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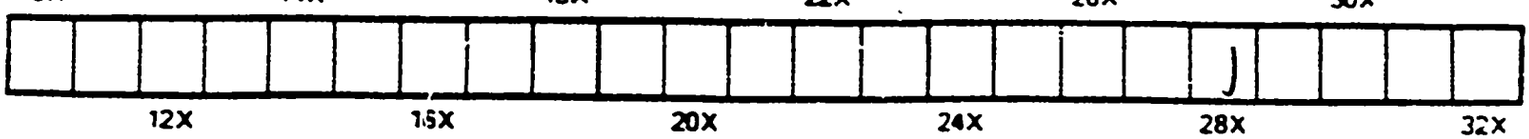
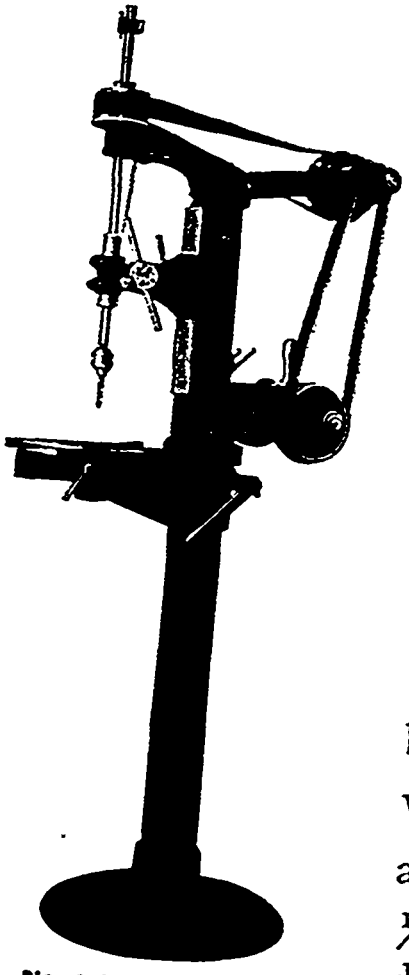


The
CANADIAN MANUFACTURER
AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTERESTS OF CANADA.

VOL. 57. TORONTO, AUGUST 21, 1908. No. 4.

Sensitive Drilling Machines



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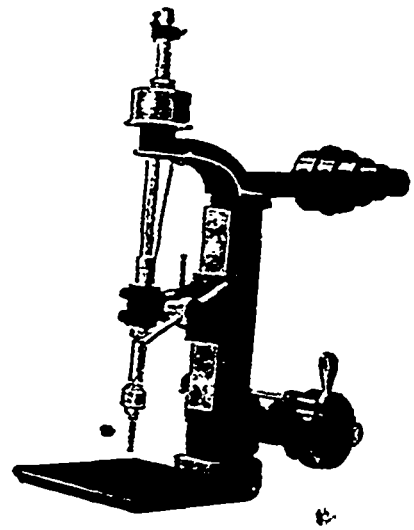

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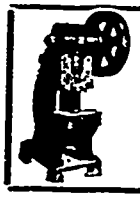

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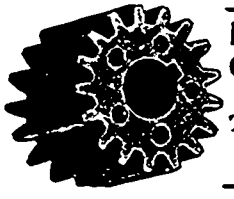

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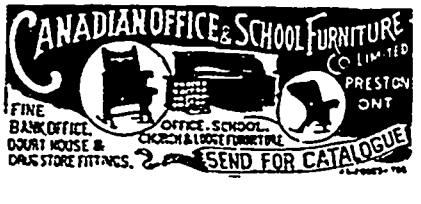

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CANADIAN MANUFACTURER

and Industrial World

A Semi-Monthly Newspaper devoted to the Manufacturing Interests of Canada—A Newspaper, Not an Organ.

Established in 1880. Published 1st and 3rd Fridays.

The Canadian Manufacturer Publishing Co., Limited

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THE ANNUAL MEETING OF THE C.M.A.

The Annual Convention of the Canadian Manufacturers' Association will be held in Montreal about the middle of next month. It should be one of the most representative gatherings of the kind ever held in Canada.

We would suggest that the most important subject for discussion at this convention is the Association's attitude toward the tariff.

For several years leading officers of the Association have emulated the example of the ostrich, which hides from danger by sticking its head in the sand, by declaring the tariff was out of politics.

The awakening has been a rude one. Sir Wilfrid Laurier has treated with small concern, almost with contumely, their telegram advising him of the serious condition of the woollen industry and asking that action be taken by the Dominion Government to save it from ruin.

The tariff is not dead. The Toronto Globe, the Montreal Witness and a numerous host of other papers continue to advocate the principle of free trade and the practice of lowering duties under every pretext. It is useless to deny or to disregard the influence of this teaching day after day, year after year, especially when no effort has been made by the body which represents Canadian manufacturers to counteract this influence or to meet the arguments brought out.

The reply of Sir Wilfrid Laurier compels decision on the part of manufacturers. To take no action would be to admit such weakness that the body could never hope to have the influence it possessed in earlier years. To be content with passing a resolution would be almost equally weak. There is but one attitude for the members to take and that is to accept the challenge thrown down by Sir Wilfrid and to use the influence of the association to secure the election of men who will do justice to the Canadian woollen industry.

Speaking of the convention, Industrial Canada, the organ of the association, says:

"It is to the advantage of every manufacturer to make the influence of the manufacturing interests of the country felt, and there is no better way of accomplishing this than by turning out in force at the annual meeting. It has become a habit with a lot of newspapers and public men to treat the manufacturers and the manufacturing interests of this country as of very secondary importance. For instance, the damage already done and the complete ruin threatened to our woollen industries have not awakened the protests from the press and from public men generally that one should expect. A threatened crop failure strikes dismay to everyone, but the ruin of a great industry through unfair competition from abroad is largely viewed as a matter of course. The closing down of the largest pickling plant in Canada from the same cause is dismissed with a few lines in the press. It is not right that these things should be matters of such little importance to the public, and it is time that public sentiment was educated to view them in a different light."

How can it be expected that the press and public men will enter the fight for higher protection when the Canadian Manufacturers' Association, the representative organization of all classes of manufacturers, contents itself with resolutions worded so as to give offense to neither those members who want higher duties or those who want lower duties?

The live issue for the Montreal convention is the tariff.

SHALL THE WOOLLEN INDUSTRY BE RUINED?

In a telegram to Sir Wilfrid Laurier the Executive Committee of the Canadian Manufacturers' Association pointed out that there is serious danger of disaster to the woollen industry of Canada if manufacturers of that class of goods were not given protection from the inundation of the Canadian market by cheap woollens from Europe.

Sir Wilfrid Laurier knew well that the Canadian Manufacturers' Association was impotent; that one section of its membership favored lower duties while another section were protectionists; that any organization so divided against itself need not be feared. So he snapped his fingers at the Association and frankly stated that his great concern was to keep down the cost of woollens in this country, where the sturdy winters make warm clothing a necessity.

This reply of Sir Wilfrid's might be fair and reasonable if Canada were a free trade country and the manufacturers of woollens were asking favors greater than are now being granted to other classes in the community. It is, however, the fact that practically every class in the community is benefitted by protective measures of one kind or another to a greater extent than the woollen manufacturers. On almost every product of the farm or market garden the farmer is protected.

The woollen industry is one that should receive encouragement from the Canadian Government. The very fact that the severity of the climate in the winter months is such that heavy woollen clothing is a necessity is reason why an industry should be built up in Canada which shall supply the Canadian people with suitable clothing at

reasonable prices. It is absurd that Canada should export large quantities of raw wool while her manufacturers of woollen goods are being ruined because they are not protected against the flooding of this market with cheap, shoddy products.

It is too, an absurd discrimination to pay to the manufacturers of steel rails millions in bounties in addition to protection to the extent of $6 per ton, and to permit the woollen industry to languish to the point of disaster because of inadequate protection from European woollens.

It is clearly a case of politics interfering with justice or good business. The farmers have an association in which the membership is not divided against itself but which is unanimous as well as outspoken in favor of lower duties. For years the Canadian Manufacturers' Association has been quiescent in the matter of the tariff. Knowing the lack of harmony among its members on this point its leaders have declared "The Tariff is out of politics." Now when there is danger to a large section of its membership it is treated with contempt, and a frank and open attempt is made to win the favor of farmers and other buyers of woollens at the expense of those members of the Association who are manufacturers in woollens.

We do not believe this would be good politics if the representatives of the manufacturers were as aggressive and astute as they were in the early days of the Association.

Sir Wilfrid Laurier has declared in favor of cheap European shoddy clothing rather than good strong Canadian made woollen garments at a reasonable price. If a strong organization were to accept the challenge we believe the country would rally to the support of the Canadian made product as it did in 1878, and the Liberal leader, who is quick to read the mind of the average voter, would soon announce his intention to give a fairer measure of protection to the Canadian woollen industry.

TECHNICAL EDUCATION IN NOVA SCOTIA.

The laying of the corner stone of the Nova Scotia Technical College on Spring Garden road, Halifax, was made impressive and interesting by the presence of Lieutenant-Governor Fraser, Premier Murray and A. H. MacKay, superintendant of Education, of Nova Scotia; President Falconer, of the University of Toronto; Dr. Allison, President of Mount Allison College; Dr. Hutcheson, President of Acadia; Dr. Boulden, President of King's, and Dr. Eben MacKay, of Dalhousie.

The building according to the inscription on the corner stone is "devoted to science and industry."

Manufacturers throughout Nova Scot a will greet with pleasure the news that the construction of this building has been commenced. The need of technical experts in all classes of industry has already grown to remarkable proportions. Such work will give ample scope to the keenest minds and the most ambitious temperaments. It is, therefore, desirable that our young men should be given at home full opportunity to fit themselves for such work.

President Falconer, of Toronto University, delivered a thoughtful but stirring address on this occasion. He regarded the establishment of the technical college as an inevitable outcome of the industrial progress, and believed that the wise step taken by the Government of Nova Scotia would have to be supplemented by Federal action.

We trust that the Federal Government may soon be made to see the wisdom and necessity of giving their share of support to technical education in Canada.

An Announcement to Our Readers.

Four Issues a Month Instead of Two.

A CRITICISM WE HAVE HEARD.

The criticism of Canadian trade papers most frequently heard is that they attempt to cover too wide and diversified a field: that they lack the specialized quality and hence the great interest to one class of buyers which is so true of United States publications.

This criticism has been made of the CANADIAN MANUFACTURER. It has been argued that if we devoted the paper more definitely to the special problems of certain departments of factories and mills it would be of great value to both reader and advertiser than is possible in a paper devoted to all kinds of industrial problems.

Had we heard this criticism from but one reader we might not have been so impressed with it as has been the result of our hearing this from so many friends of the paper.

For nearly two years we have studied this suggestion from every side. We soon admitted its wisdom, but it has taken us many weeks to decide how best the paper could be given the specialized direction which would make it of the utmost value to the practical men in manufacturing concerns.

We have finally solved the problem.

CANADA'S GROWTH CREATES NEW HEADS.

There has been a remarkable development throughout Canada during the last five years. Population has quickly increased, new towns have sprung into being, with new stores of all kinds and each adding to the demand for all classes of goods. One result has been the general extension and expansion of manufacturing.

As the demand has grown so has competition, and with it the necessity of specializing in the production of all classes of products, to ensure standards of size and quality and to make possible greater economy or increased production.

Hence all along the line men in authority in Canadian factories have been specializing. One devotes all his time to one department and its problems, while another gives all his attention to the intricate needs of another branch of the concern's activities.

To be of greatest possible service to manufacturers we believe we must make this paper of interest and value to these specialists.

To Reach the Practical Men.

The purpose of this paper henceforth must be to give constant attention to the problems that are being faced daily by the practical men in charge of various departments.

In this we must recognize the fact that the expert in one department need know little of the problems in other departments of the factory. Hence to make the paper of value to the specialists in one department the paper should be devoted exclusively to that department.

To do this has necessitated much broadening of the scope of the paper, and, at the same time, serious extension of outlay in several directions.

It has been found necessary to increase the number of issues each month from two to four and to give to each of them a distinct, definite direction—to devote each of them to a separate, specialized field and its needs.

The new arrangement goes into effect next month, when the following issues will be published:

September 4:—Office Edition.
September 11:—Construction and Equipment Edition.
September 18:—Power Edition.
September 25:—Machinery and Supplies Edition.

It will be seen at once that by this arrangement each issue in the month will cover a field quite separate and distinct from that covered by each of the other issues. The direction of each edition will be as below.

The Office Edition.

We are particularly pleased to have completed our plans for publishing one issue every month to be exclusively devoted to office work and needs.

For many years the office work in manufacturing concerns as well as in commercial and financial institutions did not receive the share of attention it deserves. Lately however, manufacturers and merchants have been forced to recognize the fact that only by the proper arrangement and systemizing of the office and executive work is it possible to harmonize and bring to the greatest efficiency the work in all departments of the business.

Now this department is receiving attention on every side. Such papers as "System," "The Bookkeeper," "Factory," etc., have won a wide clientele by devoting all their attention to this field, while at almost every industrial gathering some attention is given to office work.

In this edition no attention will be given to mechanical matters; the reading pages will be exclusively devoted to office needs and appliances. No advertising of machinery or power equipment will be accepted; all the advertising pages will be reserved for firms desiring to sell such office equipment as typewriters, adding machines, addressing machines, duplicators, time recording clocks, office stationary, including loose leaf systems, blank books, envelopes, carbon papers, inks, etc.; office furniture such as desks, chairs, index cabinets, filing cabinets; also to firms who make a specialty of printing, designing, engravings, etc.

We have already secured such support for this issue that its success is ensured beyond question. We hope to give in this edition much information of great value to managers, accountants, bookkeepers, advertising managers and others responsible for office work in factories mills and warehouses, as well as in other large offices.

The Machinery and Supplies Edition.

Labor saving machinery and tools have in recent years effected such radical economies in manufacturing that one of the great essentials to the earning of dividends in a factory or mill is to keep in touch with knowledge of the most productive and economic machinery, tools and supplies.

It is the fact that machinery which is the most up-to-date in its class to-day may be superseded a year from now by a machine so much better that it will be profitable to send to the scrap heap the one just installed. It is also the fact that one factory containing the most modern machinery may yield a profit while a neighboring factory making the same line of goods but with out-of-date machinery, may show a loss year after year.

This need of the manufacturer is so great that we have decided to devote one issue entirely to "Machinery and Supplies." We will endeavor to make this edition of value to, in addition to the owner, the superintendent, the foreman and expert men who operate machinery, and who are frequently consulted when new machinery is to be bought.

Several pages in the paper will be devoted to machine shop practice and to the improvements in machine tools, tool steel, shop supplies and equipment. Another department will be devoted to wood-working machinery, as such a large proportion of our readers have either a pattern room or a wood-working shop. Considerable attention will also be paid to foundry work, where labor saving devices are now working quite a revolution.

We expect this edition to steadily grow in value and importance to a wide circle of readers.

Four Issues for Every Subscriber.

As this change is merely an extension of the work of The Canadian Manufacturer every paid up subscriber will receive each of these four editions each month.

We believe that in thus extending the work of the paper we will make it of such unquestioned value to all classes of manufacturers that every industrial concern of any consequence from the Atlantic to the Pacific will give it cordial support and close attention, not only to its reading columns but also to its advertising pages.

Furthermore, we hope to build up an important additional circulation for each separate edition by placing it prominently before the practical men in the field it covers.

CONSTRUCTION AND EQUIPMENT EDITION.

Of the four issues in the month this number will be the least special in its nature. We will endeavor to make this number of value to the owner and manager—the men who have the final decision as to whether an addition will be made to the plant next spring, as to what type of power equipment will be installed when the plant is enlarged, as to what machinery will be ordered for certain work, and as to whether a brick, or brick and steel, or reinforced concrete or a cheap wooden building will be put up when the extension is being made.

In the main this number will be devoted to factory and mill construction, but other matters of moment to the owner and manager will from time to time be published in this number.

THE POWER EDITION.

We look upon our new POWER EDITION as one of the most necessary publications in Canada at the present moment.

In the past year THE CANADIAN MANUFACTURER has probably devoted more attention to power problems than any other paper in Canada. Yet we have been forced to the conclusion that this field is so important and its problems so intricate and numerous that a paper exclusively devoted to this field and its needs is much needed, not merely by the advertiser but by the practical men who buy power equipment and supplies, and who are responsible for their operation.

In the POWER EDITION of THE CANADIAN MANUFACTURER no attention will be paid to the problems of the office, the machine shop, the foundry, the wood-working shop or any other problems outside those involved in the generation and transmission of power. No advertisements of office equipment, of machinery, structural materials, etc., will be admitted in this number; the advertising pages will be exclusively devoted to the advertisements of steam engines, boilers, condensers, and engine room specialties, gas engines and producers, electrical machinery and supplies, belting and other transmission equipment, fuel, lubricating oils, etc.

Economical Auxiliary Power Appliances

BY W. S. STAFFORD, M.E., IN CLAY RECORD.

There are many devices on the market to-day, calculated to save time, labor, fuel, etc., and if we were to adopt them all would, according to advertised claims, get our power for nothing. This point is well illustrated by the experience of a salesman selling a patented stoking device, who told an old time brick-maker that if he would adopt the same that he would save about $2.00 on the cost of burning a thousand brick. The bricks were at that time costing approximately $1.90 per thousand to burn. Some claims made for money saving devices are just as absurd. However, there are many valuable contrivances now being sold that no up-to-date power plant should be without. Some are for the purpose of reducing operating cost, while others are intended to increase the efficiency of the plant.

OIL SEPARATOR.

An oil separator is very necessary in any power house where the exhaust steam is utilized for heating the feed water; used for heating system or for manufacturing purposes. It is a fact that most good feed water heaters are fitted with oil separators, but usually they are not as effective as an independent apparatus would be. Too often the capacity of oil separators is greatly over estimated, and as a consequence, results are not satisfactory. To thoroughly separate the oil from the exhaust steam, every particle of the latter must come in contact with a metallic surface. An ordinary pipe will act as an oil separator in a small way, but only that steam coming in contact with the sides of the pipe is purified, the balance blowing through the center of the pipe, impregnated with oil as a result of not having been in contact with a metallic substance. Satisfactory results cannot be obtained from an oil separator unless it is of sufficient capacity.

FEED WATER HEATER.

The saving and efficiency effected by the use of a good feed water heater in a power plant is most important. There are two types of heaters; open and closed. The former is by far the most popular and unquestionably the most efficient. The principle involved in nearly all open heaters is the same. The water inlet is at the top and flows through a series of saucer shaped pans. The exhaust inlet being below the pans and the outlet at the top of heater, the course of both water and steam is through the same channels, the former being down and the latter up. As a result, if connections are properly made, the water is heated to 204 to 210 degrees Fahr. The greater part of the scale forming impurities in the water are precipitated on the pans instead of being pumped to the boiler. After passing through the heating chamber the water goes to the filtering chamber of the heater. Coke, hay or quartz is generally used as a filtering material. From this point the water is pumped to the boiler, and a proper screen should be placed over the pump suction to prevent any of the filtering material from getting into the pump. In some makes the filtering chamber is the bottom section of heater and the pump suction at the top of this part of heater. When this is the case, the water, already heated, should enter the chamber through a pipe extending down through the filtering material and nearly to the bottom of the chamber. When this is done and the pump suction is placed near the top, the water is forced up through the filtering material, thereby insuring better results. Before entering the heater, the exhaust steam should pass through an adequate separator so that the water will be perfectly free from oil before going to the boiler. The best plan is an independent apparatus set close to heater on exhaust line. Some heaters have arrangements for the steam to pass through or over an oil separator after it has entered the heater, but as this usually consists in a small series of corrugated baffle plates, it is neither satisfactory nor efficient. The oil separation should be thorough, not only on account of necessity of keeping the feed water free from it, but also if steam leaving the heater is to be used for manufacturing purposes or heating system. To keep heater as efficient as possible, frequent cleaning is necessary so that it will not become choked with dirt and sediment. In the closed type of heater the steam does not come in contact with the water. It is usually constructed so that the water is contained in a series of tubes surrounded by steam, or the contrary; the steam being in the tubes while the water circulates about them. This type of heater possess very few, if any, of the advantages of the open type. Approximately one per cent. in fuel is saved for every ten degrees the feed water is heated, which amounts to quite an item at the end of the year. All good open heaters are guaranteed to heat the water from 204 to 210 degrees Fahr. when properly connected. In addition to the saving effected, the higher temperature does away with the strains caused by unusual expansion and contraction in pumping cold feed water to the boiler. The advantages of extracting a great percentage of the scale forming impurities in the water are obvious. This fact also effects coal consumption as well as adding to the life of a boiler.

STEAM SEPARATOR.

The value of a steam separator is well known in most plants. It is very important that the water condensed in the steam pipe, especially long lines, should be drawn off before reaching the engine. The principle

employed in most successful steam separators is the sudden change of direction in the current of steam, the momentum carrying the particles of water against the obstruction or pipe bend that causes change in course of steam. Proper provision should be made at this point for drawng off the water. It is customary in long steam pipes to place a large drum as near the engine as possible for trapping the condensed water. This drum should be of ample size to give best results. The use of a steam separator would have prevented many serious accidents caused by the drawing of water into the cylinder of the engine.

Oil Filter.

The purchase of an oil filter for the engine room is sometimes looked upon as an unnecessary expense, but it is surprising how many dollars can be saved by their use. Proper provision must be made for catching the used oil as it comes from the engine, or from bearings in any other part of the plant. This will, of course, contain many particles of foreign matter, which are easily separated from the oil by the use of a filter. Oil can be used over many times and the consequent saving in a year will, in most cases, pay the cost of the filter. Most engines, especially high speed, are equipped with crank and eccentric oil guards, by means nearly all of the oil after being used can be drained to a central reservoir. It can be easily arranged so that the waste oil from all parts of the engine will gravitate to this tank, which could be located conveniently near the filter.

Mechanical Stoker.

There are many types of mechanical stokers and they are all more or less successful, depending upon the conditions under which they are operating and the character of the coal used. They have been in general use since James Watt invented the first one in 1785. There is no question of the advantages of a device of this kind, but a careful study of the kind of coal to be used and other conditions, is very necessary before purchase is made. Although in late years, stokers have been greatly improved, there still exist many mechanical defects that detract from their efficiency. As stated before no stoker will work all kinds of coal successfully and your own conditions should be carefully considered before selection is made. Some power users do not hesitate to say that a good fireman is better than any stoking device, but this can be seriously doubted. Hand firing, no matter how carefully done, has never produced the results of a good stoker properly installed and managed. Under average conditions, from five to twenty per cent. is saved by the use of mechanical stoking devices, depending entirely upon conditions. A wonderful saving, not only in coal, but in labor is effected by the use of stokers and an inferior quality of coal will sometimes, by their use, show as good results as a better grade when hand fired. With a fair quality of coal and when they are not pushed to their maximum capacity, mechanical stokers are efficient smoke preventers.

As stated before there are many devices on the market, for use in power plants, of unquestionable merit, but they do not always suit all conditions. The question of producing power economically is an important one and every detail of present and possible future conditions should be carefully considered. Every part of a power plant requires a knowledge of details and close attention to same. All the devices in the world for money saving or economical operation, lose their value when not operated with intelligence and care. A feed water heater is of no value if it has been allowed to become choked or is not properly connected; a steam separator will render no service if proper provision is not made for trapping water; a stoker will not effect a saving if not properly operated; and examples of this kind can be cited of every part; of every machine and apparatus in the power house, down to the smallest oil cup. Carelessness may be the cause of severe losses, not only in dollars but in lives. The writer once knew an engineer who always kept the crosshead and crank pins on his engine loose so that he, as he expressed it, could hear it running when he was in another part of the plant. The plant this man operated was put in as an experiment to produce power, if possible, for less cost than central station service. Needless to say it was a failure.

System : The Machinery of Business

By Harry W. Ford, in the Business Philosopher.

The other day I called up an engraving house to inquire about the progress of certain work I was having done. After I had held the telephone five minutes this answer came back:

"Mr. So-and-So is not here to-day, so we can't tell you about that work."

How is that for system?

Suppose Mr. So-and-So never had come back, what would have become of the work? Would I ever have been able to find out about it? And was I to believe (as was natural), that when Mr. So-and-So was taking a day off all the work which he was supposed to look after stopped, and awaited his return?

Another day I sent to the stock room for a certain book. The answer came back:

"Miss Jones is not here to-day, and no one else knows just where those books are kept, so we can't get one for you."

There was something the matter in that stock room, as there was in that engraving house. What was it?

There was something wrong with the system in either place; or rather, neither had any real system, because it was not automatic.

System is the machinery of business. Machinery is automatic in its work. The machine that is not automatic is not mechanically perfect. Wind a watch and it goes ahead keeping the time automatically until it is run down. Start an engine; it will run automatically just as long as the causes for its operation exist. Start a screw making machine; it will automatically turn out millions of different kinds and sizes of screws just as long as you keep the power on and keep feeding steel into the machine.

For all utilitarian purposes those machines are most valuable which have in the greatest degree these automatic qualities.

The same is true of system. That system is the best which is most automatic, that is, which enables the routine business of any department to proceed with the minimum of attention from individuals—especially from any one individual. Any system that exists entirely under one person's hat is not a system, for if that person should get hit by a street car some morning the work of the entire department would be disarranged.

The head of a department, or of a business, who tries to systemize his department or his business should have as his aim the putting of that department or business on such a basis that it will run itself automatically without his having to give attention to its details. If he had that department or that business on such a basis that he could wind it and start it, then leave it to run just as he does his watch, then he would have got a system as near perfection, as it is possible for him to get it.

System is that thing which enables the engraving house to take care of Mr. So-and-So's work even though Mr. So-and-So is taking a day off. It is that thing which enables the stock room to get, instantly, anything that is called for, whether Miss Jones, or any other particular individual, is there or not.

There is another aspect to this question of system which is worthy of comment.

The cogs, the principal parts of this machine of system, are human beings—employees. The machine will not do its work unless these parts are properly assembled and are kept in their proper places. One great trouble with the system machine in a great many places is that the parts are not properly assembled.

For this condition the men at the top are most to blame. As a rule they are more apt to get out of their proper places, and try to do things which they are really not intended to do, than any one else. They too often fail to pick out the things which they really ought to do, and which they alone can do, and concentrate their attention upon those things.

The other day I was ushered into the office of the general manager of a corporation capitalized at a quarter of a million dollars, that is doing a business of a million dollars annually. The business of this corporation has not shown any increase for a number of years, and before I had been in the general manager's office a minute I knew why. The G.M was dictating a letter, and this is what he said:

"Mr. John Blank, Blankville, Ills. Dear Mr. Blank: Enclosed you will find check for your weekly drawing account, which please accept with best wishes. Please acknowledge receipt on the blank enclosed.

"Yours truly,"

That general manager is riding in the wheelbarrow that dumps at the scrap-heap. There is one word written over the entrance to his office—Ichabod. He does not realize his proper place in the system machine, or

if he does, he fails to get into it, which is worse. A man in his position has no more business dictating that sort of a letter, and taking up his time with that sort of work than I have to be running a flying machine.

A man gets paid for what he does.

Sooner or later that general manager is going to get paid for writing those silly form letters to his salesmen, enclosing remittance checks. He probably thinks he is economizing on the salary of an assistant cashier or bookkeeper. In reality he is holding a ten-cent piece so close to his eye that he can't see the dollar which is only a yard away.

I know another man, president of a manufacturing corporation, who spends most of his time writing notes, all carefully lettered and numbered and indexed, about the little details of his business that really do not amount to anything at all A lot of big things pass him unnoticed He doesn't know what is going on in his own factory and some of his department heads do not know him on sight.

I know another man, holding a high executive position, who begrudges a half-hour once a week to the discussion of advertising and sales plans, because he has to 'get back to work." Work in this instance means a roll top desk with six or seven wire baskets bulging with letters and miscellany of all kinds, a good part of which could be taken care of by employees earning probably one-fourth as much money as he is paid.

Here is just one more little story—a bright one, to illustrate the better way:

The president and chief owner of one of the biggest manufacturing corporations in the world, was showing another business man around his plant. They passed by the great power house—one of the largest in the world, and saw a long line of coal wagons unloading into the automatic stokers that ceaselessly pour coal into the furnaces below.

The visitor asked: "How much coal do you use in a month?"

The answer was: "I don't know."

The visitor expressed surprise. He was shocked to learn that the head of this concern didn't have any idea of how much coal he used a month.

But the host said. "I not only do not know, I do not want to know, that is none of my business, I have a man down here who is hired to look after that part of the business; that is not important enough to command my attention, all I want to know is that there is enough coal bought and turned in here every day to keep this factory going. I am only interested in the general result. I can hire a man to get the coal for me, but I cannot hire a man to do certain other things in this business—and I am going to do only the things which I cannot hire other men to do."

That man knows what system is. He goes away to Europe or on a trip around the world, and his business goes right on like the watch that is wound up. He comes back once in a while simply to wind it up again.

Canadian Production of Iron and Steel

According to the most reliable source available, the report issued by the American Iron & Steel Association, the production of pig iron in Canada during the first half of 1908 is much larger than in the same period last year, but not as large as in the second half of 1907. The report, as given in the bulletin, is as follows:

Total Production. The total production of all kinds of pig iron in the Dominion in the first half of 1908 amounted to 307,062 gross tons, as compared with 311,046 tons in the last half of 1907 and 270,100 tons in the first half. This is a decrease of 3,984 tons as compared with the last half of 1907, but an increase of 36,962 tons as compared with the first half. The following table gives the half-yearly production since 1905, as ascertained by this office.

Periods.	1905.	1906.	1907.	1908.
1st half.	210,206	282,010	270,100	307,062
2nd half	257,797	259,947	311,046	.. ..
Total..	468,003	541,957	581,146	. .

Classified Production. The production of Bessemer pig iron in the first half of 1908 amounted to 60,225 tons, against 51,887 tons in the last half of 1907, and 73,623 tons in the first half of that year. This is a decrease of 21,662 tons as compared with the last half and of 12,798 tons as compared with the first half of 1907.

The production of basic pig iron in the first half of 1908 amounted to 195,209 tons, against 179,854 tons in the last half of 1907 and 161,403 tons in the first half. This is an increase of 15,355 tons over the last half of 1907 and of 33,806 tons over the first half.

The production of malleable Bessemer, foundry, forge, ferro-silicon, and other grades of pig iron not enumerated above in the first half of 1908 amounted to 51,628 tons, against 49,305 tons in the last half of 1907 and 35,674 tons in the first half.

Production by Fuels. The production of bituminous pig iron in the first half of 1908 amounted to 301,673 tons, against 306,772 tons in the last half of 1907 and 265,253 tons in the first half. The charcoal pig iron made in the first half of 1908 amounted to 4,798 tons, as compared with 4,124 tons in the last half of 1907 and 4,847 tons in the first half. In the first half of 1908 and in the second half of 1907 small quantities of ferro-silicon were made by electricity. This production is not included in the bituminous and charcoal figures given above.

Furnaces in Blast. On June 20, 1908, Canada had 16 completed blast furnaces, of which 7 were in blast and 9 were idle. Of this total 13 were equipped to use coke and 3 to use charcoal. In addition 3 coke furnaces were partly erected on the same date, work on which was indefinitely suspended some time ago.

During the first half of 1908 the total number of furnaces in Canada actually in blast for the whole or a part of the period was 14, of which 11 used coke and 3 used charcoal. The number that were idle during the whole period was 2—all coke.

Imports and Exports.—Canada annually imports considerable quantities of pig iron, especially pig iron suitable for the manufacture of Bessemer and basic open-hearth steel. In 1907, the exports of all kinds of pig iron to Canada from the United States alone amounted to 68,296 gross tons. Canada is also a large exporter of steel billets, slabs, etc., the United States alone importing 64,898 gross tons in 1907.

NOTES FROM CANADIAN CORRESPONDENTS.

The Dominion Iron & Steel Co., Limited, had three of its four furnaces running on June 30. The idle furnace was being relined.

The furnace of the Londonderry Iron & Mining Co., Limited, of Londonderry, N.S., was idle on June 30. No date has been set for blowing it in.

The Nova Scotia Steel & Coal Co., Limited, had its furnace at Sydney Mines banked on June 30. It was to resume on July 15.

One of the two charcoal furnaces of John McDougall & Co., at Drummondville, was active on June 30. The idle furnace may resume in January.

The two coke furnaces of the Algoma Steel Co., at Sault Ste. Marie, were out of blast on June 30. Work has not been resumed on the company's two partly erected furnaces.

The Deseronto Iron Co., Limited, was not running its furnace on June 30. It is uncertain when operations will be resumed.

The Atikokan Iron Co., Limited, of Port Arthur, Ont., banked its coke furnace in December, 1907. It was not active during the first six months of 1908.

The Hamilton Steel & Iron Co., Limited, had one of its two furnaces running on June 30. The idle furnace is being relined.

The Electro Metals, Limited, of Welland, Ont., produced several hundred tons of ferro-silicon by electricity in the first six months of 1908. Almost all of the ferro-silicon made contained over 50 per cent. of silicon.

Whitman & Barnes Mfg. Co. to Rebuild.

In reply to an enquiry from this paper The Whitman & Barnes Mfg. Co., St, Catharines, Ont., write: "It is our intention to rebuild the plant at St. Catharines."

This will be welcome news to many Canadian concerns, for the Whitman & Barnes Co. is one of the oldest and most respected manufacturing concerns in Canada. Their plant, it will be remembered was destroyed, by fire last April, throwing several hundred men out of work.

The new plant will be erected on the site of the former one and work is to be started on it at once.

A report from Sydney, C.B., says that Lord Northcliffe, of London, England, owner of the Harmsworth publications, has secured large coal areas at New Campbellton and Alder Point, C.B., and that this is likely to be followed by construction of docks and the dredging of Little Bras d'Or, so that coal can be shipped from that point. The Harmsworth interests need the coal for their lumber and pulp mills in Newfoundland.

The Canadian Building, Ottawa, being built by the Imperial Realty Co., will be equipped with Jones Underfeed Stokers.

Systematization of Office Work in Clay-working Plants.

ADDRESS BY C. F. GREEN BEFORE THE IOWA BRICK AND TILE ASSOCIATION.

With the keener competition which is evident in the present day business world, all classes of manufacture and trade have become more and more specialized. The very growth and prosperity of business in general have demanded that specialists take hold of and push to the utmost of economy and profit, each department of a business enterprise.

The former one-man management has given place to the division of labor, and system has been developed to bind the parts together. But system, like the causes to which it is due, has grown, and is growing until to-day it is not only desirable but necessary for every business.

The making and selling of brick and tile, probably needs more of a system than any other enterprise of like size, for the manufacturer gathers his own raw material and distributes his own product to the consumer. He should, therefore, study his business thoroughly and install a system which would keep an accurate account of every operation. Such a system would necessarily begin at home.

Before a price is quoted, the cost of an article must be determined. A summing up at the end of the year will not answer the purpose, for most of the product is sold and the profit made or lost. An accurate cost account is then the starting point. This account is fed by items originating in two sources—the plant and the office. The former furnishing the cost of production, and the latter the expenses of managing the business and selling the ware.

The cost of manufacture naturally is composed of labor, supplies and depreciation, and each should r minute consideration.

In keeping track .. labor, to simply record the time of each man and pay him is not enough, but his time should be charged to the exact work in which he is employed, thus enabling the management to pick the efficient men, and also keep the force speeded up to the proper limit. This apportionment is best done by the foreman, and serves the double purpose of making him more careful and giving an opportunity to stop a waste of time at once.

Under the head of supplies would come the item of fuel, oil, renewal of machine parts and tools, the keeping of horses, if there are any, etc.

First, a card system which would give up-to-date information as to the price of the various supplies needed should be used. Of course, there are some things needed which must be got from time to time, but there are many others which could be bought in quantity, or contracted for when the price is down, if one knows by comparison with former figures that it will pay to lay in a stock. Then all supplies should be bought by written order made out in triplicate. One to be kept in the office, one left with the supply house, and the third taken with the goods to the factory where the one in whose department it is used, signs the same and returns it to the office. This makes it easy to check all invoices, and prevents all uncertainty as to where the supplies go and what they are for. Such orders are not, of course, needed for the purchase of coal, as the freight bills and car record furnish sufficient check

In paying for supplies on which there is a discount, it will be found convenient to have a desk file with a compartment for each day of the month. Invoices filed in the proper place will automatically be brought to attention one or two days before the discount period expires.

The third item which enters into the cost of brick or tile, namely, depreciation, is the least tangible, and the least considered, but is by no means to be neglected It is often considered enough to charge off 5 per cent. of the entire first cost of the plant, but that is not exact. It is an easy matter, if the extent of your clay is known, to figure out how much stuff it will make and the rate of depreciation is then easily obtained. Then, too, kilns won't last forever, and while they can be patched up, and naturally do need more or less constant repair, which is charged directly to operation, yet there will be a time when they will need rebuilding. The same is true of machinery. When a new machine is needed and the old one has to be scrapped, the cost of a new machine should not be added to the plant, for but one is producing and one is already included in the cost of the factory. Neither would it be satisfactory to charge the whole cost of a machine to one year's output. The same way to treat the matter is to charge to each thousand of brick or tile, a proportion of the cost of the plant based on the known or estimated life of its various parts. Before leaving the subject of depreciation, let me state the opinion that it is failure to reckon with this item which leaves the manufacturer with a worthless plant on his hands and nothing with which to replace it after a number of supposedly profitable years.

To be added to the before mentioned costs are the expenses which comes directly through the office These charges come under the heads of fixed, including taxes, insurance, interest and salaries, and variable, consisting of supplies and the expense of selling the goods and collecting the accounts. There is little to be said of the fixed charges. They are a known quantity, and do not vary with the output, but must be apportioned according to what is made in a given time. The other items are governed by the same laws as are those of the plant. They are just as much a part of the cost of doing business and have the same ingredients of supplies and labor.

Almost as important as the cost of the product is information as to the supply on hand and what may be counted on. This is more particularly true of the tile business. If a record be kept of the stuff made each day, also of what is set, taken out of kiln and shipped, you may feel safe in dealing with customers, and it is an easy matter to fulfill all promises as to delivery.

With the needed information as to the cost and stock, the manufacturer is enabled to intelligently deal with his own problems, and with the users of his product.

No man can be successful and allow the trade to come to him. He may hold the business for a while, but in time some hustler is going out after his trade and will get it. Advertising and constant solicitation are compulsory. Not the spasmodic efforts which waste both time and money, but a systematic campaign which keeps the goods before the public and urges the public to buy Such persistence, if properly handled, is pleasing to the buyer, for it gives the impression that his trade is desired.

To keep closely in touch with customers, a list is invaluable. This list may be conveniently kept on cards having spaces for the name, address, railroad and rate in force, and below a record of quotations and the dates on which they are given. On the reverse side of the card may be kept a record of the customer's purchases and settlements. This card will tell at a glance what a man's value as a buyer is, and whether or not his business is coming in the right direction or going to the competition.

Beside the steady business, there are chance sales made by prompt use of trade journal and other information. Once the buyer is found he should be interested in your goods and quotations made him, based on cost, competition and market condition. When this is done, the matter should not be allowed to rest, but should be followed up until the order is clinched or lost. If lost, the reason, properly studied, will help to get an order the next time. If landed, the terms of delivery and payment should be clearly understood and recorded.

From now on, strictly office system is doing the work. A very convenient book will be found to be one which acts as order and sales book combined. The book is so ruled that when the order is filled, extensions are carried out completing the record and the charge may be posted to the ledger. When the order takes several cars, a line may be left for each as would be the case in a separate sales book. With such a book, orders may be filled with very little care, in the order they are received.

Before leaving the yard all loads should be checked by the foreman, and a report made of the number and quantity of goods. This strengthens one's position in case of claim, and will pay for itself many times over.

In collecting the money when due, a simple system helps materially. When the invoices are made the use of a carbon sheet will give a duplicate which may be filed in a way similar to the one used for your own bills due All those which are paid before the time agreed upon should be removed, and the others, as they come forward will serve as a reminder to start the collection machinery. It is usually sufficient to send a statement of the amount with notice of a draft. If this does not bring the money, by all means make draft as promised. The customer will recognize the seller's right to do this, and will have a greater respect for him than if he were allowed to use the manufacturer's money indefinitely, without protest.

In conclusion allow me to say that I think that a system which follows and guides your business from step to step,

without any waste of office time, is just as necessary as the proper method of treating your clay. I do not believe there is any system, whether card or loose-leaf, which is a panacea for all the office ills. Your own system must be worked out to fit your business just as every other branch has been developed. If this is done, there is nothing to hinder you from conducting your business to the limit of its possibilities.

Definition and Application of Terra Cotta.

ADDRESS BY S. GEIJSBEEK BEFORE THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION.

The name terra cotta is a very old term. It has no Chinese or Japanese origin in regard to its name. The word terra cotta is Italian in its birth, meaning earth baked. Through the centuries of its application, it has held onto its original name, and terra cotta is to-day a common word, found in all modern languages.

The word terra cotta is now mostly employed in connection with architecture. Under a general definition we understand by terra cotta, a hard burned clay, uniform in texture, molded in various shapes, durable, and of good quality. The clays used for such purposes are usually the impure fire clays, and are usually therefore called terra cotta clays

Terra cotta is usually classified among the highest class of the brick and tile industries, and has many features in its manufacture in common with these industries. It is divided into three distinct classes regarding its products:

1. Architectural or Ornamental Terra Cotta
2. Terra Cotta Fireproofing.
3. Terra Cotta Pottery.

Architectural terra cotta and terra cotta fireproofing are both used to a great extent in buildings of large structure. The former is used on the exterior of the buildings to take the place of ornamental or plain stone, and also for many interior decorations. The fireproofing used for interior facings of iron or steel structures will give the building in which it is employed a stability and endurance to resist fire. When properly employed it will make such buildings fireproof.

Architectural terra cotta is usually exposed to the weather, and should, therefore, be weather resisting as well as fireproof. It is either covered with a glaze or has a more or less impervious surface. It should have enough stability to withstand heavy loads without being crushed. Architectural terra cotta specifies very distinctly its character and product, and there is no instance where this term is wrongly applied.

Under terra cotta fireproofing, we find several names for this product in the trade, such as terra cotta lumber, porous terra cotta, fireproofing, hollow ware and others. Among manufacturers and the trade these terms are well known, and bear certain relations to the products made, but conflicting as far as the general public is concerned. Discrimination as to the proper name is sometimes also manifested among the manufacturers for some reason or other. A company calling itself a fireproofing company, indicating that it manufactures fireproofing products, brings same on the market strictly as terra cotta.

Fireproofing or porous terra cotta is a material which nearly completely meets the requirements for absolute protection of fireproof structures. It is easy to handle and erect, and has comparatively a lower weight than other materials. It has refractory qualities, which makes it preferable over other materials. Porous terra cotta, or terra cotta fireproofing, should be strictly called cellular terra cotta, indicating its distinction from architectural terra cotta by its shape and character. It can be classified in three grades, dense, porous and semi-porous. In all instances the manufacturing process is the same, only the hardness of the product after being burned indicates the grade to which it belongs. Terra cotta lumber, while in all points nearly alike to porous terra cotta, is somewhat different in its manufacturing on account of the addition of sawdust to the clay. The former burns off in the kiln, thus leaving the material so soft and porous that nails can be driven into it.

Terra cotta pottery is of an ornamental nature entirely, and consists mostly of statues, lawn vases, garden stands and pots. This class is more often called pottery, and classified with earthenware.

The application of terra cotta has been dwelt upon to some extent in the definition of this product. For a general description of its earlier application, we will have to go back to history. Of the three classes of terra cotta, ornamental terra cotta and terra cotta pottery only have been used in history. Terra cotta fire-proofing is of recent date. Therefore, in speaking of history, architectural terra cotta and terra cotta pottery only will be mentioned, and called for shortness, terra cotta.

Terra cotta was used in art by the Chinese in olden times. The figures and images of their gods were made of ordinary terra cotta, either glazed or brown in color. Judging from some of the relics which have been found, that art was very highly cultivated in those times. Among the older countries of Europe, the Grecian and Roman terra cotta stand even to-day as an example of what can be done in that line. The ornamental panels which we find on exhibition in collections in the Louvre, at Paris, are good examples of their work. In the middle ages terra cotta was again brought to a high state of perfection. The work of Luccia Della Robbia, in Italy, is well known, and still highly prized. His principal work was glazed terra cotta. The decorations were figures in relief, variously colored with yellow, produced by lead and antimony, a dark opaque blue or cobalt, a green produced by copper, and a bad violet produced by manganese.

The door heads of many churches in Florence and elsewhere, the magnificent altar backs and washing fountains throughout Italy are very effective pieces of glazed terra cotta. An altar screen of the collection of Sauvegot consists of four pieces and two pilasters. The ground is a fine azure blue, the figures are white, the fruits are a golden yellow, and the wreaths are green. The piece was made about 1420. In Italy, and also in France, roofing tile and elaborate pieces of cresting were made on the same style as terra cotta. Chimney tops in different shapes are still found in evidence to-day.

The epoch of Della Robbia, in Italy, was followed by that of Bernard Palissy, in France. While Palissy did good work in terra cotta, his main efforts were centered in pottery. However, the French have been using terra cotta ever since, largely for statues and medallions. The last three centuries terra cotta has been steadily advanced to a permanent place in the field of art and manufacturing. In England and France terra cotta window trimmings and doorheads have been used for more than a century past.

According to Barber, the Encyclopedia Britannica, published in 1815, contained the following note relative to terra cotta. "Woodlidge and others after him have endeavored to excite brickmakers to try their skill in making a new kind of brick, or a composition of clay and sand, whereof to form window frames, chimney pieces, door cases and the like. It is to be made in pieces, fashioned in moulds, which, when burnt, may be set together with fine red cement, and seems as one entire piece. The thing should seem feasible."

In modern times terra cotta has found an ever increasing application. It is now considered a material which allows much richer treatment in regard to ornament at reasonable prices than carved stone. It is regarded as being excellent material for decorative purposes, and well adapted for the steel and reinforced constructed buildings of to-day. In 1853 the first terra cotta was used by Architect James Renwick, in New York, and consisted of brackets for cornice support. Since that time terra cotta has been employed more and more. Its application in architecture is considered to-day a necessity. The veneering of steel and reinforced concrete constructed buildings with architectural terra cotta is universally adopted by leading architects. We only need to visit and inspect the principal business blocks of our cities, to observe the use to which terra cotta is put. The manufacturers have greatly assisted the architects in perfecting designs in feasibility, and adding stability in execution. There is to-day a great demand for terra cotta in all building lines, and its application in residences has been satisfactory and effective.

Architectural terra cotta and pottery has, therefore, occupied a noble place among the burnt clay products through centuries past, and have given everlasting evidence as to their value for ornamental purposes.

In order to gain an idea as to the value of its application, we find, according to the statistics of the clayworking industries of 1906, published by Mr. Middleton, of the U. S. Geological Survey, that the total amount of architectural terra cotta manufactured throughout the United States was $5,739,460, while the paving and front brick industries in the same period amounted in

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EXHIBITS:

2040—9ft. Heavy Duty Dry Pan.
2042—No. 2 Rotary Automatic Cutting Table.
2044—"999" Brick Machine.
2045—Perfection Hand Represses.
2046—Clay Conveyors.
2047—Four Roll Crushers.
2049—Niagara Hollow Ware Machine.
2052—Victor Repress.
2053—Granulators and Bevel Geared Pug Mills.
2055—Clay Elevating Machinery.
2056—Portable track.
2060—Roofing Tile Designs.
2061—Dry Presses and Dry Press Machinery.
2062—Automatic Tile Cutter.
2063—System of Open Air Drying.
2069—Peerless Smooth Roll Crusher.
2070—No. 3 Brick and Tile Machine.
2071—Standard Pug Mills.
2072—Single Geared Pug Mills.
2075—Semi-Automatic Cutter.
2077—Radiated Heat Dryer.
2078—Soft Mud Machinery.
2079—Belt Apron Type Clay Elevator.
2080—"555" Brick Machine.
2081—Automatic Wet Pan Emptier.
2082—Piano Wire Screens.
2083—No. 1 Automatic Cutter.
2084—Dryer Cars.
2085—No. 3 Hand Dry Press.
2086—Automatic End Cutter.
2087—"777" Brick Machine.
2088—Hoisting Apparatus.
2089—No. 2 Combination Brick Machine.

THE C. W. RAYMOND CO.

The Largest Exclusive Builders of Clay Working Machinery in the World

Dayton, Ohio, U. S. A.

comparision to only $2,000,000 more. The use of architectural terra cotta has steadily grown with years, the value of this product increasing since 1897, $3,898,038, or 211 per cent

It can be considered one of the wares of the highest grade in the brick and tile classification, and its production would, therefore, naturally be looked for in few states. It is reported from only thirteen states in the Union, and of these in only four can the totals be given without disclosing individual statements, there being less than three manufacturers in one state. Of the states for which totals may be given in 1906, New Jersey would still be the largest producer, and, in fact, it will be violating no confidence to say that, were there the totals for all states to be given, New Jersey would still be the leading state, reporting a product valued at $1,682,002, or over 29 per cent. of the total for the country. New York was second, with $967,087, with nearly seventeen per cent. of the total.

Turning to the application of terra cotta fireproofing the field is quite large, and the manufacturers are ever alert to introduce new ideas for its use. It is used for arch construction of floors, girder covering, eye beam soffits, column coverings, partition tiles, roof and ceiling construction, and other applications.

In a report of the San Francisco fire, we find the excellence of terra cotta fireproofing described as follows:

"There is no question but that the best fire resisting material available at the present time, is the right kind of burned clay, that is, a good, tough refractory clay, almost as refractory as fire clay, made into proper shapes and properly burned." A hollow tile floor, with furred ceiling equal to reinforced cement floors, should be made by using tiles in which the minimum thickness of the webb is one inch, and of which the material itself is tough, refractory clay, made porous by the addition of sawdust. Such tiles should, however, be burned to a point where the clay itself is just short of vitrification in regard to shrinkage. All the interior angles where the webs of the tile join each other, should be rounded to a radius of at least one inch to one and one-half inches. If necessary to secure proper burning, a small hole three-eights to five-eights of an inch in diameter might be allowed through the body of clay at the intersections of the webs.

In searching for data as to the date when fireproofing was first employed, we are unable to find sufficient data to form any conclusions. A patent issued on December 9, 1856 to M. & J. H. Buck and F. A. Cushman, of Lebanon, N.H., for a machine for pressing hollow building brick and building tile, is about the first direct data as to the commencement of hollow tile.

The large losses of the recent great fires of Rochester, Baltimore and San Francisco have created a large demand for this material. From an annual production in 1891 of $514,637, the annual value of production has increased to $3,652,181, in 1906 According to the government statistics, fireproofing was made in eighteen states New Jersey was the largest producer, with $1,399,233, Ohio was second, and Illinois was third in rank of value manufactured.

The industry is still in its infancy. It is, however, rapidly growing in importance. It has a strong competitor in concrete, but, with proper judgement in manufacturing, putting only such material on the market as will stand the test in great fires, terra cotta fireproofing will be an important branch of the clayworking industries for all time to come. (Applause.)

Where Brick is Better Than Asphalt

A peculiar result of an exceptionally heavy rain occurred in Dayton, on Sunday, July 26, the rain amounting almost to a cloudburst, washing out an asphalt pavement. Our illustration shows Warren Street which is on a slight downward grade as one looks at the picture, and at the time of the storm was being crossed at right angles by an open sewer trench. Above this trench there is considerable of a grade which caused a heavy onrush of water, rapidly filling the trench, and then forcing itself between the sheet asphalt and its foundation, tearing up the entire street for a distance of two blocks, which will have to be repaved.

The photograph showing this break was furnished us through the kindness of the publicity department of the C. W. Raymond Co., Dayton, Ohio. It was taken early Monday morning following the storm, which shows the street precisely as it appeared when the water receded The street at this point was flooded to the extent of two feet or more If this had been a brick paved street the brick would have undoubtedly washed forming at some point a breakwater or barrier sufficient to break the force of the water, thus preserving the rest of the pavement. However, the asphalt being one solid sheet offered no resistance after a start was made and broke in a very similar manner to river ice, following the first heavy rains.

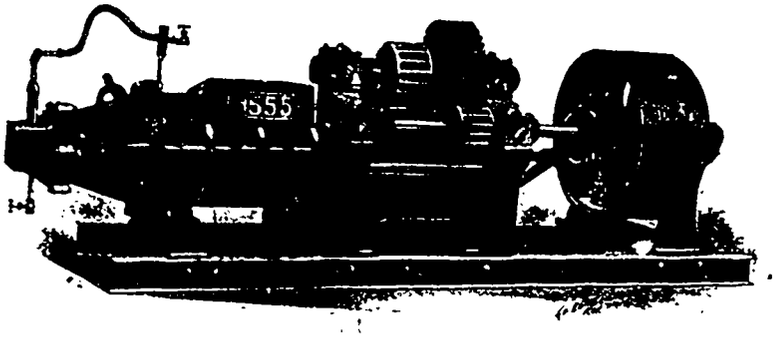
Asphalt Pavement Destroyed by Rain Storm.

WILL BUILD HYDRO-ELECTRIC POWER LINE.

The Ontario Hydro-Electric Commission has awarded to the F H. McGuigan Construction Co. the contract to construct the 293 miles of transmission line for the Ontario Government at a cost of $1,270,000. This will mean a saving of $250,000 as compared with the figures which the Government engineers had agreed upon. The work is to be completed within fifteen months and the material to be used in the cables is aluminum wire. There will be 3,176 towers. Additional options have been secured by the Commission from the contracting company for double the mileage at the same prices in case other contracts are made with additional municipalities, necessitating further line construction. The lines included in the contract are from Niagara Falls to Dundas, Dundas to Toronto, Dundas to London, Dundas to St. Mary's, and Dundas to St. Thomas.

Mr. F. H. McGuigan has been familiar to Canadians for many years as a prominent railway man. He is a genial and unostentious Irishman, with a decided executive ability, and has had an extremely successful career. Forty-five years ago Mr. McGuigan was a water carrier for a construction gang on the Erie and Pennsylvania road. In 1880 he became a foreman of construction and divisional roadmaster on the Wabash. Promotion followed quickly to superintendent of the western division. In 1896 he was appointed general superintendent of the Grand Trunk. In April, 1907, Mr. J. J. Hill obtained him as vice-president for the Great Northern Railway, a position he resigned of his own will but the cause of the resignation was kept secret. Mr. McGuigan's chief forte has always been construction.

The Wm. Davies Co., Limited, Toronto, are installing a Jones Underfeed Stoker under a new boiler. This is the fifth Jones Stoker in this plant.

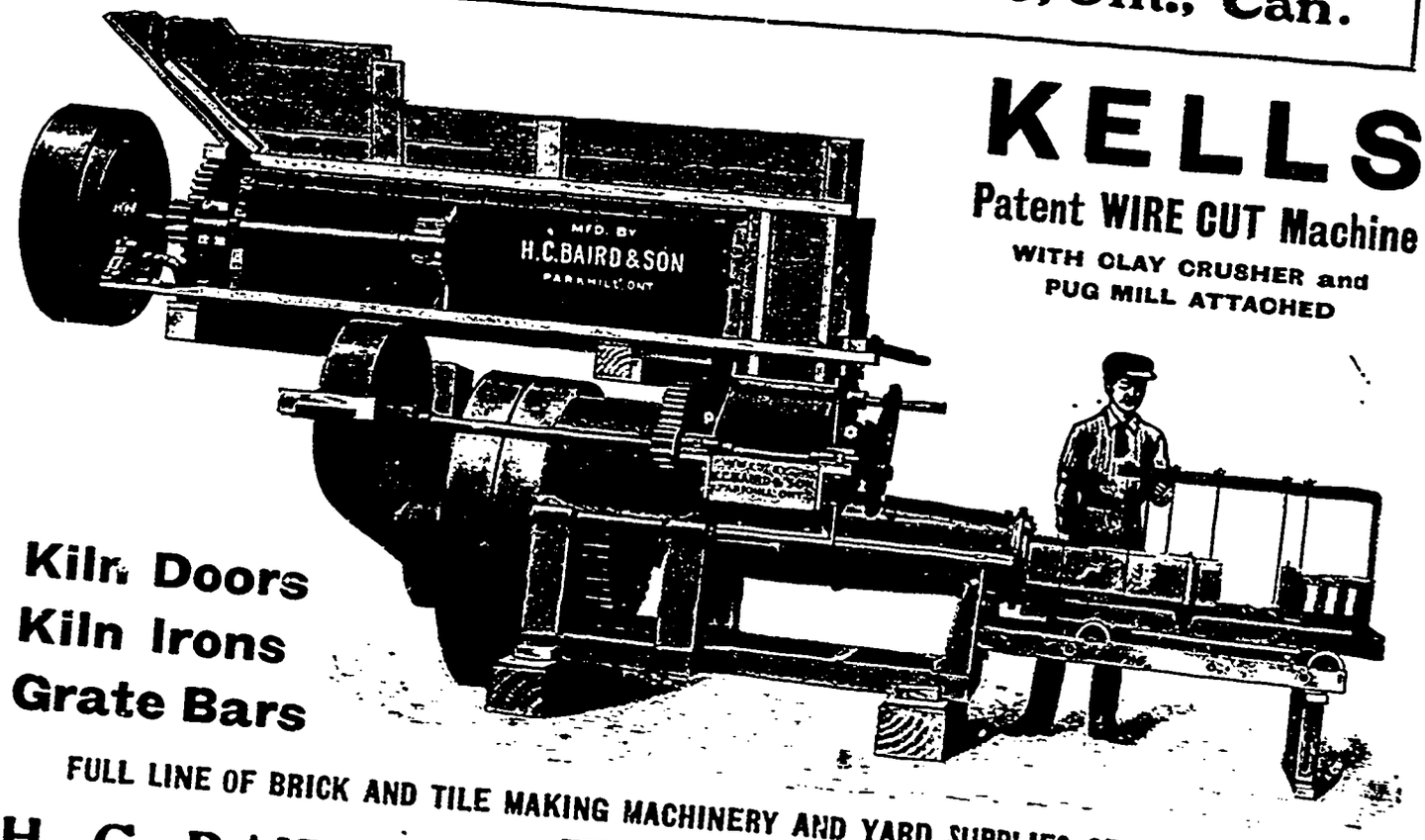


No. 555 BRICK MACHINE

You, Mr. Brickmaker, spend more or less money in repairs every year. Don't speculate by simply buying "a machine." **INVEST** in the **BEST.** It's surprising the difference it makes in the balance sheet at the end of every year.

Send for our new 1908 Catalogue. It shows the best.

BECHTELS, LIMITED, Waterloo, Ont., Can.



KELLS

Patent WIRE CUT Machine

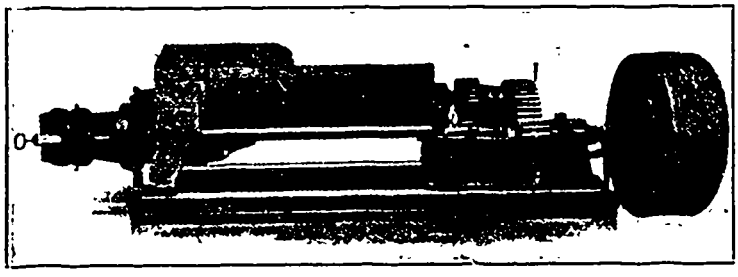
WITH CLAY CRUSHER and PUG MILL ATTACHED

Kiln Doors
Kiln Irons
Grate Bars

FULL LINE OF BRICK AND TILE MAKING MACHINERY AND YARD SUPPLIES OF ALL KINDS

H. C. BAIRD, SON & CO., Limited, Parkhill, Ont.

Imperial Size Brick an Tile Machine



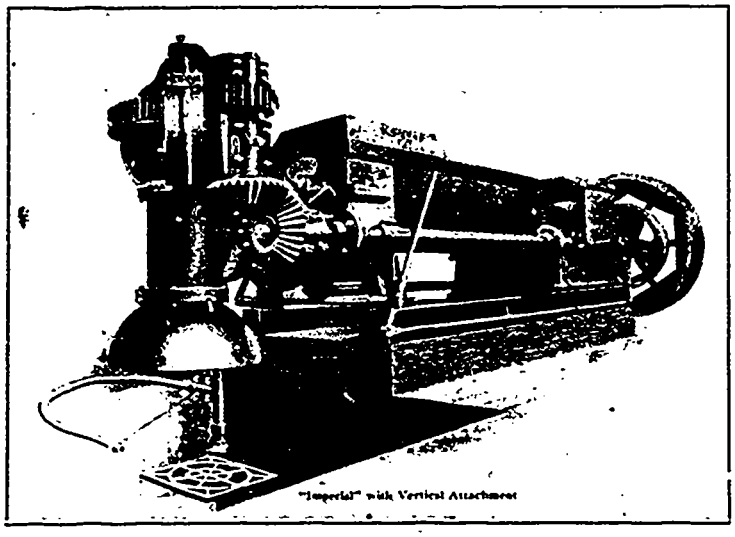
The J. D. FATE COMPANY

Manufacturers of

Clay-Working Machinery

PLYMOUTH,
OHIO,
Richland County U.S.A.

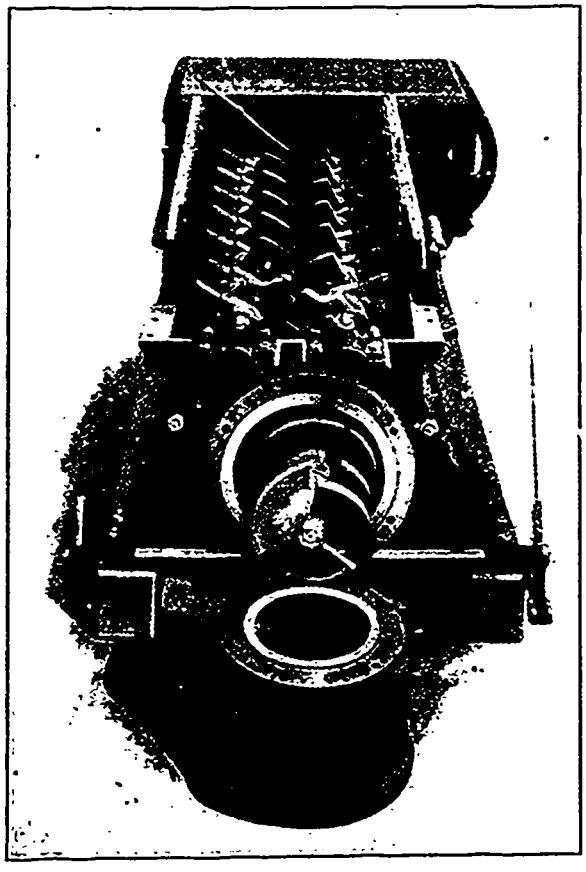
It is universally conceded that the most practical type of Brick and Tile Machines are those in which are combined a thoroughly effective Pug Mill with a first-class Machine, and this is especially the case when the Pug Mill is of the double shaft type (see cut below). This is a good medium capacity Brick Machine and the best Tile Machine made anywhere in the world. The same type of machine is made larger and smaller to suit capacity wanted.



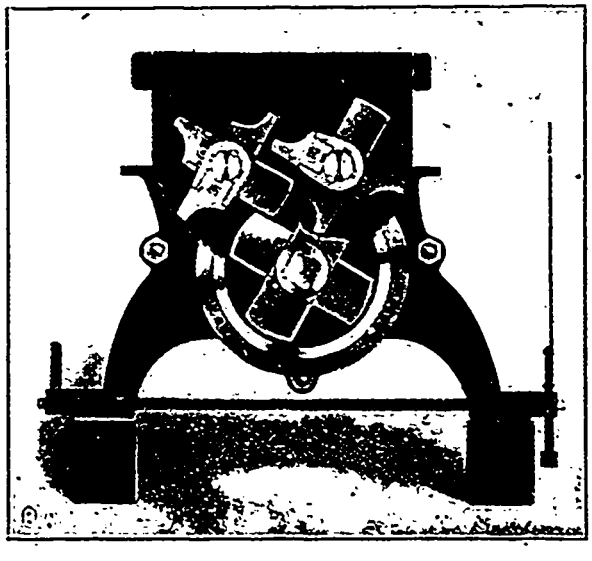
"Imperial" with Vertical Attachment

'Imperial Machine with Vertical Attachment for making Large Tile

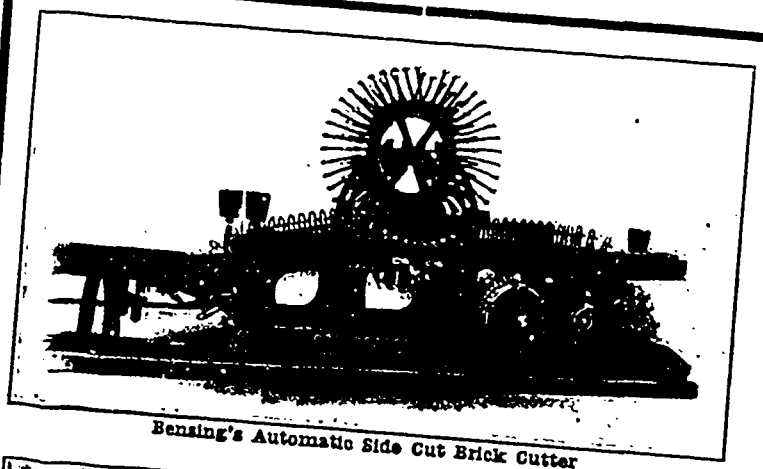
By placing this attachment on the Imperial Machine the larger sizes of tile can be made up to and including 24 inch. They are delivered vertically on pallets and so are kept in perfect shape.



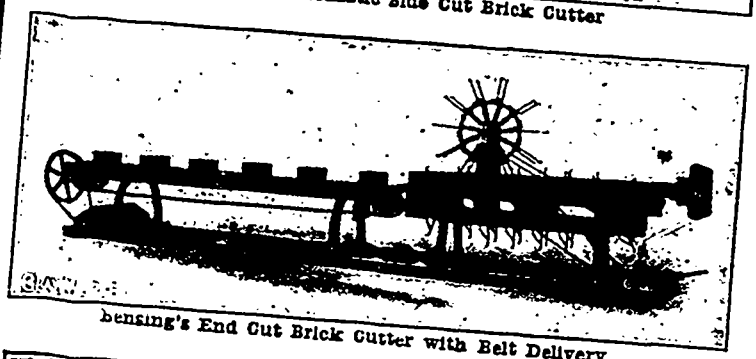
This shows an interior view of all of the Combined machines, and gives an idea of the immense pugging capacity obtained by the use of the double shafts. It has been conclusively shown that more effective pugging is done with 8 feet of double shafts than with 16 feet of a single shaft.



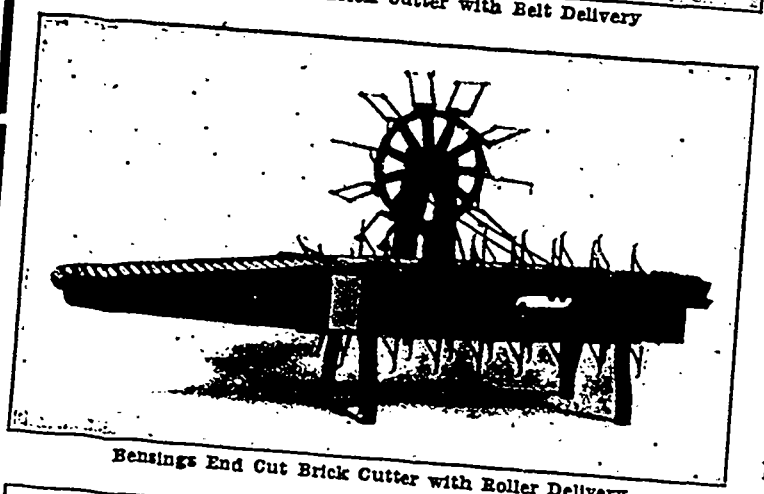
This cut shows a cross-section of the Machine, where the clay passes from the pug mill to the auger cylinder. This arrangement of the knives keeps the clay constantly pushed down and prevents bridging and clogging.



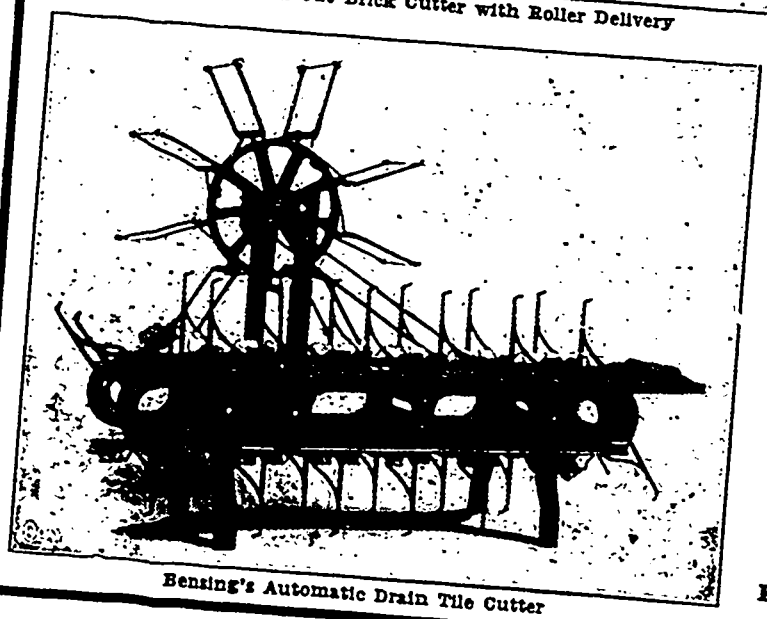
Bensing's Automatic Side Cut Brick Cutter



Bensing's End Cut Brick Cutter with Belt Delivery



Bensings End Cut Brick Cutter with Roller Delivery



Bensing's Automatic Drain Tile Cutter

MACHINERY

That is

Strictly First-Class High Grade

and

Up - to - Date

This is what you want Mr. Canadian Clay-Worker.

And we have only this kind of Machinery to offer you.

Let us get together and do some business.

Write us as to what you need in this line and we will gladly give you full information about our Machinery and why it is better than the best.

Throw out that little old antiquated machine you have been using and let us put you in something that is modern, something that will do you better work and more work and make you more money.

We build a full line of Clay-Working Machinery and can furnish you anything you need in your factory.

The J. D. FATE COMPANY

PLYMOUTH,

Richland County OHIO, U.S.A.

The Use of Brick for Paving

By Warfield Webb, in Brick.

In competition with other street paving materials, the vitrified brick has had to do considerable battle in order that the real merits of this form of street paving might become duly recognized as worthy the serious consideration of the public generally. In the past twenty years the progress made in this direction has been very notable, and still there are some localities, which for one reason or another, prefer to disparage the use of this form of street paving material, and the results have been of a detrimental character. This antagonism, for this is the real object of the opposition, has been due to many reasons, some of which, let us say, were entirely without foundation.

It is natural to presume that there would arise a vigorous protest from the manufacturers of other street paving materials, and that in their anxiety to disparage the increasing use of vitrified brick, there would be some statements made that were without the most careful veracity. There have also been some failures in the construction of brick streets, nearly always due to one or two causes, viz.: poor quality of material, and poor workmanship. Either of these, or both, as the case has sometimes been, would be sufficient to do damage that would cause much injury to the increasing popularity of the brick street. It has been the fault of the manufacturer in some instances, and then it has been due to the wilful neglect on the part of the contractors who were laying the streets themselves.

Unless a vitrified brick is manufactured with the best quality of material, with the most painstaking care, it is hardly possible to presume that the results will prove satisfactory to those who place them on our public thoroughfares. Care is the prime essential in all undertakings that will be conducive to results that will bear fruit of the proper kind. For this reason the manufacturer of vitrified paving brick should keep before him always the idea that to manufacture only the best is the keynote of his success.

The first requisite is, of course, that the clay or shale be of a quality that will be above reproach. Some manufacturers use fire clay alone; others a mixture of fire clay and shale, and still others only shale. These are matters that must be decided by the manufacturers themselves, for the results of their labors are the best test of their product to withstand the strain necessary in the manufacture of this commodity. Careful mixing of the material, testing the clay or shale, and burning the brick, should receive the greatest care, because the results are vital, and are of the greatest importance to the manufacturer.

There have been some vigorous complaints made in some localities on account of the unsatisfactory way in which the brick have worn, but there are causes for this that must be ferreted out, so that the man who has furnished the material may be in a position to learn the real cause for complaint. If he has been duly painstaking in the manufacture of his brick then he must look beyond, and see what cause exists to warrant the complaint. It may be that the contractor has been ignorant of his duty in this respect; that he has not been fully cognizant of the manner of laying the brick to insure the most satisfactory results. There are some grave errors made in this way, and the brick manufacturer has been blamed when the real cause of the trouble has been due to the improper manner in which the street has been constructed.

There is still another cause for trouble that is not always taken into consideration by the municipal authorities, and this is that the streets are permitted to go so many months or years without repairs, that it is practically impossible to reconstruct the thoroughfare without a considerable outlay for new material. When the repairs are made they are done by workmen who are either ignorant of their occupation or they are careless, and the outcome is that the repaired street is worse than it was previous to the change. In making these repairs there have been instances where the new brick were permitted to rise at least an inch higher than the old portion of the street, and in such cases it would be folly to hope for a pleasing result.

Another feature that has been a detriment to the brick street in some cities is the fact that instead of a tar seam being used, the street was simply covered over with a thin wash of cement and water. This is not sufficient to give practical results, and if a street does not wear for at least six or seven years the city authorities are ready to find fault with the brick, and minimize the form of construction that made this short life of the paving possible.

Tearing up the streets on frequent occasions, and then attempting to replace the brick in most any fashion, is a cause that will always prove a source of trouble to the street. This is being done, and there is likely to be a continuation of ill effects so long as it is permitted. When a street is torn up for the laying of pipes, conduits, or other underground work, the replacing of the brick should receive the most careful attention in order that the street may not be permanently injured. This fact has been overlooked by many, and the results are sure to be such as to make the life of the brick street short-lived. If municipalities would give this matter more consideration there would be far less cause for complaint on this account.

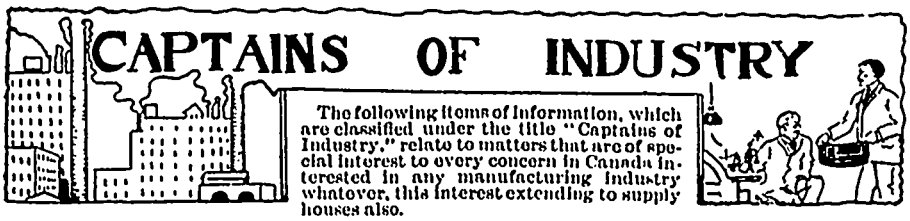
But the most important consideration for the manufacturer of street paving brick or block, should be that the quality of his commodity be above reproach. If he fails in this respect, there is small hope for the brick street becoming a fixture in our cities. He owes it to himself to manufacture only the best, and then there will be less likelihood of fault finding, such as has been made in some localities. There are cities, however, that still continue to use the brick paving in increasing quantities, and the facts in favor of this form of street paving material are so plain and of such importance that there should be no hesitation on the part of any city in adopting this style of street construction.

Compared with other forms of street paving materials, the advantages in favor of vitrified brick, as to cost, quality of material, life, cleanliness, and many other features, should be such as to insure their increasing popularity to a very great extent. There are numerous instances where the brick street has withstood the greatest tests, and have proven the most satisfactory material to be found, but these have been where the bricks have been of a kind that possessed the true qualifications for strength, and this should be the ultimate aim of those who are now engaged in this great clay industry

THE LATE T. EDWARD LAMB.

It is with regret that we record the death of Mr. T. Edward Lamb, of the firm of Laurie & Lamb, consulting and contracting engineers, Montreal. Mr. Lamb passed away at Caledonia Springs on the 13th inst., after a very brief illness. His death was quite unexpected, as on leaving Montreal a couple of days before he expressed his intention of returning to the office within a few days. Mr. Lamb was only 44 years of age, and was an engineer of exceptional ability. He was well known among mechanical engineers from one end of Canada to the other, as he was for many years superintendent and chief engineer of the original Laurie Engine Co., of Montreal, and many of those who are now holding important positions in mechanical engineering circles passed under his control as apprentices, or engineers. The loss is a severe one to his partner, Major W. H. Laurie, with whom Mr. Lamb had worked continuously since leaving school at the age of seventeen, when he entered the service of John Laurie & Bro. (afterwards formed into the Laurie Engine Co.) as apprentice, draftsman, rising subsequently to the position of chief draftsman, superintendent, chief engineer, and for the last three years has been a partner with Mr. Laurie as consulting engineers. Such a life long business connection is unusual in this country of quick and continual changes. Mr. Lamb was a prominent member of the Episcopal church, being a church warden of St. Luke's Church, Montreal. He was a Free Mason, and also a member of the Canadian Society of Civil Engineers.

The Canada Cement Construction Co., Limoilon, Que., a company formed to make cement blocks, but later convinced of the greater demand for and profit in clay products, have installed a wire cut brick plant. The machinery for the new plant was furnished by the E. M. Freese Co., of Galion, O., and consists of disintegrator, intermediate union, pug and brick machinery and automatic cutter. Capacity of the plant is from 50,000 to 75,000 per ten hours. The dryer fans consist of a 160-inch steel plate exhauster and 72-inch disc fan. The heat is furnished by 10,000 feet steam oil heater which gives ample heat for the twelve tunnels. The dryer fans and heater are from the Massachusetts Fan Co., and the cars from Ohio Ceramic Engineering Co., of Cleveland, the whole making one of the largest and best equipped stiff-mud brick and terra cotta plants in Canada. The company have excellent clay available. Walter Sharpe is president of this company and J. A. Plante, vice-president.



The Canadian Pacific Railway propose to build all steel bridges in Western Ontario in future.

It is reported that the Canadian Pacific Railway will build a railway line from Komoka to Sarnia Ont. next spring.

James A. Cline, manufacturer of upholstered furniture at Stratford, Ont., has joined forces with Mortlock Bros., Guelph, Ont., and is removing his plant to that city. The new firm will be known as Mortlock & Cline.

The factory of the Standard Implement Co., at Port Stanley, Ont., is nearing completion.

The McKinley-Darragh Co., New Liskeard, are enlarging their concentrating mill.

The Northern Sulphite Mills of Canada, Limited, Sturgeon Falls, Ont., and the Imperial Paper Mills of Canada, Toronto and Sturgeon Falls, are to be sold by tender on the 27th inst., under power of mortgage.

A factory will be erected at Fort William, Ont., by the Imperial Steel & Wire Co., of Toronto.

A plant for the manufacture of concrete for building purposes, chimneys, etc., is being erected at Ventnor, Ont.

Another story will be added to the Canada Small Wares new factory at St. Mary's, Ont.

The Hoffman Patents, Limited, Toronto, have been incorporated with a capital of $40,000, to manufacture engines, boilers, etc. The provisional directors include F. A. Clany, C. T. Gordon and J. O. Mucier, Toronto, Ont.

The Canadian Laboratories, Limited, Toronto, have been incorporated with a capital of $40,000 to carry on a mining, milling and reduction business. The provisional directors include J. M. Ferguson, E. V. O'Sullivan and F. W. Tanner, Toronto.

A new school house is to be erected at Fenelon Falls, Ont.

The Grand Trunk Railway intend building a new station at Guelph, Ont.

A new Masonic temple will be built in Toronto at the cost of about $45,000.

A new school will be erected at West Toronto, Ont.

A new school is being considered for St. Catharines, Ont.

Two breakwaters will be constructed in Cobourg harbor, Ont.

The Canada Silk Co. are erecting a factory on Morrow Avenue, Toronto.

St. Michael's College, Toronto, is to be remodelled at a cost of $25,000.

A Baptist church will be erected at York Mills, Ont.

The Bell Telephone Co. will erect a new five story exchange at Bay and Adelaide Streets, Toronto, at an estimated cost of $250,000.

A bridge will be constructed at Galt, Ont.

The Temiskaming Telephone Co. will construct a line to Silver Centre, Haileybury, Ont.

The congregation of the Ryerson Methodist church, Hamilton, Ont., will erect a church building.

The congregation of St. Mark's Presbyterian church, Toronto, are considering the erection of a new edifice.

A Dental College is under construction at the corner of College and Huron Streets, Toronto.

The pumping station at Brantford, Ont., will be extensively repaired.

The Wellesley & Mornington Telephone Association contemplate considerable additional construction work at Crosshill, Ont.

A new jail will be constructed at Fort Francis, Ont.

John King, Fort William, Ont., will rebuild his block which was recently destroyed by fire.

The Perrin Plow & Stove Co., Smith's Falls, have been incorporated with a capital of $200,000, to manufacture plows, agricultural implements, stoves, ranges, furnaces, etc. The provisional directors include R. S. Harder, B. Knapp and J. Oliver, Smith's Falls, Ont.

The Canadian Brass Co., Limited, Galt, Ont., have been incorporated with a capital of $100,000, to manufacture brass goods, plumbers' supplies, etc. The provisional directors are J. Getty, W. L. Lefavor and M. A. Secord, Galt, Ont.

The new elevator at Port Colborne, Ont., is almost completed.

A $15,000 foundry and machine shop is to be erected by the Bigley Mfg. Co., Toronto.

The W R. Hearst Newspaper Syndicate are about to build a large pulp mill at Norman, Ont.

The Eureka Refrigerator Co. have purchased a site in Toronto, on which they intend building a factory.

The building of the Peterboro Cereal Co., which was recently destroyed by fire, is soon to be replaced by a larger one.

It is expected that the Grand Trunk elevator which is now being constructed at Tiffin, Ont., will be ready for the grain trade this summer.

The White Pass Railway is building a branch from Whitehouse, B.C., to some nearby copper properties.

Thirty thousand tons of steel rails are to be taken to the Western provinces for extensions on the Canadian Pacific Railway and Canadian Northern Railway lines.

The Marvel Silver Mines, Limited, Haileybury, Ont., have been incorporated with a capital of $200,000, to carry on a mining, milling and reduction business. The provisional directors include E. A. Wright, K. G. Robertson and H. L. Slaght, Haileybury, Ont.

An important discovery of copper on the property of the Parry Sound Copper Mining Co., Parry Sound, Ont., has been reported.

The American Cyanamide Co. are having erected at Niagara Falls, Ont., works for the manufacture of nitrogen for sale as fertilizer. Westinghouse, Church, Ker & Co., New York, are engineers of the buildings.

The Traders Bank are now doing business in their renovated quarters in the Traders Bank Building, at Guelph, Ont.

The Bank of Commerce, at Brantford, Ont., have moved into their new brick building.

Port Arthur, Ont., will extend its water mains and sewers on various streets, at an expense of $55,000. A new school will be erected at Amherstburg, Ont.

The Lambton Pressed Brick Co., London, Ont., have been incorporated with a capital of $50,000, to manufacture brick, terra cotta, tile, pipes, etc. The provisional directors include B. V. Hole, J. D. Scott and C. B. Keenleyside, London, Ont.

The Wood Fibre & Excelsior Co., Toronto, have been incorporated with a capital of $40,000 to manufacture lumber, timber, wood articles, etc. The provisional directors include A. R. Bickerstaff, and F. H. Potts, Toronto.

The Footwear Co., Ottawa, have been incorporated with a capital of $40,000, to manufacture boots, shoes, rubbers, etc. The provisional directors include W. Beardsley, W J. Kidd and C. J. Wright, Ottawa.

Westrumite, Limited, Brantford, Ont., have been incorporated with a capital of $200,000, to manufacture westrumite, asphalt, etc. The provisional directors include W. T. Henderson, A. H. Elliott and J Nightingale, Brantford, Ont.

Zenith Mfg. Co., Toronto, have been incorporated with a capital of $40,000, to manufacture machinists' tools, machines, lubricating oils, etc. The provisional directors include C. C. Moncrieff, Toronto, B. P. Corey and G. G. Moncrieff, Petrolia, Ont.

The Northern Pipe Line Co., Chatham, Ont., have been incorporated with a capital of $100,000, to construct pipe lines for the transportation of oil and gas, etc. The provisional directors include D. A. Gordon, Wallaceburg, Ont.; W. G. Ryan and T. K. Holmes, Chatham, Ont.

The Lorne Power Co., Victoria Mines, Algoma District, Ont., have been incorporated with a capital of $300,000, to produce electricity, and to manufacture electrical appliances, motors, wires, machinery, etc. The provisional directors include Sir G. A. Drummond, Montreal, J. M. Clark and G. C. Campbell, Toronto.

The London & Western Counties Pipe Line Co., London, Ont., have been incorporated with a capital of $1,000,000, to develop oil, gas, etc. The provisional directors include F. G. Rumball, W. Scarlett and W. J. Teasdall, London, Ont.

Canadian Behrend Dry Concentrator Co., Ottawa, have been incorporated with a capital of $1,000,000, to manufacture machinery, etc. The provisional directors include L. B. Jennings, J. D. McCallum and D. E. Johnson, Ottawa.

The St. Clair Oil Co., Toronto, have been incorporated with a capital of $100,000, to manufacture oil, gas, etc. The provisional directors include J. J. Gray, A. W. Briggs and L. L. Clogg.

The Interurban Electric Co., Toronto, have been incorporated with a capital of $400,000, to produce electricity for the purpose of light, heat and power, and to manufacture electrical appliances, etc. The provisional directors include E. S. Edmondson, Oshawa, Ont., F. Grundy and A. N. Morine, Toronto.

It has been stated that the new station which is being considered by the Michigan Central Railway for Welland, Ont., will be erected as soon as the necessary arrangements can be made.

Fire has broken out in the limits of the Toronto Lumber Co., Garden Hill, near Port Hope, Ont. The limits contain one million feet of lumber, a large amount of which has been destroyed.

A large part of the business portion of Stirling, Ont., was destroyed by fire August 8. Loss about $75,000.

The British-American Hotel at Windsor, Ont., has been extensively repaired.

The Grand Trunk Railway station at Coboconk, Ont., was destroyed by fire August 4. Loss about $4,000.

The ratepayers of Wingham, Ont., will raise $7,000 for repairs and improvements to the electric light power house there.

The town of Cobalt, Ont., is about to build a new fire and police station.

The Bank of Montreal will erect a branch at Ottawa, at the cost of about $25,000.

The congregation of the Presbyterian church, at Eglinton, Ont., will spend $5,000 on their new building.

The contract for the new school at West Toronto has been given to Bloxhem & Saxon, at $19,250.

An eleven story commercial building will be erected by the Commercial travellers at Toronto, at the cost of about $210,000.

Among the firms who have recently purchased Smart-Turner pumps are Knox church, Dundas, Ont.; The Corporation of Hamilton; the Sydney Foundry & Machine Co., Sydney, N.S.; Lansdowne Public School, Toronto; the Robb Engineering Works, Amherst, N.S.; the A. R. Williams Machinery Co., Vancouver, B.C.; the new armory at Hamilton, and the Ottawa Pulp & Paper Co., Ottawa.

A new Carnegie library is likely to be built at Ingersoll, Ont.

A new Collegiate will be erected at Brantford, Ont.

An addition will be made to the school at Sidney, Ont.

A school will be erected at Ingersoll, Ont.

The congregation of St. Luke's church intend erecting a new building at Annapolis, N.S.

The Grand Trunk Railway are installing a 10-ton Smart-Turner hand power crane at their Stratford shops.

The City Hotel, London, Ont., was damaged by fire. Loss about $15,000.

Tenders were recently received for the erection of the Faculty of Education and Pedagogy buildings at Toronto.

Capt. R. W. Leonard, manager of the Coniagas mines, has offered to build a cottage hospital for consumptives at St. Catharines, Ont.

The town of Lindsay, Ont., is beginning work on its filtration plant.

A $20,000 armory will be built at Niagara Falls, Ont.

The Independent Order of Foresters are erecting a brick block at Merlin, Ont.

A large central hall will probably be built by the Toronto Catholic Foresters.

The Dominion Express Co. will spend $35,000 on new stables at Ottawa.

A new Presbyterian church will be erected at Brownsburg, Que.

The Bank of Montreal will erect a branch at Sawyerville, Que.

A new police station will be erected at Montreal, Que., at an estimated cost of $24,942.

A can of gasoline in the garage of the Automobile Import Co., Montreal, exploded and damaged several adjoining buildings. Loss about $75,000.

The Caledonian Biscuit & Confectionery Co., Limited, Montreal, Que., have been incorporated with a capital of $48,000, to manufacture biscuits, confectionery, etc. The provisional directors include J. A. Mayor, N. Seguin, J. G. Duquette, Montreal, Que.

The Western Explosives, Limited, Montreal, Que., have been incorporated with a capital of $500,000, to manufacture all kinds of explosives, etc. The provisional directors include W. T. Rodden, J. F. Johnson and John Wells, Montreal, Que.

The Standard Railway Equipment Co., of Canada, Limited, Montreal, Que., have been incorporated with a capital of $49,000, to manufacture equipments, appliances, and specialties for railway cars, tramcars and vehicles, and all products of steel and malleable iron. The provisional directors include F. H. Markey, W. W. Skinner and R. C. Grant, Montreal, Que.

The Vacuna Co., Limited, Montreal, Que., have been incorporated with a capital of $45,000, to manufacture appliances, apparatus, articles and supplies appertaining to the sweeping or cleaning of carpets, carpeting, fabrics, rugs, mats, linoleums, etc. The provisional directors include J. A. Erving, F. B. Locker, A. D. Stewart, Montreal, Que.

The Rocky Mountain Mining & Development Co., Limited, Montreal, have been incorporated with a capital of $49,000, to carry on a mining, milling and reduction business. The provisional directors include T. W. Haram, E. G. Haram and D. J. Creighton, Montreal, Que.

A new fire station will be erected at Montreal, Que., at the cost of about $16,000.

Howard & Cohen, stove manufacturers, Morrisburg, Ont., contemplate erecting works at Sherbrooke, Que.

A school of High Commercial Studies will be erected at Montreal, Que.

The R. & T. Ritchie, Limited, Aylmer, Que., have been incorporated with a capital of $100,000 to carry on a lumber manufacturing business.

A factory building will be erected at Montreal for the General Fire Extinguisher Co.

Shirley & Co., St. Andrew's, Que., will extend their plant, and will build a new warehouse.

G. A. Grier & Son, Montreal, Que., are fitting up their large factory building on Notre Dame Street West, as a planing mill.

The Bell Telephone Co. will extend their present building at Quebec and erect an additional story.

The Canadian Pacific Railway will likely spend about $125,000 in improving their terminals at Hull, Que.

The Matane and Gaspe Railway will build 35 miles of line from St. Flavie to Matane, Que.

The Ha Ha Bay Railway will build a line from Jonquieres and Bagotville, Que., 20 miles.

The Quebec Central Railway line will be extended fifteen miles, from St. George, Beauce to St. Justice.

Charles Gurd & Co., Montreal, are putting up a three story building with basement on Bleury Street, near Vitre, to accommodate their Caledonia water business. The new building will be of reinforced concrete. Shearer, Brown & Wills are the general contractors, and Morssen & Co., are contractors for the reinforced concrete.

A complete waterworks system is being installed at Ville Marie, Pontiac, Que., by the Standard Construction Co., Montreal. The contract includes a large concrete reservoir and concrete dam.

The Standard Construction Co., Montreal, are installing a complete Hydro-Electric plant at Baie St. Paul, Que., including a steel flume 2,200 feet long.

A large conveyor system is being installed in the King's asbestos mines, Thetford, Que., by the Standard Construction Co., Montreal.

The contract for the electric system for the new post office building, Montreal, has been awarded to the Standard Construction Co., Montreal.

A number of waterworks standpipes will be erected in St. John, N.B.

Thomas Trahey & Son, Parrsboro, N.S., have launched a 271 ton schooner from the shipyard. This firm will launch another ship this fall or next spring.

The new Intercolonial Railway machine shops at Moncton, N.B., are nearing completion.

St. John, N.B., is trying to get the Enterprise Foundry Co., to locate at that place.

The Militia Department proposes to erect a drill shed at St. John, N.B., in the near future.

Woodstock, N.B., is extending its sewerage system.

A new brick school building will be erected in Fredericton, N.B., at the cost of about $8,000.

A new school house will be erected at Grand Falls, N.B.

An addition will be built to the school house at Marble Mountain, C.B.

The erection of Grand Trunk Pacific terminals will be commenced immediately at St. John, N.B.

Thirty Manny heaters will be installed in the new jail, Montreal.

The heating system for the new Parliament Buildings at Regina will be installed by E. S. Manny & Co., Montreal; Jas. Ballantyne, Montreal, is the contractor for heating and plumbing.

The Victor Beaudry Estate, 186 St. James Street, Montreal, will erect a large store on St. Denis Street, at a cost of about $30,000. Jos. Sawyer, Montreal, is the architect.

The Molsons Bank have opened a branch at St. Cesaire, Que.

W. S. Fisher intends building a foundry at St. John, N.B.

A woodworking factory will be built at Campbellton, N.B.

The J. & D. A. Harquail Co., Limited, Campbellton, N.B., have been incorporated with a capital of $50,000, to manufacture timber, shingles, laths, doors, sashes, furniture, etc. The provisional directors include H. B. Gunter, J. Harquail and D. A. Harquail, Campbellton, N.B.

Dartmouth, N.S., intends improving its water and sewerage systems.

A new school will be erected at Dartmouth, N.S.

A new town hall will be built at Glace Bay, N.S.

The International hotel at Sackville, N.B., recently destroyed by fire will be rebuilt.

The Manitoba Gypsum Co., Winnipeg, are doubling the capacity of their warehouse.

The ratepayers of Killarney, Man., have passed a by-law to grant a $2,000 bonus to an electric light company.

The J. D. McArthur Co. are building the Grand Trunk Pacific roundhouse at Winnipeg, Man.

The James Stuart Electric Co. have been negotiating with the city of Winnipeg, Man., with a view to the erection of a factory for the manufacture of water meters.

A telephone system will be constructed in Baldur, Man.

An addition will be made to the Carnegie Library at Winnipeg, Man.

A new branch railway line will be constructed from Holboro to a point forty miles west of Rapid City, Man., by the Northern Construction Co.

The Inter-West Peat Fuel Co., Limited, Winnipeg, Man., have been incorporated with a capital of $250.000, to manufacture peat, paper, tar, etc. The provisional directors are G. W. Tovell, H. J. McDonald, and J. H. Bulmer, Winnipeg, Man.

The Billing Coonan Co., Limited, Winnipeg, Man., have been incorporated with a capital of $20,000. to manufacture machinery, tools, hardware, etc. The provisional directors include H. W. Billing, G. A. Coonan, H. J. Foster and R. D. Grey, Winnipeg, Man.

The Martel-Stewart Western, Limited, Winnipeg, Man., have been incorporated with a capital of $20.000, to manufacture electric signs, electric novelties, etc. The provisional directors include H. J. Hastings, H. F. Service and W. H. Hastings, Winnipeg, Man.

John Gunn & Sons, Winnipeg, Man., have been awarded the contract by the Grand Trunk Pacific for the construction of the substructure of the bridge across the Pembina River. This bridge will be 1,000 feet long and 230 feet high, and the sub-structure will be of cement pedestals, instead of the usual concrete piers.

The Canadian Northern Railway line between Winnipeg, Man., and Portage la Prairie, Man., is being relaid with 80-pound steel.

The A. Macdonald Co., Winnipeg, have begun work on their Saskatoon warehouse.

A new opera house to be named the "Grand," will be erected at Winnipeg, Man.

The Provincial Government is expending $6,000 on alterations on Government House, Winnipeg, Man.

A new Y.W.C.A. building will be erected at Winnipeg, Man.

The Dominion Government will build a post office at Dauphin, Man., at an estimated cost of $36,000.

A new Carnegie library will be erected at Selkirk, Man.

A new school house is being erected at Minitonas, Man., at the cost of $4,000.

A fire hall at Winnipeg, Man., is about to be remodelled at the cost of $13,000.

A new school house is soon to be erected at Aylesbury, Sask.

The Merchants Bank will erect a branch building at Medicine Hat, Alta.

A brick school house will be erected Kamsack, Sask.

A new school will be erected at Edmonton, Alta.

A new fire hall will be erected in Saskatoon, Sask.

The Dominion Government intends to erect a $75,000 armory at Calgary, Alta.

A rural telephone company is being organized by the farmers near Canora, Sask.

The Strathcona Radial Co. propose extensions of its line at Edmonton, Alta.

The city of Edmonton, Alta., are considering the construction of a street railway line at an estimated cost of $125,000.

A school building will be erected at Lamden District, Sask.

A sanitarium and academy may be erected at Lacombe, Alta.

A brick school house will be erected at, Laug, Sask.

The Milestone & Southwestern Telephone Co., Milestone, Sask., have completed 27 miles of their system.

The board of directors at Banff, Alta., are considering an addition to the public hospital.

A new university will be built at Edmonton, Alta.

A new Collegiate Institute will be constructed at Regina, Sask.

Several buildings in the business section of Gainsboro, Sask., were destroyed by fire, August 6. Loss about $30,000.

An elevator will be erected at Cayley, Alta., by the Nanton Lumber & Grain Co.

A new school house is to be built at Oak Bay, Victoria, B.C.

The Eastern Townships Bank will erect a three story building at Grand Forks, B.C.

An iron and steel water tower will be erected in Victoria, B.C.

A complete sewage system and sewage disposal works will be installed by the town of Vernon, B.C.

A nurses' home is being erected at Victoria, B.C.

A hospital will be built at Fleet Bay, B.C.

A $60,000 steel and concrete filter building will be erected at Vancouver, B.C., by the British Columbia Sugar Refining Co.

The British Columbia Electric Railway Co., at New Westminster, B.C., have completed their $15,000 car shops.

H. Stead, New Westminster, B.C., is negotiating for a site of 60 feet water frontage on which he intends erecting a plant for the manufacture of launches.

Victoria, B.C., is erecting an iron and steel water tower in connection with its waterworks system.

The congregation of Holy Trinity church, Vancouver, B.C., will erect a new church.

A Normal school will be erected at Fairview, B.C.

The Crow's Nest Pass Coal Co. will rebuild immediately the plant destroyed by fire, at Fernie, B.C.

The Western Bridge & Equipment Co., Chatham, Ont., is thinking of locating at Vancouver, B.C.

J. M. McLuckie has the contract for the erection of a new normal school at Fairview, B.C.

Construction on the second section of the British Columbia Electric Railway from Cloverdale to Abbotsford, B.C., is soon to be commenced.

A new bridge is being considered for Chilliwack, B.C.

It is probable that a Government building will be erected at Grand Forks, B.C.

A wharf will be constructed at Port San Juan, B.C.

A saw mill will be erected by the Waterous Engine Co., Brantford, Ont., at Fernie, B.C.

A new post-office will be erected at Cranbrook, B.C.

A consumptive sanitarium will be built at Vanquille, B.C.

A new hotel known as the "Kootenay Hotel" will be erected at Michel, B.C.

A new school will be erected at Nelson, B.C.

A new school will be erected at Oak Bay, B.C.

An addition of two stories will be made to the post office at Vancouver, B.C.

A new machine shop and foundry is under construction for the Goldschmidt Thermit Co., 90 West Street, New York City. The building occupies a site 90x34 feet in size just back of their present factory in Jersey City, and is to be fitted up for the purpose of handling to better advantage the extensive repair work which is now being carried on at these works. Travelling cranes will be provided, and no expense will be spared to make the building the most complete Thermit repair shop in the country. Special attention will be paid to the rapid execution of the repairs to electric motor cases, truck-frames, cast-steel gear wheels, crank shafts, and, in fact, any wrought iron and steel sections not exceeding 2,000 pounds in weight.

PUBLICATIONS

A Review of Books, Catalogues, Bulletins and other Publications of interest to readers of this paper. All such publications should be sent to The Editor, Canadian Manufacturer, Toronto.

DISC AND PROPELLOR FANS.—A ten page loose leaf bulletin (No. 50) with binder describing various sizes of disc and propeller fans, both pulley driven and electrically driven for service, which velocities are low and resistences are slight. May be had on application from Sheldons, Limited, Galt, Ont.

HY-RIB SHEATHING. A four page circular describing hy-rib sheathing for reinforced concrete construction without centering or falsework. By Trussed Concrete Steel Co., Detroit, Mich.

WEBER CHIMNEYS.—A 48-page booklet giving illustrated descriptions of Weber chimneys, made of cement and steel bars. The booklet shows many completed chimneys in Canada and the United States ranging from 110 to 350 feet high and from 5 feet to 20 feet in diameter. The Weber Steel Concrete Chimney Co., 929 Marquette Bldg., Chicago.

ALLIS-CHALMERS-BULLOCK CLUTCHES.—A 16-page booklet describing in detail the design of friction clutch which Allis-Chalmers-Bullock, Montreal, are placing on the Canadian market. Copies can be had on application.

REINFORCED CONCRETE—THE INTERNATIONAL SYSTEM.—An attractive catalogue issued by the International F. and Fireproofing Co., Columbus, Ohio, describes in detail the features of the International System, and contains attractive illustrations showing buildings erected on this system in the United States. Boulue, Bertrand & Gagnor, Guardian Building, Montreal, are their Canadian agents.

Gas From Wood Pulp

From the Shareholder

Considerable surprise has been occasioned in gas circles in Vancouver when it was announced recently that the British-Canadian Wood Pulp & Paper Co. had applied for the gas franchise of North Vancouver, Burnaby and South Vancouver, as well as the municipality of Point Grey. The company ask for the immediate right to lay mains, pipes, etc., for the installation of the various systems, and agree to have the gas plant, especially at North Vancouver, in operation within a reasonable time. The surprising feature is the fact that the gas is not secured by the usual method but entirely as a by-product in the manufacture of wood pulp. The company have found after exhaustive tests that they are able to secure from 12,000 to 25,000 cubic feet of gas from each cord of wood used in the manufacture of pulp, and it is to dispose of this tremendous by-product that the company have asked for the several franchises mentioned. The attention of J. C. W. Stanley, the engineer of the company, was attracted to the recovery of gas during the calcination of the residue of the wood pulp some time ago, and the company at once authorized the fitting up of a special demonstrating plant so as to enable a more thorough test on a practical scale. The results that have been secured have in some respects been a revelation to gas experts and scientific men. Test after test made by the company's chemist has shown almost 20,000 cubic feet of gas per cord from the ordinary fir and cedar refuse of the local saw mills. The theory and practice of securing gas from wood is in no wise new, but to secure it absolutely from the residue after the cooking and straining of the pulp is a feature that has attracted so much attention. One of the most important features of the process, however, is the character of gas which the residue yields. Instead of a poor, sluggish, inferior grade of ordinary wood gas, the result is equal to that of coal gas, in heating and illuminating strength and without any building up whatever the gas has shown almost 600 thermal units and a series of tests made on a 10 h.p. engine has shown it equal to local city gas in power efficiency. It is the intention of the paper company to erect a pulp mill at North Vancouver and other points in British Columbia where it is possible to dispose of gas. The pulp is to be passed over an ordinary wet machine, and taken to Port Mellon to be made into commercial paper. It will thus reach the mill with about 50 per cent. moisture and dumped immediately into the beaters, where the filling and coloring matter are added for the finished stock. This will enable the company to realize a large revenue in the sale of gas without in any way increasing the price of their wood pulp. The only change in the plans of the big mill, which is now under course of erection at Port Mellon, will be the supplying of the raw material from the small outside plants, instead of manufacturing it at the main mill. This in a measure will be following out the policy of a great many paper mills who have found it cheaper to manufacture the wood pulp at outside mills in the immediate vicinity of the wood supply in preference to the main plant, as it has been shown to cost less to convey the pulp after being boiled, than the original wood for the manufacture of same. The company, however, will manufacture enough pulp at Port Mellon and secure sufficient gas for the operation of their mill. The use of the gas for power purposes means a saving of from $500 to $1,000 a week to the company at Port Mellon in fuel, to say nothing of the benefits acquired for illuminating and other purposes.

Mayor Kealey, of North Vancouver, accompanied by Aldermen Smith, Braim, Irwin, Wheeler and May, of Vancouver, visited the company's demonstrating plant recently, and went exhaustively into the question of securing gas as a by-product in the manufacture of pulp. The illuminating strength of the gas was shown and then the power efficiency of the gas was demonstrated on a gas engine and to the full satisfaction of the aldermen. The paper company are confident that the Stanley process of manufacturing wood pulp will ultimately supersede all others, for not only is the gas secured as a by-product, but from six to eighteen gallons of turpentine per cord of wood is also secured as an additional by-product. The company have already declined a $50,000 cash offer for the Stanley gas process for British Columbia. Officials of the paper company and a special committee of the North Vancouver council are to meet shortly, to agree upon the terms and conditions of the franchise.

The Outside Versus the Inside Man

An Appeal for the Latter

ADDRESS BY W. A. PORTER, OF SOMERVILLE, LIMITED, TORONTO, BEFORE THE AMERICAN BRASS FOUNDERS' ASSOCIATION.

The writer has endeavored, in this short article, to condense the arguments, pro and con, which are customarily used in an ordinary business to carry the point when the subject is discussed. The only reason for argument may possibly lie in the fact that "each unto his own" is a man's business religion, always understanding that each man's own particular work is necessarily the hardest and the least appreciated. This idea originated thousands of years ago, and is likely to last for a few more aeons. There should be no friction and no misunderstanding between the men who, as travelling salesmen, represent or misrepresent their respective houses and the men who are empowered to carry out the inside workings and the general policy of these houses, but the fact remains that the trouble, in the majority of cases, does exist and is a constant source of worry to those in charge.

A little consideration of the causes of this friction may help some of our members to be more fair in their treatment of each side of the case, may make them more able to deal justly with the matter, with a resultant profit to themselves and to their employees. A little patience and mutual education will do wonders to help things along; that is the reason for the appeal in this paper.

As a rule there are two sources from which the average traveller is created—from the works or warehouse in which he has been employed since a youth, and from the outside, that is from some opposition house.

Taking the case of the former—he has worked for years in an atmosphere of trade terms, packing and shipping, checking and stock-keeping, rush and bustle, his constant aim being to arrive on time in the morning and to get out so much by night—to please "the boss," and to keep from being "docked" for errors in packing or shipping. He becomes a useful man and his chance comes to him—a vacancy on the travelling staff occurs and he is asked if he would like to become that ideal of his, a traveller. He wonders why Jones, who is a much better man than he, in every way, is not given the opportunity—Jones is worth five dollars per week more to his firm than the man selected—and his wonder increases when he is told that Jones is too valuable a man, for the inside, to be put on the road, too good a man to be spared, and yet the offer to the new traveller (for, of course, he accepts) embraces an in-

crease in salary which places him above Jones in earning capacity, and this without one single effort or trial, on his part, to show that he is worth one copper, as a salesman, to his firm. Is this fair, just or even decent?

And yet it is done every day, and the sting remains with Jones—"too good" to be spared for the road, but not good enough to receive as much money as his admitted junior and inferior, whom he may be called upon to help out of many a trouble in days to come—can Jones be blamed for cursing his own energy and aptitude, which placed him on top only to be kept where he can rise no higher and to see his juniors stepping over his head?

Is it an inducement to a man to use his brains to rise "inside" the house when the result of his success may be his downfall, in a sense—when he sees the "outside" man suddenly made a little god and while he himself remains just "good old Jones?"

Do employers think of this when old and valued employees leave them for other houses? Better for them if they would think first, sacrifice a trifle of their own personal comfort and gives Jones a chance as good as that of any other employee.

The new traveller starts out for his firm in a pardonable state of enthusiasm and misplaced energy—he tries his very best, of course, but he soon learns that in the game of selling he has competition to meet and the lessons are hard to learn. In time he becomes the finished product—his mistakes have been numerous, but he is a "traveller," and he rests content.

The other source before referred to produces the man procured from a rival house. This man is experienced, knows the goods and may probably know his customers. He must be a good talker and "jollier" in order to persuade the same customer that the goods which he is now handling are vastly superior to, or even equal to, the goods which he has been extolling for years while in the employ of the other firm. New or old, the travelling salesman ought to be a credit to his house—does he always try to be?

His firm should be able to trust him as implicitly as if he were at headquarters—he should be trying always not only to swell the amount of his sales, but also to promote the interests of his house by selling goods which produce a profit and by avoiding unnecessary expenditure—the "amount" of the sales is worse than nothing to a firm when the "profit" is gone, unless an unfortunately large stock happens to be on hand.

The traveller's sins are many—he carelessly or illegibly writes his orders, causing confusion and worry at the warehouse or factory, he makes occasional mistakes in figuring and then fumes because the house will not support him in his blunders; he changes his route so that his mail becomes lost for a time and then rages because the house criticizes him sharply for breaking prices—prices which did not reach him owing to his own stupidity in altering his route before he informed the office; he takes up the cudgels for his customers and writes letters to the firm on a variety of things, trivial and otherwise, letters which would seem to emanate from a deadly enemy instead of from a paid servant of the house—and these letters must be patiently read and reflected upon, and there is the trouble—for the inside man.

A letter from the office to a customer who has lodged a complaint with a traveller may, if not carefully and courteously worded, cause the loss of that customer's trade, and that through no intentional fault of the writer, who has no information save what he finds in the rather incoherent letter of the irascible traveller. The salesman is on the spot, but the inside correspondent is supposed to have telepathic communication and to be able to conciliate and satisfy a man who is perhaps 300 miles away, and whom he has never seen.

Again, the traveller is generally very well satified with himself as being wide awake and not easily "gulled," and yet he is the easiest victim in the world to the old, wornout game of "better price from the others." The almost insane eagerness with which he rushes in an order at a reduced price "to meet competition" is a strange thing to see—it is a disease with most salesmen, a disease which it seems almost hopeless to try to cure. But does the salesman get the blame for reduced profits at the end of the year? Not in nine cases out of ten, for it is the inside man who is held responsible, while the traveller is "our star representative," who sold so many thousands of dollars' worth more than any other salesman—and he never even blushes for shame when his salary is increased.

And then the toiler of the road, when business may be slack, must make the sales look well—he books orders for future delivery with a reckless disregard of the possible rise in price of raw material and trusts to the house to sustain him. Business exigencies may cause the firm to grudgingly accept the orders, but is that sound policy, and does the salesman or the house gain by it? Once a cutter of prices always a cutter, in this busy age. The man who cannot sell goods without cutting his prices and without holding out "future delivery" as an inducement is worse than useless to his employers and should be summarily disposed of.

Now let us consider the opportunities in the hands of the average travelling salesman if he wishes to use them. He has the privilege of meeting, face to face, the customers who patronize his house; he has unlimited opportunities of studying each character and forming his opinion of the way best suited to address each man; he can force his own personality, to a greater or lesser degree, upon every customer with whom he may come in contact; he is able to personally investigate most grievances and to adjust differences; he can examine defective goods and report to his house with a clear idea as to what is wrong, or claimed to be wrong, and he can do this without offending the customer or losing his own dignity in the least—he has these opportunities; does he always use them?

A successful traveller may make some enemies, but it does not follow that he must make them; he need not be a prince of good fellows, but he must respect his customers and he must make them respect him and his house. A bit of sympathy is never wasted, but a salesman who talks in a derogatory manner of his own house, or of other houses, is a nuisance and abomination—his word becomes a by-word and his statements, however big, are given little thought. Again, a thoughtful salesman may assist a customer by advising him as to probable advances in prices and by helping him to order accordingly, but it does not follow that he should deliberately throw away his firm's chances of a legitimate profit by taking orders broadcast, in order to swell his sales, when the market on raw material suddenly advances, and his own cleverness should not induce him to take it upon himself to reduce prices to customers because he has had a tip as to the sudden fall in price of the same raw material—he should give his firm the same chance that his customers get, for his salary comes from the house and not from the man who buys from him.

As to his troubles there is no doubt—cranky customers, pompous, conceited, bad tempered, good-natured, bibulous, abstemious, sports, church elders, saints and sinners—he has to meet and adapt himself to them all; that is, he should try to adapt himself to all; he has to talk to enraged debtors whom the house has seen fit to dun and he has to put off men whose credit has become too shaky for his firm to trust; he has to be polite and attentive to every prosy and wearying crank who loves to dwell upon local church festivals and the fall fairs, and he must burden himself with many woes which concern him not.

The "inside" man has upon his shoulders a responsiblity which varies according to the number of duties which lie to his lot, but he generally has to be a combination of a great many different kinds of a man and must be ready, at all times, to assume immediately the duties which every phase of his work demands. His greatest trouble is that he is expected to be a first-rate man at a most every class of work common to a warehouse and office and he must constantly jump from one thing to another without the slightest hesitation and without warning—he is unfortunately endowed with only one brain, but is expected to have two or three heads for each day's use.

Office-boy, invoice clerk, salesman, ledger-keeper, cashier, accountant, correspondent, buyer—he must know enough of the work of each in order to properly control things—if he fails in the slightest degree, the powers that be are down on him like a shot. If he undertakes more than he is capable of attending to, so that things may work smoothly, and then he relaxes in the least, he is put down as beginning to grow old, and his end is quick—he is soon on the business junk-heap.

He must understand and control his warehouse, office or factory staff, must know the capabilities of each man, his strong points and his weaknesses, and must so use his knowledge that he may get the best results and at the same time satisfy both his firm and his staff. He must keep in touch with his travellers and assist them as much as possible in his correspondence—correspondence conducted with men nine-tenths of whom he has never seen and of whose personal characteristics he has but the slightest knowledge.

He has to see that errors are rectified, prices are kept both by the inside and the outside salesmen that shipments are made as promptly as possible and that complaints are attended to so as not to offend the firm's customers; he must soothe the irritated traveller who thinks that his firm is giving him the worst of an argument and he must always be patient and fair when a dispute arises with a patron of the house—in short, he ought to be a paragon, which is exactly what he is not.

Some days he is harrassed and worried by every imaginable complaint that the mail, the telephone or the telegraph can throw at him—everything will diabolically persist in breaking loose or going wrong. But he must always remember that it is expected of him to answer his correspondence in a courteous and business like manner and not allow his personal feelings to affect him at all. For every complaint which a traveller receives the inside man has a dozen, and he has the additional misfortune of being expected to listen to the traveller's personal complaint after the matter in question has been gone over with the customer—he has to fight with one hand tied, as it were, and he must always come up smiling, at that.

If a travelling salesman be taken ill a substitute is provided, so that the connection may be kept up; and, upon recovery, the regular traveller takes up his work just where he left off. But let the inside man fall ill, and what happens?

Upon his return he generally finds enough work heaped up for him to make him wish that he had stayed where he was, and he is looked upon as having deliberately made himself ill in order to inconvenience others. If an epidemic strikes the staff he has the unalloyed pleasure of trying to do three or four men's work at the same time, with the result that his own work suffers and the powers that be become frigid or torrid, as the occasion seems to warrant.

Did anybody ever hear of a firm or an employer hustling around to try to furnish a substitute when an old and trusted inside or office man might be temporarily away from work through illness? He, or they, might make a spasmodic effort to have some one "just look over Smith's papers, will you?" but it seems to be always taken for granted that Smith will make things right, never mind how.

How often do employers ever think that the inside man may need money as well as the outside man—that he often has to entertain customers—that he is denied privileges which the traveller enjoys, simply because the business of the firm must appear to be conducted upon steady, strict and solid lines?

And when sales have been good and the business year has turned out well—when the travelling salesmen are enjoying Christmas holidays at the firm's expense and receiving increased salaries, based upon their sales, does it ever occur to the firm or directors that a large portion of those so-called "travellers' sales" comes from the efforts of the inside men?

Do employers, as a rule remember that the tact, patience and courtesy of their showroom salesmen, the laborious interpretation of involved specifications, with the results clearly set down in the finished quotation, and the following up of these quotations by the correspondent bring to them a great share of their business, a share, which they would get without the accident of the traveller's having chanced upon the customer when things were ripe for results?

An inside man does all these things as a matter of course, and has to do them well, or get out—he may make more personal sales than the best travelling salesman employed by his firm and may be an invoice clerk, cost man or correspondent at the same time, but he would never dream of claiming an increased salary because he happened to sell goods any more than he would ask for more money because his letters bore a more finished style than those of others or that his clerical work was neater and more quickly done.

He must be a combination, and a good combination, of different types of men, to be appreciated at all.

How often does the head of a firm notice that his office and warehouse are cleaner than they used to be, that his books are cleaner and neater, that his invoices and statements go out more regularly, that the correspondence is brighter and more convincing, that his whole staff is more alert and accurate?

If he does notice it, does he give a passing thought to the care, the patience and the hard work necessary to produce these results?

Does he ever remember that a few years ago his mail was filled with complaints about bad packing and shipping and his warehouse seemed to have no system or order about it—and does he then reflect that things are different now, everything in its place, all moving smoothly and the complaints reduced to almost nothing?

If some passing wonder fills his mind it is generally gone before it has caused him to consider that some man or group of men close to him, in his very office or factory, has evolved this order out of chaos, and in addition to this has kept his travellers to their work, has assisted them to sell their goods, has pointed out possible chances for orders and the right men to see, has kept watch on prices for selling and buying, has looked after collections and avoided financial pitfalls, and has done it all without hope of one word of praise or appreciation.

He generally expects no reward and his expectations are fulfilled—there is no halo for him, no fat increase in salary—but he knows his work and does it and he has the satisfaction of feeling and knowing what he has done was good. Others may do the talking, but he does the work, and gets his own reward in his own peculiar way.

The time will surely come when the inside man will be as much appreciated as he is now overlooked, and when things have been shaken down to their proper level he will be found where his brains, education and energy should long ago have placed him—very near the top.

In the meantime his lot would be rendered happier and his work made easier if the average employer would sometimes use toward him the same consideration that he gives to his travelling salesmen—his work should be recognized, and his salary should be based upon his work and results, and not merely upon length of service.

If a traveller increases his sales largely he expects, and gets, an increased salary—why, in the name of all that is just and reasonable, is the salary of the inside man not increased when his work becomes greater and his services more valuable to his firm. Why is it that the salesman's salary, at the periodical adjustment of affairs, is advanced from five to ten dollars per week, if he has done his duty, and done it well, and the inside man receives only an additional dollar or two per week simply because his work has been also done well and his duty performed?

Is it not because most employers are a little selfish in their thoughts of their own immediate surroundings and convenience and are short-sighted in looking afar? This may sound somewhat paradoxical, but does it not hit very near to the truth?

The inside man's faithfulness and devotion to duty should earn for him a better reward than he usually receives, and the writer takes the liberty, in closing, of trusting that some of the foregoing remarks may cause a small portion of those who may hear or read this article to think a little more deeply, in future, of how to help and understand him.

ADDITIONS TO COTTON MILLS.

A despatch from Fredericton, N.B., says that a quarter of a million dollars will be expended for modern machinery for the Canadian Colored Cotton Co.'s mill at Marysville, N.B. The mill will close down this evening for two weeks to allow for the installation of some of the new machinery, and to make some changes in the sanitary arrangements.

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