creditors of James A. Sword, dealer in men's furnishings, Toronto, held in the office of the assignee, J. P. Langley, a statement was presented showing assets of \$18,010, and liabilities amounting to \$17,142.12, including preferred claims of \$907.25. The chief creditors are: Toronto, Caulfield, Henderson & Burns, \$551; Irving Umbrella Co., \$65; F. N. Cousineau & Co., \$67; W. R. Brock & Co., \$56; Montreal, Tooke Bros., \$4,106; Gault Bros. & Co., \$3,153; Glover & Brais, \$1,631; Matthews, Towns & Co., \$1,415; Canadian Underwear Co., \$650;

Lutzgibbon, Schafheitlin & Co., \$450; Purvis & Co., \$263; S. Crowninshields, Son & Co., \$125; Hamilton, E. Van Allan & Co., \$1,436; W. E. Sanford Mfg. Co., \$50; and claims in Great Britain aggregating \$1,300.

J. Piercy & Co., manufacturers and wholesale dealers in dry goods, Victoria, B.C., have doubled their store accommodation in the past year, and have also doubled the number of machines in their factory. They have worked overtime, have increased wages 10 per cent., and their output is 20 per cent. larger than last year.

In the death of Robert Linton, which took place at his residence, 286 Peel street, Nov. 14th, Montreal lost a man who for a great many years held a leading position in connection with the wholesale dry goods trade of the city. Mr. Linton was born at Newton, Limavady, Ireland, in 1834. He came to Canada with his parents a lad, and completed his education in Montreal. He received his business training in the establishment of William Stephen & Co. On the death of William Stephen the business was continued by the firm of George Stephen & Co., of which Mr. Linton became a partner about 1867. On the retirement of Mr. George Stephen, now Lord Mount Stephen, the business of Andrew Robertson & Co. was combined with the firm of Geo. Stephen & Co., and continued under the firm name of Robertsons, Linton & Co. Upon the retirement of the late Andrew Robertson, a few years before his death, the firm became Robertson, Linton & Co., and finally Robert Linton & Co., under which name the business was carried on until about a year ago, when it was liquidated and wound up. The deceased had been over forty years in business, and enjoyed an enviable reputation among the merchants of the city, as one of its most able and respected members.

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.

Strathroy, Ont., will vote on a by-law to bonus the Paine Upholstering Co., Nov. 28th.

The Penman Mfg. Co., Paris, Ont., is running day and night owing to rush of work.

The Canadian Colored Cotton Mills Company, Ltd., paid a dividend of one per cent. on October 16th.

A dam developing the Eureka Woolen Mfg. Co.'s power at Eureka, N.S., was carried away last month by a freshet.

S. J. Berryman, Carleton Place, has taken a position in the Mississippi Woolen Mills, Appleton, Ont.

A. H. White, of the Dominion Brussels Carpet Co., Sherbrooke, Que., has recently suffered from a series illness.

Carnochan & Campbell, roofers, have finished putting a Sparham fireproof cement roof on the Anchor Knitting Mill, Almonte, Ont.

Arthur Devitt, superintendent of the Gillies Co.'s woolen mills, Carleton Place, Ont., was in Toronto recently buying new machinery for the mills.

McFarland, Gray & Southgate, clothing manufacturers, Toronto, have installed an electric motor, supplied by the Jones & Moore Electric Co., Toronto.

T. A. Code, Perth, Ont., ran his knitting mill night and day for a time last month, getting out a special order of toques and sweaters for the Canadian contingent.

The Rosamond Woolen Co., Almonte, Ont., worked day and night, and also Sunday, in rushing out cloth required by the Sanford Mfg. Co. to fill orders for military clothing.

The Stanfield Knitting Company, Truro, N.S., are offered exemption from taxes for ten years, and the privilege of town water at cost, to locate their business in Westville, N.S.

W. H. Matthews, who has been boss finisher in the Hawthorne Woolen Mills for about four years, has resigned his position to take a general agency with the Home Life Association of Canada.

W. T. Benson & Co., Montreal, have been appointed sole agents in Canada for the St. Denis Dyestuff & Chemical Co., Paris, France, and will carry in stock in Montreal, a full line of all their products.

The Rosamond Woolen Company's weavers are beginning to profit by the "growing time." They have been given a raise of five per cent. in wages twice recently—ten per cent. in all—Almonte Gazette.

The Farmers' Binder Twine Company, Ltd., Brantford, Ont., declared a dividend of 100 per cent. on their paid-up capital stock for the year 1899, on Nov. 4th. Last year the same company declared a dividend of 60 per cent.

The Lockwood Cotton Mills, Waterville, one of the most conservative mills in the United States, are to equip their whole mill with Northrop looms. Over 1,000 will be required. The work of installation will begin in December.

C. W. Morrison, Brooklyn, N.Y., will, it is said, establish a pulp mill on the Gatineau River near Chelsea, Que., seven miles from Ottawa. If a suitable site is secured it is said a mill with a capacity of 300 tons of pulp daily will be built.

Mr. Ashton, boss carder in the Almonte Knitting Co.'s mill, has ceased his connection with that mill, and taken a similar position in the Mississippi woolen mills at Appleton, Ont. D. Keyes, second in command, has been promoted to Mr. Ashton's position with the Almonte Knitting Co.

Clarence M. Elliott, who left Almonte sometime ago for the United States, has been making rapid progress in his chosen profession, and is now occupying a position as assistant designer with full charge of the pattern room in a large mill at Hyde Park, a very pretty town a few miles from Boston.—Almonte Gazette.

Thomas Samuel & Son, the well-known Canadian agents for Wm. Barbour & Sons' threads, have just been appointed sole agents in the Dominion for Stewart's Irish flax threads. The combination of the business of these two old established companies—the most reputable in the trade—will give Messrs. Samuel & Son an unrivalled position in the flax thread business in Canada.

A joint-stock company has, it is said, been floated in Brantford to take over and operate the Wincey mills, which have lain idle for a number of years. The capital has already been subscribed, and new machinery will be put in the building at once. The new company, which will be managed by a well-known local manufacturer, will be ready to commence operations early next year.

The Edward Lloyd Company, Ltd., of London, Eng. is stated to have acquired 3,000 square miles of timber land in Canada and the privilege of using 2,000 h.p. of water at Niagara Falls. The paper mill, of which these things are the elements, will be erected on the Canadian side of the Niagara River, near the Falls. Its construction and equipment will cost \$6,000,000.

W. J. Sheppard, Coldwater; T. H. Sheppard, Orillia, John J. McNeil, Toronto; Geo. McCormick, M.P., Uptergrove; Wm. Irwin, Peterboro'; Chas. McCool, Ottawa; James Playfair, Midland, Ont.; Marshall J. Dodge, New York; Angus McLeod, Bracebridge, and A. R. Creelman, Toronto, Ont., are forming the Spanish River Pulp and Paper Co.; capital, \$1,500,000. The power is situated on the Sault Ste. Marie branch of the C.P.R.

The Hamburg, New Hamburg, Ont., Felt Mfg. Co., is working overtime to keep up with orders.

The Dominion Oil Cloth Company, Ltd., is increasing its total capital stock from \$500,000 to \$900,000.

The contract for the new sulphite pulp mill buildings at Sault Ste. Marie, Ont., has been let to W. J. Hill.

The Imperial Paper Mills, Sturgeon Falls, Ont., want that town to give them an additional bonus of \$12,000 with several other privileges.

The dam of T. G. McMullen's pulp mill at Union, N.S., was carried away October 14th. It will not be rebuilt before next summer it is said.

Ritchie & Ramsay, manufacturers of coated papers, New Toronto, have erected an extension 100 x 60 feet, three stories high, to their factory.

Wm. Graveley, Cornwall, Ont., has gone to Mexico, where he has accepted the position of overseer of one of the departments in a large cotton mill.

The Montreal Cotton Co., Valleyfield, Que., is continually increasing its power plant, and has just placed another order with the Canadian General Electric Co. for six 50-h.p. and one 100-h.p. induction motors.

Geo. Bond, Lanark, Ont., is in charge of the carding department of Wylie & Shaw's bleaching factory, Almonte, Ont., during the night run, the mill being at work day and night at present.

John B. Gateman and P. N. Ulrop have entered upon the manufacture of pearl buttons in Berlin, Ont., using the style and firm name of the Ontario Pearl Works. They have secured premises in the block occupied by the Berlin Shirt & Collar Co.

The Canadian General Electric Co. is installing two standard 45-k.w. multipolar generators for Tooke Bros., Montreal, together with switchboards, and three 15-h.p. direct current motors, and three 8-h.p. motors.

It was stated some time ago that a well-known hardware merchant of Halifax, N.S., and another of Dartmouth, N.S., were about to put up a rolling mill at the latter town. The Maritime Merchant now announces that they will establish a steam laundry.

Wm. Mitchell, Drummondville, Que.; George E. Church, Mitchell Station, the Hon. A. Thibaudeau, W. Barclay Stephens and J. N. Greenshields, Montreal, are incorporating a company under the name of the Maple Clothing Company, with a capital of \$50,000, and having the chief place of business in Drummondville, Que.

The strike of the operatives in the Dominion Cotton Co.'s mill, Halifax, N.S., now going on was caused by the dissatisfaction of the employees with new machinery, which they claim reduces their earning powers. The management threatens to import labor from other centres, if the attitude of the Halifax employees is maintained.

W. B. Smith, a carpenter in the Brodie Co.'s woolen mills, Hespeler, Ont., was injured November 10th; while working at the ceiling he was caught in a belt and drawn around the shafting. Being very powerful he succeeded in holding on to a pipe while his clothes were completely torn from him, and by this time the belt was thrown off by a lad who was severely injured in doing so.

R. Schofield, Toronto, manufacturer and dealer in knitting machinery, etc., is now visiting the great Export Exposition at Philadelphia. On his way home Mr. Schofield will visit the leading centres of the knitting trade, so as to be fully posted on all recent developments. The main object of his trip is to make arrangements to handle in Toronto the leading makes of knitting machinery.

The buildings of the Cushing pulp mill, near St. John, N.B., which will be complete by the end of the present month, cover 56,517 square feet, and comprise the following buildings: Machine, 180 by 66 feet; screen, 144 by 60 feet; blow-off, 144 by 30 feet; digester, 144 by 28 feet; wood, 160 by 45 feet; boiler, 131 by 75 feet; engine, 50 by 60 feet; chemical, 156 by 50 feet. The chimney is to be 200 feet high, and a wharf 370 feet long is being built. The output will be 50 tons of pulp daily, and 250 men will be employed.

Max Frankenburg, Montreal, was found dead in his berth in the Pullman sleeper on the arrival in Toronto of the Montreal train, Nov. 15th, from the east. He had apparently been dead for several hours. He was the proprietor of the Globe Rubber Works, of Montreal, having moved his business to that city from Quebec some months ago. He came from Manchester, England, seven or eight years ago, and started business in Quebec. He obtained a bonus from the city council of Quebec, but finding the market there too small for the output of his factory he recently moved to Montreal.

The Trent River Paper Company, Frankfort, Ont., has placed an order with the Royal Electric Co. for a 40-k.w., S.K.C. two-phase generator with transformers and supplies. It is the intention of the paper company to not only light its own large premises, but also Frankford (one mile distant), Stirling (nine miles distant), and possibly Foxboro and Wooler (six miles distant). Work of excavation was commenced on the 27th of May last, and the fact that this month this company will be making paper is an evidence of the capability of the manager, Walter S. Miller.

The wrecking of the steamship "Scotsman" on the coast of Belle Isle on the morning of Sept. 22 was the means of creating a romance of interest to our readers. Among the passengers on the steamer were Henry Swartz, a German bound for the United States, and Edith Davis, a young English woman, a weaver, bound for Hespeler. During the terrible scene that followed the wrecking of the boat Swartz saved Miss Davis' life twice at the risk of losing his own. Instead of going on to the United States the gallant German accompanied Miss Davis to Hespeler, and they were married October 28th. Swartz is now employed in the Brodie mills.

Another large manufacturing business is being established at Sault Ste. Marie, Ont., which promises to reach vast proportions in the very near future. F. H. Clergue, president of the Lake Superior Power Co., has been instrumental in interesting American capital in the formation of the American Alkali Co., of which he is the vice-president. They purpose manufacturing caustic soda and other similar products under electrolytic processes, and the initial plant will require 1,000 h.p. for its operation. There has been placed an order with the Canadian General Electric Co. for three 300-h.p. specially designed generators to be direct connected to water wheels. The plant is expected to be in operation shortly.

The Montreal assessors, who put a valuation of \$400,000 on the machinery at the lower factory of the Dominion Cotton Company, Hochelaga, have not been able to come to terms with the company as to the real value of the company's machinery, and the outlook is that the matter will have to be settled in the courts. The company has made the proposition to the assessors that the machinery at the mill should be valued at the sum of \$20,000. It would not be fair to value it as though it were new machinery. The assessors, after considerable discussion, have stated they would reduce the valuation to the sum of \$150,000. This proposition, however, was also unacceptable, the representatives of the company holding to the contention that a valuation of \$50,000 would be just both to the city and the company. This view was not concurred in by the assessors, and so the matter will go to the courts.

The Goderich Knitting Co., Goderich, Ont., has installed an 80-light incandescent plant, supplied by the Jones & Moore Electric Co.

One of the reasons why Canadian pulp is now so much in demand in England is because of the enormous cost of pulp wood in Sweden, the former source of supply. Formerly a cord of pulp wood, 4 x 4 x 8 ft. cost in Sweden \$2.50. Now it costs \$10. The industry has so reduced the supply in that country that a reduced cut and practically prohibitive prices have resulted. An instance is given in a contemporary of one English mill in Sweden that had 600,000 logs last year for pulp purposes. Of this lot 300,000 were only five inches at the top, thus showing that the larger trees are getting very scarce. A representative of an English firm lately made contracts in Nova Scotia, it is said, for 25,000 tons of pulp to be delivered next year.

TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the sterling values of the textile imports from Great Britain, for September and the nine months ending September, 1898-1899.

	Month of September.		Nine months ending September.	
	1898.	1899.	1898.	1899.
Wool.....	£ 3,487	£ 1,228	£ 30,881	£ 14,589
Cotton piece-goods	33,692	40,638	359,149	412,211
Jute piece-goods.....	10,804	7,320	98,217	87,645
Linen piece-goods	12,313	12,794	114,715	134,361
Silk lace.....	478	1,211	5,826	12,123
" articles partly of	2,837	4,558	24,634	40,496
Woolen fabrics	28,294	31,953	244,747	259,017
Worsted fabrics.....	46,880	47,494	469,857	447,336
Carpets	16,925	21,730	148,116	156,210
Apparel and slops.....	32,488	33,971	229,561	186,156
Haberdashery	14,926	20,448	126,068	134,993
Writing-paper, &c.	2,068	2,157	18,230	19,962
Other paper	889	798	5,888	6,240
Stationery, other than paper	3,738	2,256	17,133	15,649

THE WOOL MARKET.

Toronto.—There is no export demand as yet for Canadian wools, but local prices are strong. The wool sales in the United States are enormous, and though the present demand is almost

entirely for fine wools there is every probability that our coarse wools will very soon be in demand there. Canadian pulled wools are in demand at 17 to 18c., and extras 20 to 21c. The domestic mills are very well employed, many working overtime.

Montreal.—The market for all foreign merino wools is firm

SITUATION WANTED—Blanket Mill Manager. Experience on all kinds of bed, steinboat, railroad and heavy camping blankets, and all kinds of carpets and yarns. Warrant from 10% to 15% profit per year. Address MANAGER, care of Canadian Journal of Fabrics, Toronto.

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

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

CAPITAL WANTED.

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

FOR SALE CHEAP

One Crompton Loom, has not run much; 21 harness. 4 x 4 shuttle boxes, 48 inch reel space. CHAS. SCHILLING, Auburn, N.Y.

FOR SALE.

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at 5 to 7½ per cent advance on recent prices. A good deal of stock has changed hands. Cape, greasy, now 20 to 23c., and we hear of a sale of one car load having been sold at 24c. Australian, greasy, 27½ to 30c., or about 65c clear. B.A., good, white stock, 46 to 50c for washed. Canadian fleece, 17 to 18c., pulled, 21 to 22½c. Stock of the latter class is very scarce.

A sale of sheepskins was held in London, October 27th. The skins offered numbered 129,948, and were in good condition. There was a fair attendance and a strong demand. The quantity sold was 12,793. Long woolled were ½d., and short woolled ¼d. higher. The bulk of the skins offered went to the home trade.

COTTON PRICES.

The advances in the price of raw cottons were reflected at the end of October by a further rise in manufactured. The Merchants' Cotton Company sent a notice during the last week of October withdrawing all quotations, and stating that all future orders would be taken subject to prices to be fixed shortly, which was taken to mean that they would only be booked at a substantial advance. The reasons assigned for the advance were the higher prices for raw cottons, labor and machinery. On the

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27th the new list was received, and it showed advances of 5 per cent. The Dominion Cotton Mills Co. have also given notice of some important advances at the same time. They are, Prints, ½c. per yard; ducks, ¼c.; piques, ¼ to ½c. per yard; printed moleskins, ½c. to 1c., the latter on one number. The advances on all printed stuff took place at once. They will be felt more particularly when purchases of goods for the spring are being made.

The addition now being built to the Dominion Cotton Mills Co.'s mills in Kingston, Ont., will render necessary the employment of about 150 new hands, early in the new year. The company will spend \$180,000 in new buildings and machinery.

CHEMICALS AND DYESTUFFS.

Business has been very active during the last month and advances have been sharp, owing to the high cost of raw material and coal, also to the lack of space aboard the incoming steamers. Soda Ash is now worth \$1.30, Caustic Soda has again advanced 10c. per 100.

Bleaching powder	\$ 1 95	to \$ 2 00
Bicarb. soda	2 00	" 2 05
Sal soda	0 70	" 0 75
Carbolic acid, 1 lb. bottles	0 35	" 0 37
Caustic soda, 60°	1 90	" 2 10
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Chlorate of potash	0 13	" 0 15
Alum	1 35	" 1 50
Copperas	0 70	" 0 75
Sulphur flour	2 00	" 2 50
Sulphur roll	3 00	" 3 50
Sulphate of copper	6 00	" 6 25
White sugar of lead	0 07	" 0 08
Bich. potash	0 09	" 0 10
Sumac, Sicily, per ton	75 00	" 80 00
Soda ash, 48° to 58°	1 30	" 1 40
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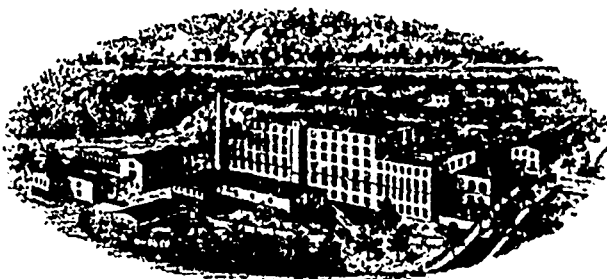


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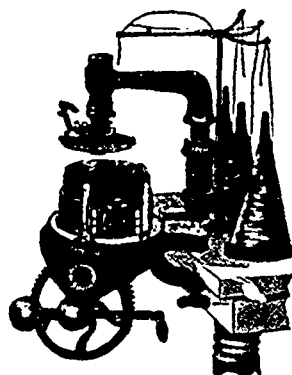
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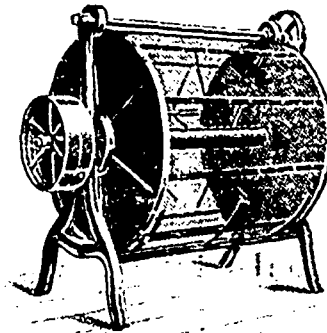
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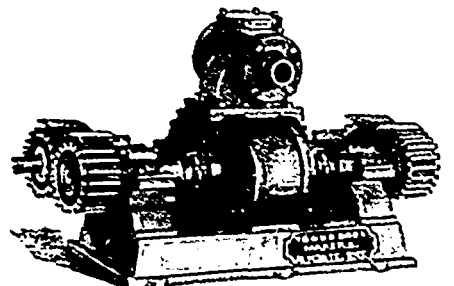
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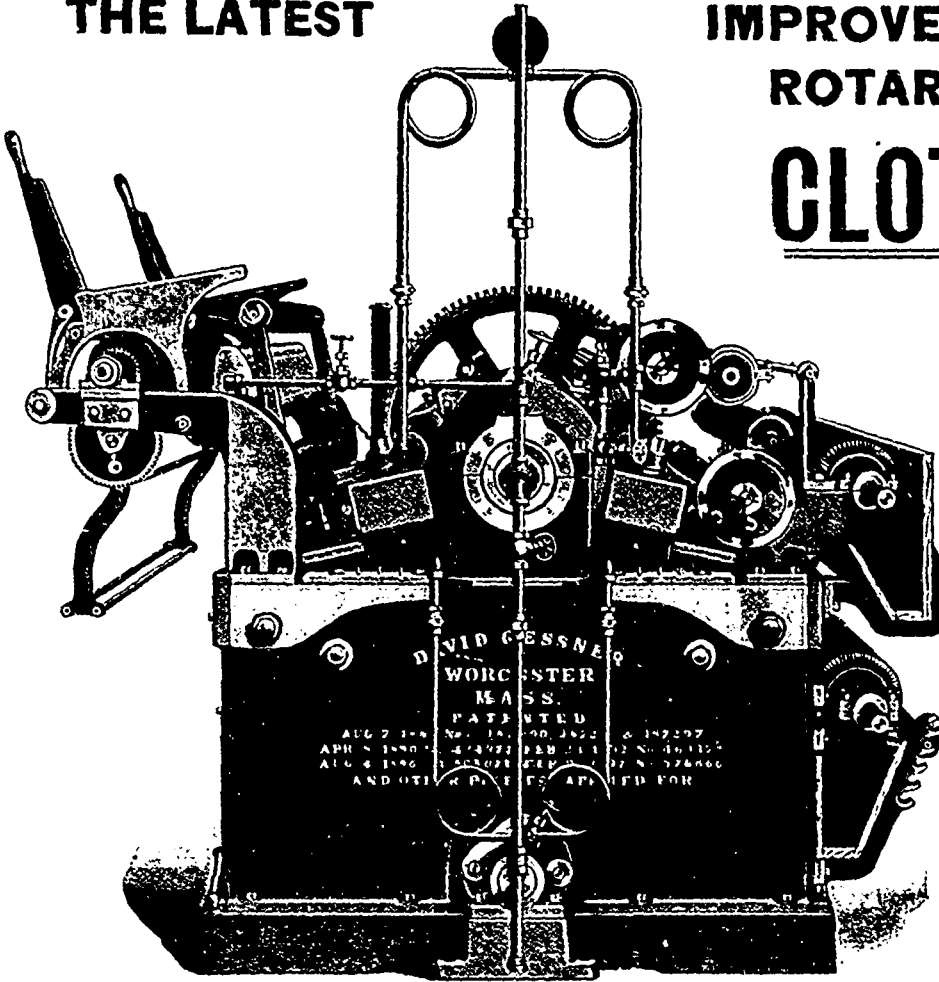


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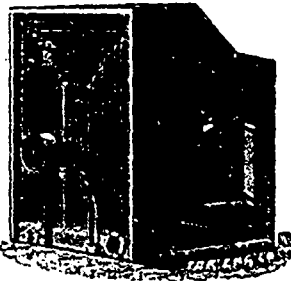
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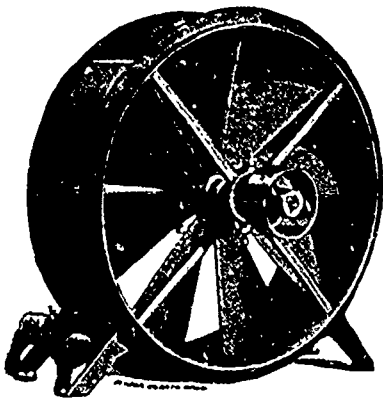
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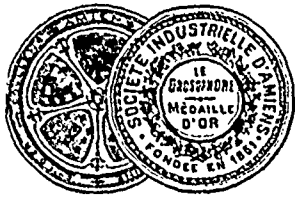
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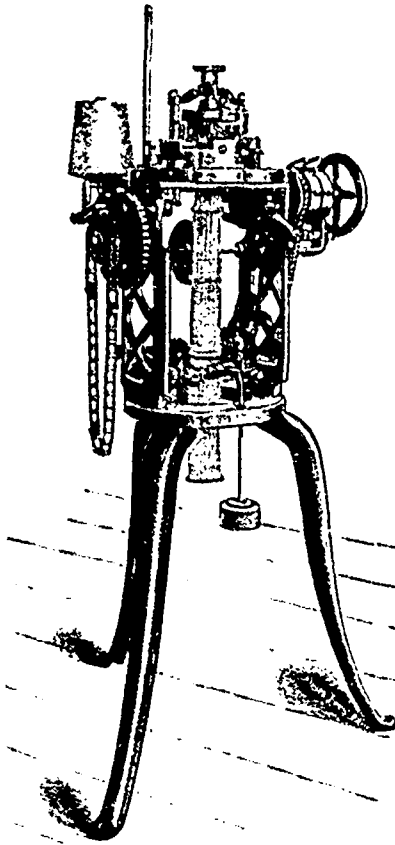
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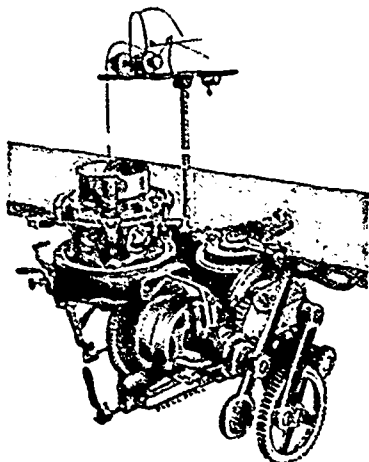
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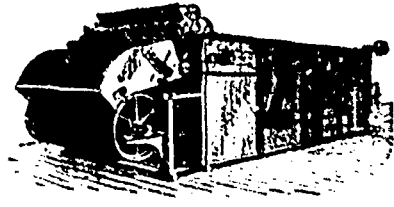
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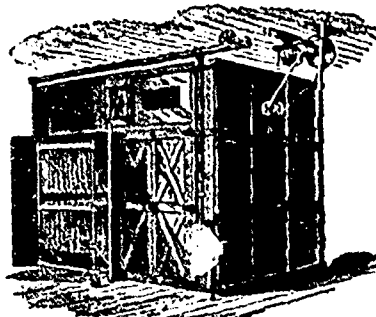
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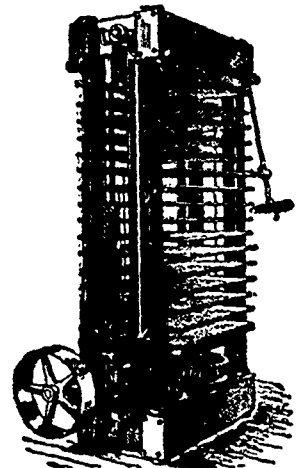
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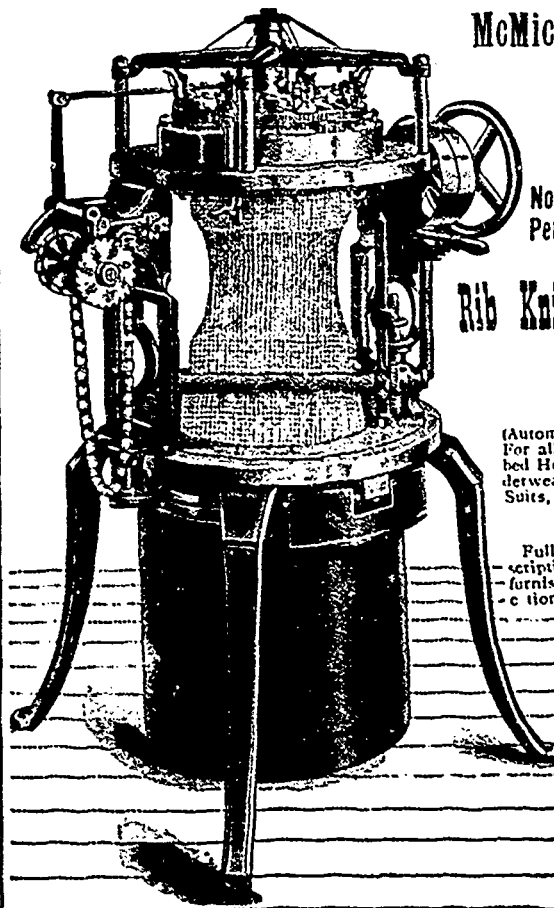
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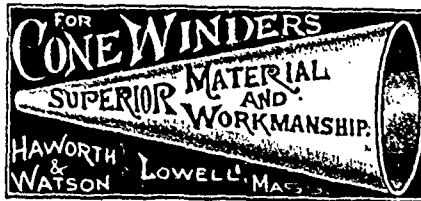
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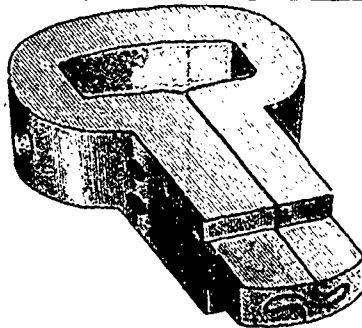


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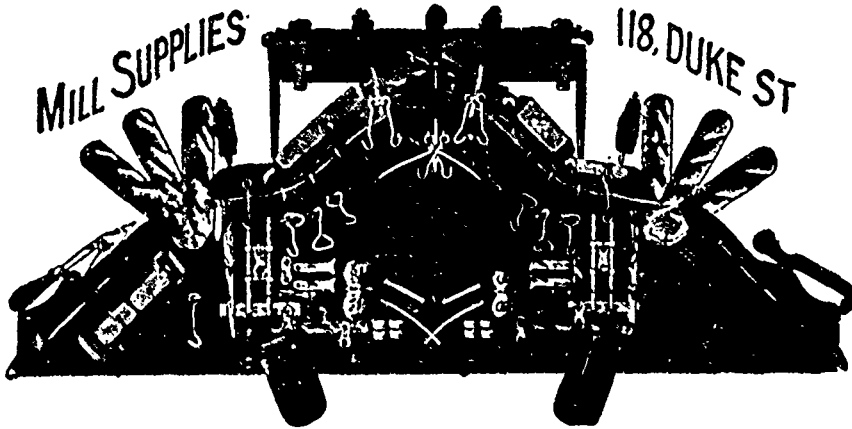
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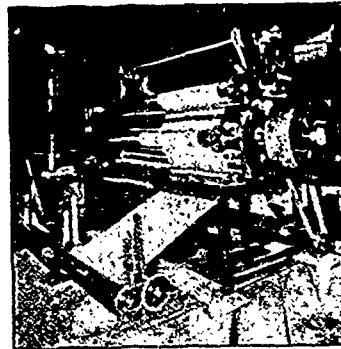
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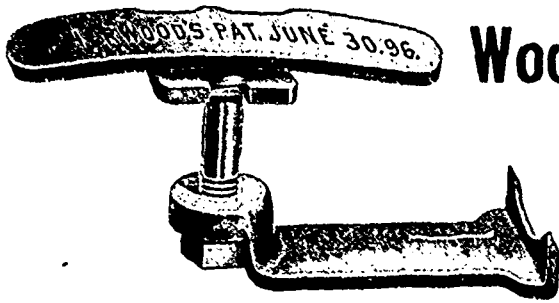
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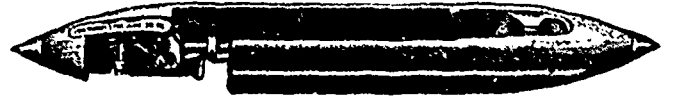


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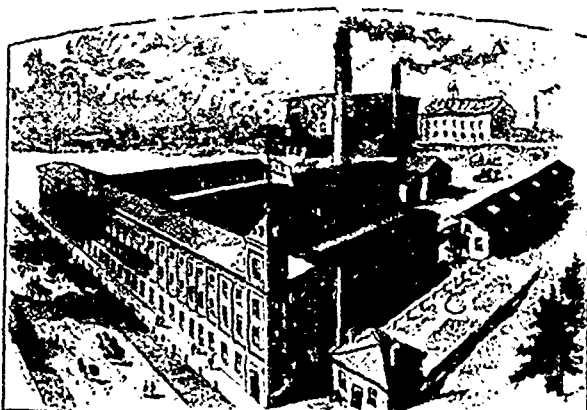
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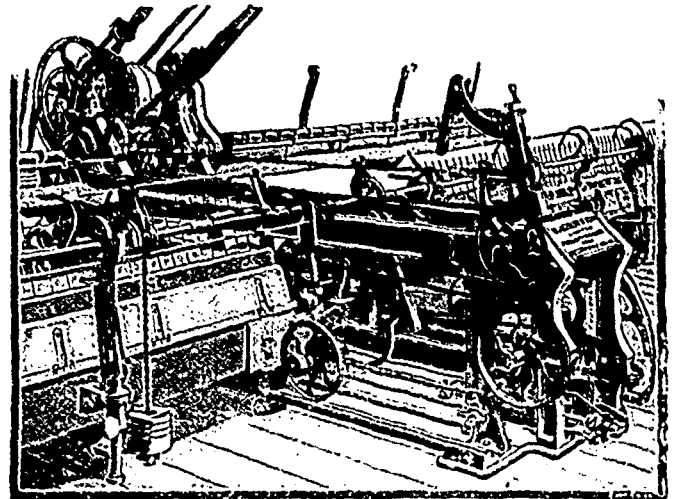


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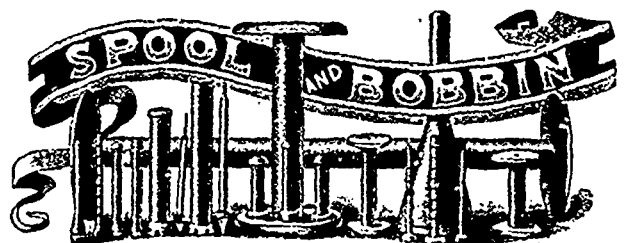
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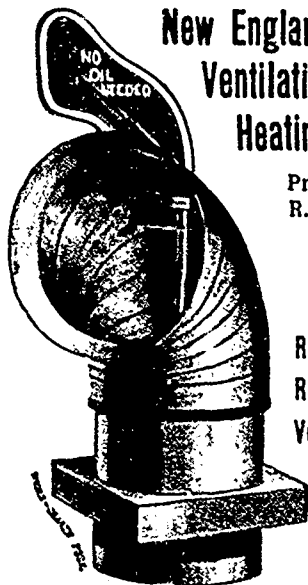
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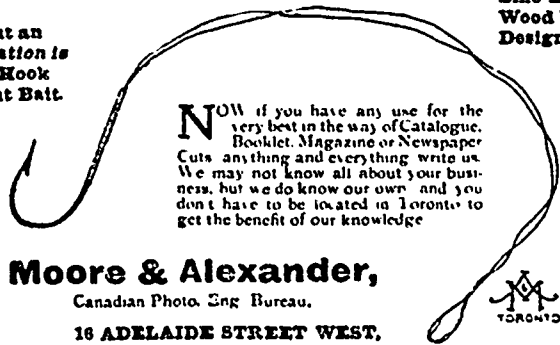
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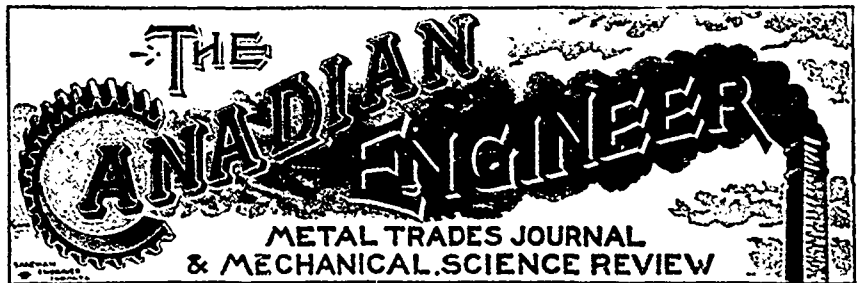
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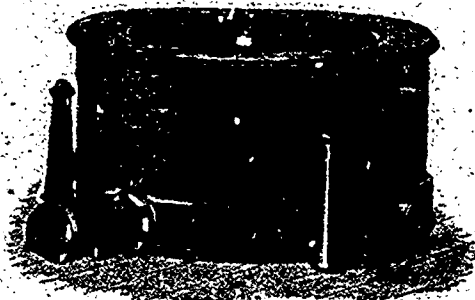
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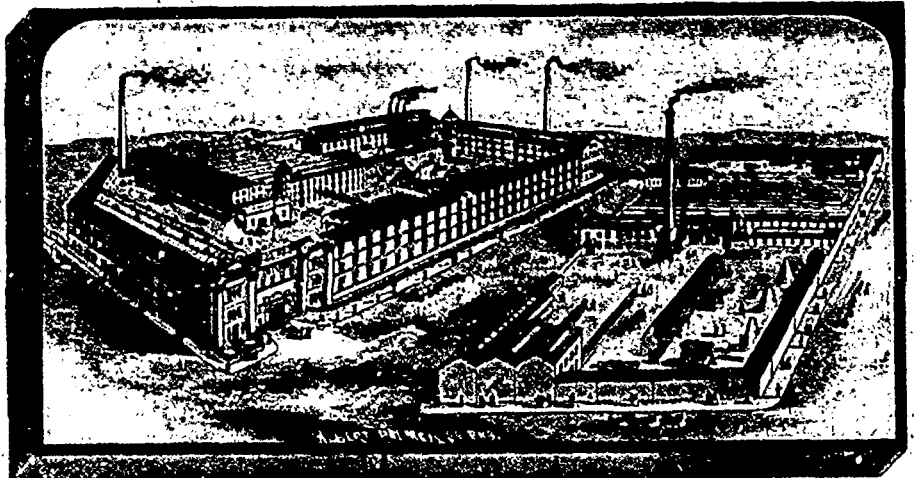
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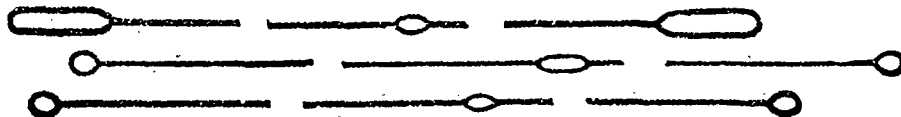
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