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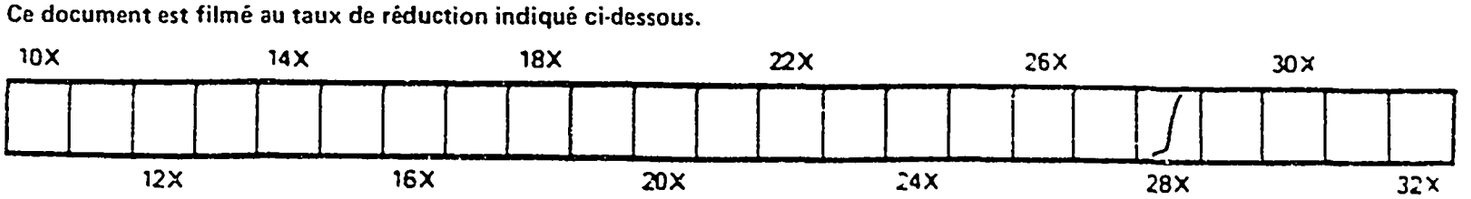

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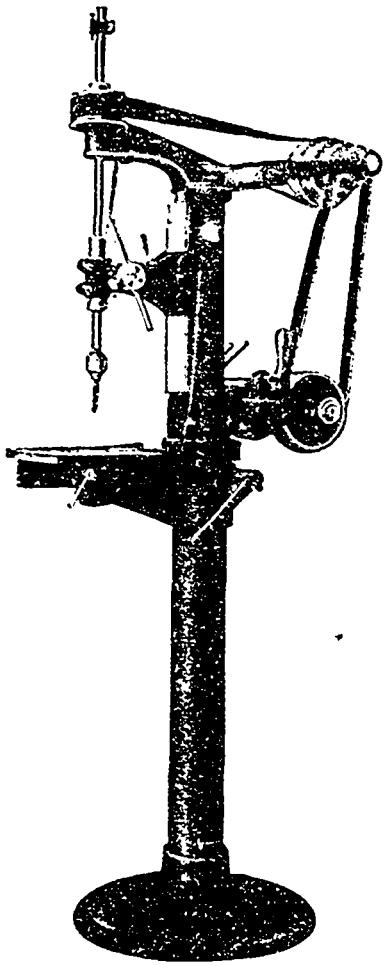

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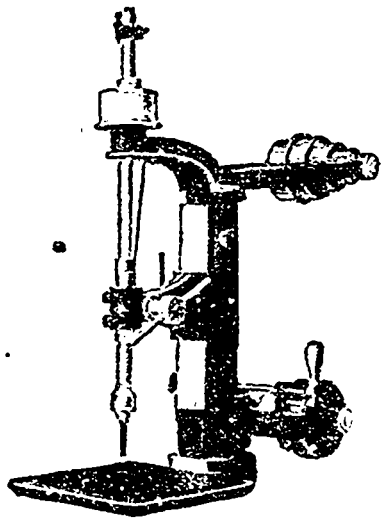

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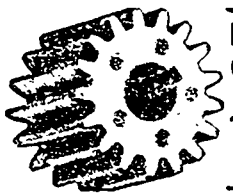

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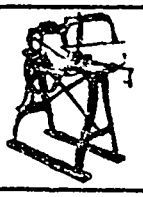

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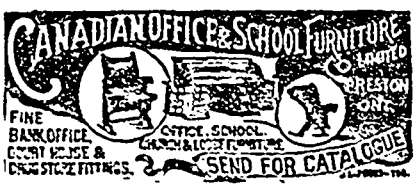

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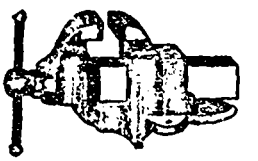

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A SUCCESSFUL CONVENTION.

The American Foundrymen's Association have benefited as well as honored Canada by holding their annual convention in Toronto last week.

It is safe to say that the convention meetings, by their numbers and enthusiasm, as well as by the interest and educative value of the papers read, have given to many Canadian foundrymen an added respect for the foundry business.

The exhibition of modern foundry appliances, equipment and materials has had an even more vital influence over visiting foundrymen from various sections of Canada for it has demonstrated to scores that they have been conducting their business along lines that are far behind the times and that incur large waste of time and labor, thus keeping their "cost of production" much higher than would be the case if modern machinery was used and more up-to-date practice followed.

We are pleased to record that exhibiting manufacturers and supply men agreed that from their standpoint the convention has been the most successful ever held. Despite the stringency on both sides of the boundary line, and particularly south of it, buying has been more liberal than in any former years.

The effect of these conventions in cumulative. Buyers who were interested a year ago have come to the point of placing orders this year while other buyers have been both interested and convinced this year.

Naturally most of the buying was done by foundrymen from the United States but enough orders were placed by Canadian concerns to make it clear that this convention and exhibition has had a deep and widespread influence throughout the Dominion.

From every standpoint it has been a satisfactory convention.

WANTED: A LOCAL ASSOCIATION.

Why should not the foundrymen of Toronto have a local association, in which those who take a serious interest in the technical, or scientific, side of foundry practice, can hear and discuss papers on the various problems that arise from time to time?

Several of the larger cities in the United States, such as Pittsburgh and Detroit, have local societies. These not only serve to sustain interest in the national, or we should say international, body but by discussing purely local problems as well as technical ones of wider interest serve a purpose that could not be expected of the larger body.

If an association were formed in Toronto it could be made far-reaching enough to take in members from neighboring cities and towns such as Hamilton, Brantford, Galt and Berlin.

The future of Canadian industry depends as much on keeping abreast of the times in technical knowledge of industrial matters as it depends on protection.

A HUNDRED MILLION BUSHEL CROP.

The statement by Sir Thomas Shaughnessy, President of the Canadian Pacific Railway, that the crop prospects in the Canadian West gave every indication of a yield of at least one hundred million bushels of wheat will be reassuring to the owners and managers of Canadian factories and mills.

Canadian manufacturers have proven their faith in their country during the last year by keeping their factories as busy as their finances warranted, manufacturing in advance of the demand, believing that in a country where the soil is so fertile, the people so industrious, and the population growing so rapidly, there must be a speedy return of abounding prosperity.

To continue such a policy month after month, in the face of financial stringency and contraction of demand, calls for every quality of courage and patience that a man may possess. It is reassuring indeed, therefore, to hear from so good an authority that the prospects for a record wheat crop in Western Canada are so satisfactory.

KEEP DOWN FACTORY COSTS.

One of the great lessons which are thrust upon owners and managers of manufacturing concerns is that, in order to keep pace with all competitors, domestic and foreign, factory costs must be reduced to a minimum.

This does not mean employing cheap labor or beating down the wages of competent workmen but rather a study of factory conditions which will so improve the system or so simplify the process of manufacture throughout the plant that various savings may be effected or the production may be enlarged without increase of cost.

During the last year or two great attention has been given to the question of power costs and many manufacturers have realized that by continuing to use engines and boilers which have long outlived their day they are paying for fuel large sums annually that might be saved if a modern steam or producer gas plant were installed

or if electric power were bought from the local electric light and power company.

The same truth exists in regard to many departments in manufacturing concerns. In the machine shop for instance old style lathes and drills are used while competitors are using high-speed lathes, drills, etc., or have adapted the automatic machine tools to their needs.

THE C.P.R. SHORT LINE TO WINNIPEG.

Canada has reason to be proud of the Canadian Pacific Railway. In slightly more than a quarter of a century it has become one of the foremost corporations in the world, its service reaching across the Atlantic and the Pacific Oceans as well as across the Continent of America. Moreover its affairs have been so wisely and aggressively conducted that it has attracted the attention of investors in all countries to the stability of Canadian business methods. This was especially true when, during the financial panic in America last October, the share value of its stock held steadily while the bottom seemed to have fallen out of the market for all other railway and industrial stocks.

At the same time Canada owes much to the C.P.R. It is an open question if the present generation of Canadians realize the importance of the giant service rendered to the Dominion by this railway, in the opening up of Western Canada by the construction of that road at a time when few Canadians believed the enterprise to be a practical one and when the population of that part of Canada consisted of a few settlers and trappers; when, to say the least of it, Canadians had much less confidence in their country than they now have. In fact it might almost be said that the Canadian Pacific Railway is the cause from which has sprung the optimism and confidence now so general throughout Canada.

It is evident that there is as much aggressiveness and courage in the management of the road as when its promoters sank their fortunes to establish it. For years the C.P.R. has had to take its freight and passengers from Toronto and Western Ontario around the long journey via Smith's Falls and Carelton Junction or over the rails of a competing road. This road was too big and the traffic originating or centering in Toronto too great to continue such a condition. About four years ago the announcement was made that this road would build its own line from Toronto to the main line. A year later construction was begun and is just completed.

The new line runs from Toronto to Romford Junction, a short distance from Sudbury on the main line. This line is 226 miles long yet has but 40 curves and 3-10 per cent. grades, so that it is of the highest standard of railroad construction. It has cost $11,000,000 or $45,000 per mile to build.

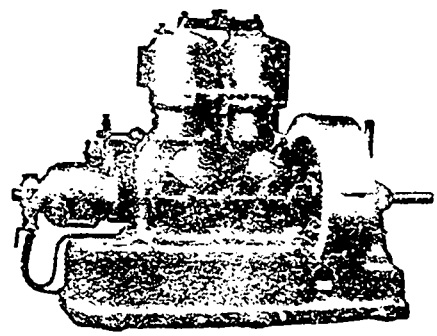
The occasion of the opening of this road, which reduces the time from Toronto to Winnipeg to 36 hours, was fittingly honored by the Toronto Board of Trade, by giving a dinner to Sir Thomas G. Shaughnessy, President of the C.P.R.

The address of President Shaughnessy on this occasion was so full of interest to Canadians and particularly to Canadian manufacturers that we give it as fully as possible in this issue of THE CANADIAN MANUFACTURER.

The Pelapone Oil Engine.

For shops using 20 h.p. or less, and for isolated lighting plants, there is always a demand for an engine that shall be a little more compact, require a little less attention, and cost a little less for fuel.

So far as economy of space is concerned, a great advance was made possible by the successful application of the principle of internal combustion to gas and gasoline engines. The next step for the engine builder was to adapt the same principle to the use of cheaper and more available fuel.



THE PELAPONE OIL ENGINE.—6 H.P. TWIN ENGINE.

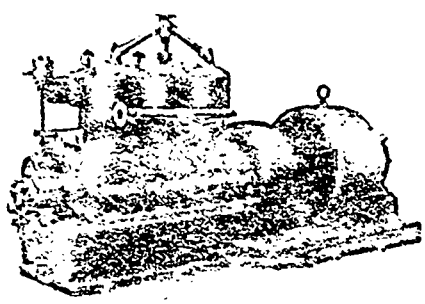
The "Pelapone" engine is a 4 cycle high speed engine which runs on common paraffin or petroleum. The oil is vaporized mechanically in a specially designed mixing chamber that requires no warming up before starting the engine. A governor, designed on steam engine lines, acts directly on the throttle valve of the engine, controlling the supply of mixture to the vaporizer and ensures economy under all loads. The speed of the engine can be varied by hand regulation about 10 per cent. either way, from 700 to 900 r.p.m. approximately.

Ignition difficulties have been overcome by a specially designed contact-breaker with which either "Magneto" or "High Tension" systems can be used.

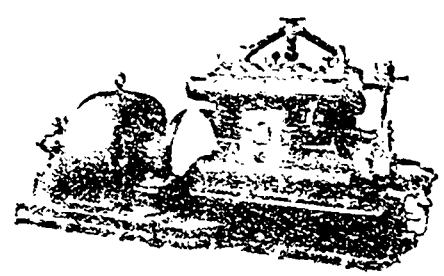
Forced lubrication is used. The oil is stored in the bed plate of the engine and by means of a valveless pump is forced to all working parts under pressure.

The overall dimensions of the two engines shown in the illustrations are as follows: 6 h.p. twin cylinder; length, 40 inches; width, 21 inches; height, 29 inches. 20 h.p. three cylinder, length, 63 inches, width 28 inches; height, 36 inches. The engines also built in 1½, 3, 9 and 12 h.p. sizes.

The Pelapone engine is built by the Pelapone Engine Co., Limited, Leeds, England and is sold in Canada by the Eastern Electrical Engineering Co., Montreal.



THE PELAPONE OIL ENGINE.—FRONT VIEW OF 20 H.P. ENGINE.



THE PELAPONE OIL ENGINE.—BACK VIEW OF 20 H.P. ENGINE.

Cement and Concrete for Boiler Setting.

By R. J. Blakney in "Power."

For making concrete care must be taken to select sand and gravel free from granite or rock that will crumble with heat, and the gravel should be washed thoroughly clean. Furnace slag which has been broken and washed is good for the purpose. The proper proportions are: Five parts of gravel, three of sand, and one of cement. Cement should never be put in a form without being tamped, using either a thin board, say half an inch thick, or a spade, working the cement down alongside the ship lap for a smooth surface. The cement should be stirred thin, so it will run out of a wheelbarrow or hod.

Rock salt should be added, when cement is used for fire purposes, in the proportion of about 15 or 20 pounds of salt to one barrel of cement. The salt should be broken up so it will easily go through a No. 4 mesh sieve and be well distributed through the sand and gravel. Sometimes, too, it is dissolved in the water used for wetting the mixture.

To Set the Boilers.

Figs. 2 and 3 show how boilers may be suspended by lugs and how the trusses, if made of wood, may be constructed. In standing up the posts of a truss, place them so the wall will come against them. Nail a batten on the post ¾ inch from inner edge, so the ship lap will come flush with the inside edge of the post. The walls should be 14 inches at the top and 16 inches at the bottom. Place a 2x4 inch piece lengthwise, as shown in Fig. 1, then place 2x4 inch uprights every 22 inches. Nail a piece across the tops of the uprights and other pieces along the side, to keep the wall straight and to serve as braces. For the inside, put as few nails as possible, and brace as shown. When the form side pieces are taken out, the top ones removed, and the longitudinal 2x4 inch strip taken out, the inside section of the form will easily come apart.

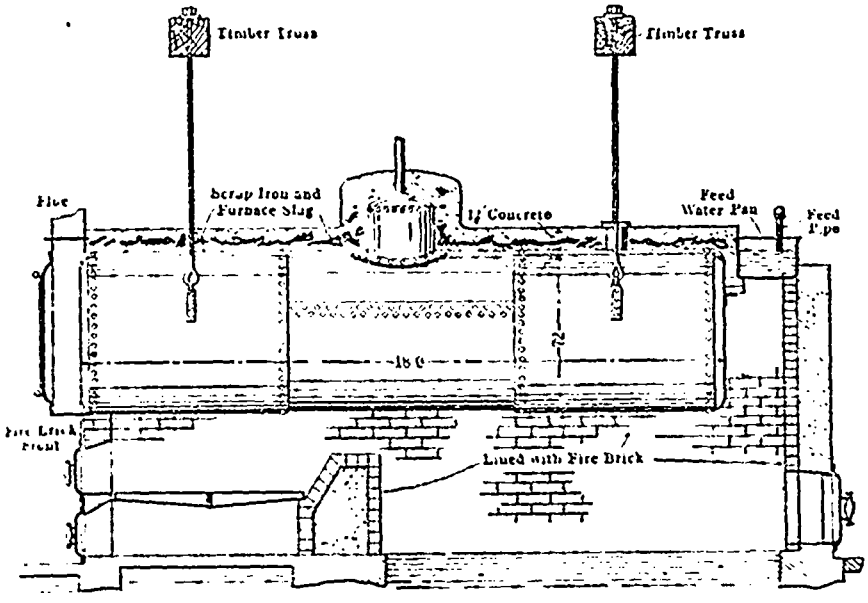


FIG. 2. HOW BOILERS MAY BE SUSPENDED

The Foundation.

In the first place, I should have mentioned the floor, or foundation, which is the most important part. The ground should be leveled and pounded until there are no spots to settle. Then there should be from 10 to 18 inches of concrete laid down and tamped level and hard. This should be allowed to stand at least one day for every inch in thickness, which rule applies to the walls, also. When the walls have set sufficiently, take down the forms, line up the inside with fire-brick, and square up the front corners with common brick, as shown in Fig. 3. Then prepare to cover the top of the boilers.

Suspending the Boilers.

When hanging up the boilers, raise them about ½ of an inch higher than they must be when in place, or when in use. Then take building paper and cover the top of the boiler wherever the cement may come in contact with it, as at the hanging rods, the dome or vertical steam pipes. Next put on the concrete, 5 to 12 inches thick.

After being properly set, unscrew the nuts on the rods and lower the boiler into place. This leaves a space all around the boiler.

Feed-water Pans on the Arches.

In Fig. 2 is shown how feed-water pans, made of sheet iron or boiler plate, may be located on the arch castings. They are set so water may be put in one and pass along to the last one and thence to the feed, when it is coiled to the proper temperature.

Protected Cement Lasts Well.

Care should be used in putting in the fire-brick lining to set the bricks properly against the cement wherever it comes into proximity with the fire. It is also important not to rest any part of the boiler or grate-bars on the concrete. Protected cement, as

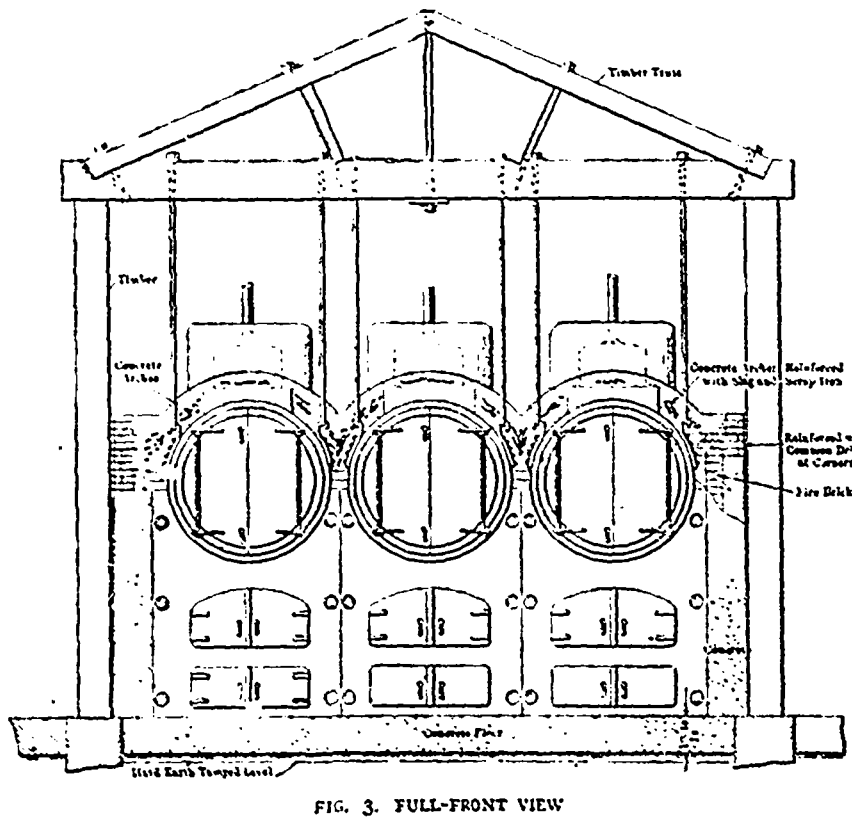


FIG. 3. FULL-FRONT VIEW

far as my experience has shown, lasts longer than brick, and with proper foundation will not crack, as there appears to be very little expansion from heat; and the writer feels safe in saying that a very liberal per cent. will be saved in fuel, also.

An Excellent Record.

The plans shown were taken from the steam plant of the Pacific Lumber & Timber Co., of Seattle, Wash. E. W. Craven, president and general manager. It was through the courtesy of Mr. Craven that the details of this boiler setting were obtained. In June, 1905, he started the fires under the boilers, and they have never been cooled off up to date. There is no visible sign of wear or burning out, and not a crack in the walls. Nearly one ton of scrap wire rope was used in the walls and over the boilers, which tends to strengthen the setting. While this may be an expensive setting at first, there is no doubt but the difference in the cost of fuel and repairs will pay for the setting in a comparatively short time. The bridgewall may be made of common brick and covered with fire-brick, instead of concrete, if desired. If made of concrete, it can be put in after the walls are built.

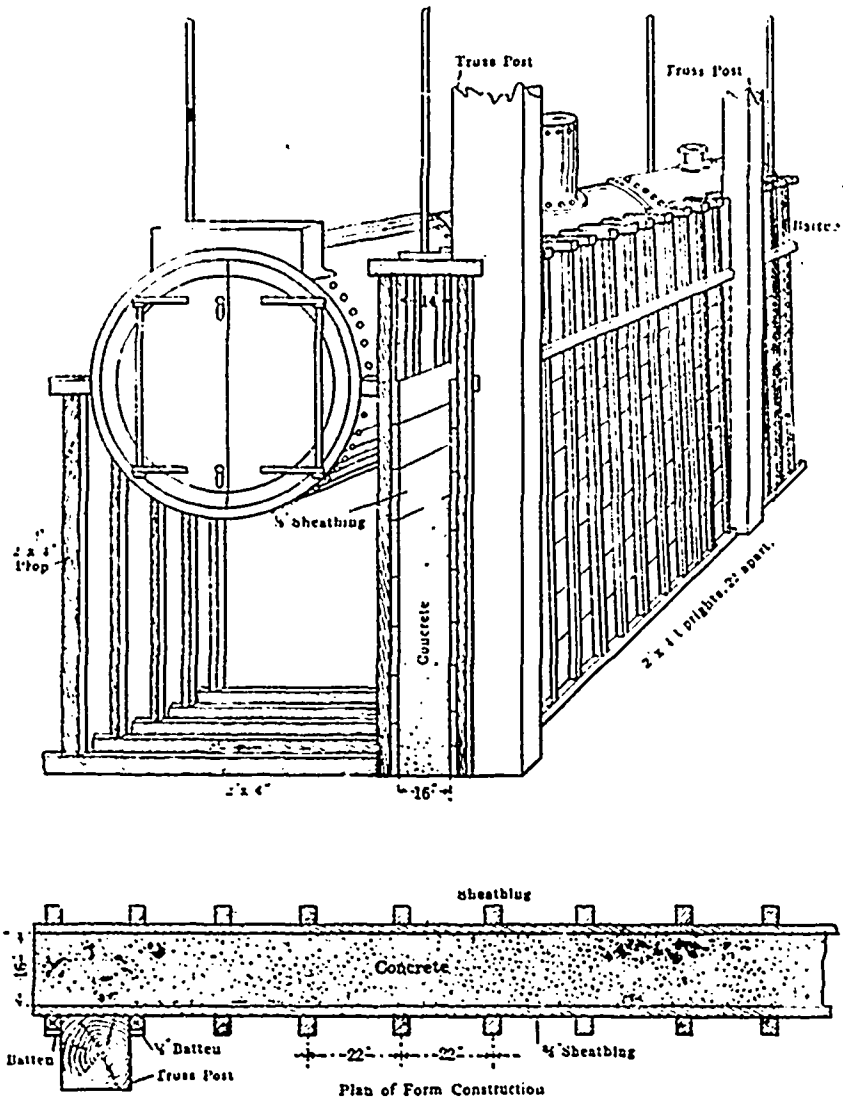


FIG. I.—SHOWING CONCRETE-FORM CONSTRUCTION.

Care of Leather Belts in Mills.

By G. Van Valkenburg in American Miller.

Shall we, or shall we not use belt dressing? This seems to be the only question under discussion thus far. I might add, "When shall we use, and when shall we not use, belt dressing and for what purpose shall we use it?

Let us see if we can discover in what condition a leather belt will do the best work. In the first place, the belt should be endless. If this is impossible, owing to the fact that the belt does not run over an idler or tightener, the belt should at least have only one place where it is joined by lace. If the belt must be made up from several pieces, these pieces should be joined with glue. Every imperfect place in a belt will decrease the pulling power of the belt a great deal, and it is impossible to join the belt with lace and make a perfect joint.

If anyone does not agree with me on this point, let him try a belt fastened with lace, on a dynamo. Every time the lace passes over the dynamo pulley it will show by a slight flicker in the lamps. It stands to reason, that if one laced joint decreases the pulling power of a belt, a number of laced joints will multiply the trouble.

It is a simple matter to join pieces of belting with glue so that it will require a close examination to tell which is the joint made by the miller and which is the one made at the factory, but if the leather is part of an old belt, and is thoroughly saturated with dirt, grease and belt dressing, the job is much more difficult, and may require extreme care and patience to make a successful job.

After the belt is made as nearly perfect as it is possible to make it, it should then if not already so, be made soft and pliable, and the surface of the belt should be perfectly clean. All belt dressing, dirt and grease, should be removed and kept off of the surface of the belt, and there is just where the dividing line lies. It is necessary at times to use something to make the belt soft and pliable, and the miller has a choice of a number of belt dressings that will do this. It should be something that will fill the pores of the leather, and thus keep the leather soft, but at the same time it must not be anything that will have a tendency to soften the belt to such an extent that it will stretch and become weak and rotten.

If the belt can be treated so that it will resemble a razor strop to a certain extent, it will be as nearly perfect as it is possible to get it. Of course you have noticed the pull that a razor strop seems to have on the razor. That is the same effect the belt should have on the pulley. If any compound or material is used on the belt that adheres to the surface of the belt, it may cause the belt to pull fiercely for a time, but later, perhaps the following day, the belt will not pull as well as before the compound was applied. Then it is necessary to make another application of the compound, and this treatment must be kept up, each application adhering to the surface of the belt, and at the same time catching dust and dirt until the belt will not do its work until a fresh application is made of the compound. In time, the belt then becomes so encrusted with dirt and belt dressing that the surface of the belt never touches the pulley. When the belt is in such a condition, it does not matter if the belt is made of leather, canvas or rubber. One is as good as the other, for it is not the belt that adheres to the pulley, but it is a surface of foreign matter. This surface is never as smooth as leather, and does not have the pulling power of leather.

I have used several different kinds of belt dressing, and some of them at first seemed to be excellent, but after a time, say several months, I have always found that my belts gave me more trouble than when I was using nothing. This applies to the sticky, gummy kinds. I have used rosin, and also rosin and cylinder oil mixed, with the same result. When first applied, they are nearly all good, but the after effect is not so pleasant. The flour miller will be bothered more in keeping the surface of his belts clean than in keeping them soft and pliable. At any rate this has always been my experience. I have never had the pleasure of working in a mill that was not dusty, and it seems to me that no belt dressing can keep the dust gets on the surface of the belt

The plan that I am adopting at the present time to keep my belts clean and, at the same time, soft and pliable, is as follows: First I hold a clean feed or burlap sack against the surface of the belt while it is running, and all the loose dust seems to be removed from the belt. Then I take a small piece of beef tallow and hold it lightly against the belt, being careful that but a very little adheres to the belt. This keeps the belt soft and pliable, but even this very mild treatment, after a time, seems to cause a slight coating of dust to adhere very tightly to the belt. When the belt gets in what I call a dirty condition, I apply the beef tallow quite liberally as described above. Then I take something with a sharp edge, the corner of a stick will do, or even, at times, if the belt is endless, I sometimes take a piece of hoop iron, and by holding it against the belt while running I thoroughly scrape the surface of the belt clean. Following this I hold waste or a clean flour sack against the belt and thus wipe it as clean as it is possible to get it. Sometimes after thus cleaning the belt I again apply a little more tallow, but not often, as usually the belt is soft and pliable enough, from the tallow which entered the belt while cleaning it.

I do not claim that tallow is the only thing to use. Neither do I claim that it is the best. Perhaps there may be many oils and patent belt dressings which will have the same effect as the tallow, and no doubt some of them are better. I am sure, however, but few millers get more service and greater pull out of their leather belts than I do.

The one point that I am trying to impress in this article is this: Whatever you use on your belts, do not use anything that adheres to the belts and causes a coating on them. Use something that will keep your belts soft, pliable, and, above all, keep the surface of the belt clean.

"BUSTER BROWN" WAGONS.

The Woodstock Wagon & Mfg. Co., Limited, Woodstock, Ont., are introducing to the trade the "Buster Brown" children's express wagons, substantially made miniature wagons, and not mere toys to be thrown aside in a few days. They are claimed to be the finest and strongest express wagon on the market, and the use of identically the same classes of materials as enter into the construction of their widely known make of farm and freight wagons, where strength and endurance are the prime factors, is a safe guarantee that any dealer who undertakes to handle their express wagons as a regular line will not make any mistake.

Dealers will do well to write for a catalogue and discount sheets, as the sales of this line will be heavy during the summer months.

The R. D. Nuttall Co., of Pittsburg, announce that they have added to their already comprehensive list of gears and pinions the Titan brand of manganese steel gears and pinions, having arranged with the Walker Steel Casting Co. for their exclusive use. This places the Nuttall Co. in a position to furnish practically everything in the way of gears and pinions for every requirement of traction and electric railway service.

The American Foundrymen's Association Convention.

The Convention at Toronto the Most Successful in the History of the Association.

When it was suggested to the American Foundrymen's Association that Toronto would be an ideal city for the convention of that organization doubt and hesitation was expressed on all sides. One of the outstanding features of the remarkable conventions of this body is the exhibition of foundry machinery, equipment and supplies made each year, and it was pointed out that the difficulties in passing exhibits through the customs were practically insurmountable; at least too serious for a one-week convention.

But Mr. L. L. Anthes, who has been a member of the executive committee of the Association for some time and who last year was elected vice-president, won the consent of the Executive Committee by his insistence and the aggressiveness of his campaign for "Toronto in 1908."

Mr. L. L. Anthes, President of the American Foundrymen's Association.

The convention is over and on every side it was voted the most successful ever held

by the Association. The very fact that it was held in Canada seems to have drawn to the meeting leading foundrymen from every part of the United States. Added to this the attendance of Canadian foundrymen in large numbers, brought to this gathering an exceptionally large number of visitors who had not attended previous conventions.

The papers read were well up to the usual high standard of interest and educative value and bear excellent witness to the ability of Dr. Moldenke, the secretary, in securing from the foremost foundrymen and metallurgists in America, papers on the problems of the day in foundry practice.

We will not attempt to give a synopsis of these papers in this issue but will publish, from time to time, in THE CANADIAN MANUFACTURER, such papers as are likely to be of particular interest to readers of this paper.

EXHIBITORS WERE SATISFIED.

Manufacturers and supply men who had exhibits of foundry machinery, equipment and supplies were delighted with the results of the week's work, for despite the contraction of business, especially throughout the United States, the sales at the convention were much in excess of those at former conventions. Both Machinery Hall and the Process Building, at the Industrial Exhibition grounds, lent themselves in a most satisfactory way to the display of this class of material.

In fact, with the Ballot cupola, operated by Mr. Jules de Clercy, of Montreal, supplying molten iron twice a day, with moulding machines, core-ovens, melting and refining furnaces, tumbling, cleaning, grinding and polishing machinery in almost constant operation the visiting foundrymen or foundry foremen were given such an opportunity to study modern foundry appliances as has never before been given in Canada and will not likely be given again until the A.F.A. can be persuaded to make a return visit to this city.

Owing to space limitations on the one hand and the diversity of lines shown we cannot hope to give a description of the various exhibits. A brief summary of them was, however, presented in our last issue.

Canadian foundrymen were delighted with the compliment paid to Canada in general and one of their number in particular in the election of Mr. Lawrence L. Anthes, of the Toronto Foundry Co., Toronto, to the presidency of the association.

Mr. Anthes is the first Canadian and the youngest man who has ever been honored with this important office. He has, too, fully earned the office for he has for several years taken a deep interest in the association and has aroused the interest of many Canadians in its meetings. He was, too, largely instrumental in having this year's convention in Toronto, a move that is to-day recognized to have been wise from every standpoint.

The officers elected were:

President, L. L. Anthes, Toronto Foundry Co., Toronto.

Vice-presidents, F. B. Farnsworth, McLagan Foundry Co., New Haven, Conn.; W. H. Parry, National Meter Co., Brooklyn, N.Y.; J. W. Jeffrey, Ohio Malleable Co.; Samuel T. Johnson, Cleveland, O.; T. W. Sheriff, Sheriff Mfg. Co., Milwaukee, Wis.; J. A. Kisserle, Columbus Iron Works, Columbus, O.; and R. J. Cluff, King Radiator Co., Toronto.

Secretary, Dr. Richard Moldenke, Watchung, N.J.

GOLDSCHMIDT-THERMIT EXHIBIT.

Canadian foundrymen were much interested in the exhibit of the Goldschmidt-Thermit Co., who have recently opened an office in Toronto. Many times during the day foundrymen were given an opportunity to see the Thermit process of welding in operation, the necessary appliances for welding wrought iron and steel sections, butt welding pipe and repairing castings being demonstrated.

The deep interest in this process, mysterious to all except those who have become familiar with the chemical action involved, was evinced by the large number of practical men who watched intently each demonstration.

Titanium-thermit cans, for purifying molten iron and steel and semi-steel cans for reviving dull iron and melting steel borings in gray iron for the purpose of making semi-steel castings; also pure metals produced by the alumino-thermic process, such as manganese, chromium, molybdenum free from carbon, and manganese copper free from iron, ferro-vanadium, manganese zinc, ferro-titanium, ferro-boron, were shown.

This exhibit was in charge of N. E. Orde, the company's new representative at Toronto, and A. M. Guenther, of New York.

ACHESON OILDAG COMPANY FORMED.

Edward Goodrich Acheson has transferred to the Acheson Oildag Co. his patents and trade marks covering his latest important and valuable products—Oildag and Aquadag. These patents and trade marks cover the industrial world, twenty-two countries in all, a fact that bears testimony to the recognized possible wide application of Oildag and Aquadag.

THE AMERICAN FOUNDR...

Of Oildag, it may be said that it has already obtained wonderful popularity as a gas engine lubricant, as its use makes possible a 50 per cent. reduction in the oil consumption at the same time greatly increasing the available power of the engine by decreasing the friction and increasing the compression, also quieting the engine and making it run like velvet. Thus it effects economy while improving results. Oildag is also valuable in the operation of electric light plants. It is a mixture of deflocculated, unctuous Acheson-graphite mixed with oil, put up in tubes and cans for charging one, five and ten gallons of mineral oil.

The Acheson Oildag Co. has established offices and works at Niagara Falls, N.Y.

Foundry Warehouse Methods.

ADDRESS BY F. C. EVERITT, TRENTON, N.J., BEFORE THE AMERICAN FOUNDRYMEN'S ASSOCIATION.

With possibly a few exceptions, probably no one subject which we might classify under the heading of "System" would be subjected to a wider range of variation, due to the local conditions of various plants and their line of goods manufactured, than the subject of "Foundry Warehouse Methods." To carefully consider and present any one plan or method that might be generally applied for the proper and profitable handling of goods with a foundry and mounting or finishing departments, and then only as a suggestion that may be the means of provoking discussion and bring to the attention of our members the success with which our methods have been and are being applied by firms conducting well organized warehouses.

For convenience we will consider a plant operating a foundry, a mounting or finishing department and a warehouse. We will

NVENTION AT TORONTO.

ll that the majority of manufacturers ould not raise objections to if applied to their particular case, would be very exceptional. Not that they would be averse to the application of such methods, but because the conditions are so varied that radical changes in any set method when applied to different plants are absolutely necessary. It is very true that the local conditions can be changed to conform with the method in question, but this is not always advisable as it might involve a greater expense and more confusion than could be overcome in a long time, whereas, a few changes in the methods to be adopted would give entire satisfaction with little expense.

In submitting any method, it will be necessary to confine ourselves to those plants which conduct a warehouse in connection assume also that the plant has been in operation for a given period. This will provide us with some knowledge as to the demand for the different articles manufactured. We may then decide what points are most important for careful consideration before applying our method.

(a) Method of storing the finished stock in the warehouse. Its location and records.

(b) Method of ordering completed goods for warehouse stock.

(c) Means of ascertaining quantities sold in the past in order to judge what quantities to order for stock, preventing an overstock and guarding against the article becoming obsolete before stock is exhausted.

(d) Method of handling orders for shipment which might be held for shipping instructions. Location of these prepared orders.

(e) The storage and handling of castings before mounting and the method of ordering on the foundry.

With the first item (a) it will be necessary, according to the construction of the warehouse, to carefully and systematically arrange the different floors into sections or bins as the case may suggest, the floors, sections and bins being numbered in the order named, i.e., floor No. 1, section 25, bin 50. We can then very readily refer to the location in a simple manner (location 1, 25, 50). This is a very simple outlay and one which is undoubtedly used by many manufacturers. With this part of our plan established we may prepare the warehouse office "Stock and Order Book," a sample sheet of which is shown (Fig 1). On these sheets bound in loose leaf binders, we will enter the name of the article and its size, maximum and minimum quantities to be carried in stock and its location. (One sheet or page being used for a single article). As the orders are received in the general office and recorded, copies are sent to the warehouse office and entered immediately on the Stock Order Book in the columns under the heading "Orders." The stock on hand having been previously entered in the "Stock" column, we readily note that we have 300 on hand and can ship at once. A warehouse memo slip, bearing the order number, customer's name, article and its location, is handed to the man in charge of the stock to prepare the goods for shipment, after which he reports to the warehouse office, goods ready to ship. When shipped the ticket or original order is again referred to the Stock Order Clerk, who enters the shipment in "Shipped" column, and the balance on hand reckoned and entered in "Stock" column.

(b) As the stock falls below the minimum quantity, a requisition is at once issued on the mounting or finishing department. As the goods are received from this department, a daily report is made by the warehouse man to the Stock Order Clerk, who makes the proper entries in the "received" column, the quantity in each case being carried to "Stock" column and showing a total.

(c) If this method be continued for a period of one or two years it is very plain to see that we will have a volume of valuable information that can be applied to a good advantage. We are able to tell at all times the number of orders on hand for any one article, requisitions issued for goods to go in stock, quantities received, stock on hand and the quantities sold for the above mentioned period, the last item of which will enable us to intelligently fix the maximum and to know what quantities to order for stock to meet future demands. In placing these requisitions for stock on the departments we must not lose sight of one important fact, i.e., do we know or are we in any position to tell, with the above information at hand, whether the demand for any one article will be as great during the year to come as was the case with the year just past. We do not, for while the outlook for the next year's business may be unusually favorable, we may have discovered by referring to our records of two or three years that size No. 1 of a given article sold during one year at the rate of 2,000, and size No. 2 sold at the rate of 500. Another year has shown that No. 1 decreased

and No. 2 increased in sales, which might have again reversed during a third year. If we have placed our maximum during the last year at 2,000 and wish to place a requisition on the mounting or finishing department for a six months' stock, we must endeavor to keep the stock within salable quantities and the conclusion is simply a matter of "Good Judgment," and we decide that a six months' stock order will be 700 instead of 1,000 which will, according to our best judgment, prevent an over stock and keep it within the danger line of decreased business.

What conclusions are we now able to draw from the above information? Simply this, that we have data at hand which will serve as a guide in preventing an undesirable over stock that so often results in an accumulation of goods that really become dead and obsolete. We cannot say, however, that the method would entirely obliterate this undesirability, but it would tend to minimize these possibilities which would be a big step in the right direction.

balances made when goods are reported, we will have a false statement of stock on hand as well as being in a position to overlook these prepared orders, when taking inventory from the Stock Books at the end of the year.

The method as outlined above has been made as general as possible under the conditions mentioned and we might add that where the articles named are completed as one, the method is simple and easily handled. However, if the articles are composed of many parts, any one of which might form a part of several other articles, it might be wise to rely on a second method briefly outlined below. This method can be applied to good advantage in the departments where the many parts are used to make the assembled article, and in conjunction with the warehouse Stock Order Book.

While this record (See sample sheet, Fig. 2) may seem a duplication of the warehouse record and apparently call for unnecessary clerical work, it serves to a very great advantage in the department in as

Ample space is allowed for the name and description of the part, as well as a rough sketch if desired. The maximum and minimum quantities to be carried in stock can be ascertained precisely as in the first method. The columns for orders issued on the foundry date and quantities received, taken out and on hand are simple and need no further explanation.

ARTHUR KOPPEL EXHIBIT.

The Arthur Koppel Co., New York City, had as their exhibit at the foundrymen's convention a miniature system of railways showing the various types of cars, trucks, etc., made by them.

THE REID MOLDING MACHINE.

The Reid Foundry and Machine Co., Ingersol, Ont., had a booth devoted to their new "Reid" molding machine, and several good orders, including one for 18 machines, proved the interest taken in this machine.

Fig 1

ARTICLE Handle Article No. 41

SHEET No.

Total Shipped 1907 2000

Max. 1500 Min. 250 Location of Stock Floor Bin

ORDERS				SHIPPED		DISPOSITION FOR STOCK			RECEIVED		APPLIED ON ORDERS			STOCK		
Date	Order No.	Customer	Quan.	Date	Quan.	Date	Req'n No.	Quan.	Date	Quan.	Date	Order No.	Quan.	Date	Received	On Hand
7/11	2581	Jones & Co	100	7/11	100									7/11	100	300
7/10	2573	Smith & Son	125	7/12	125	7/12	780	500	7/30	25		Stock		7/12		200
									7/10	50		"		7/20		
7/25	3001	Green & Co	200						7/6	200		"		7/25		
									7/12	425		"		7/13		
														7/17	125	
														7/15		575
														7/16	200	

Fig 2. ARTICLE

Total Shipped 19

PLATE NO

ORDERS					SHIPMENTS				
Day	Date	Order No.	Customer	Quan.	Date	Order No.	Dept.	Quan.	REMARKS

Fig 3 STOCK. MAX. MIN. YEAR.

LOCATION	ARTICLE	ORDERS ISSUED			PUT IN		TAKEN OUT.		ON HAND.	
		Date	Order No.	Quan.	Date	Quan.	Date.	Quan.	Date.	Quan.

(d) Returning again to our Stock Order Book, we must endeavor to avoid all confusion in order that our records be simple and accurate. With this in mind we will take for example goods reported for shipment and held pending shipping instructions. The goods must be placed in a located section of the warehouse nearest the shipping floor, this location having been noted on the warehouse memo before being reported to the Stock Order Clerk. We will note in the "Order" column of the sample sheet an order for Brown & Co., 200 articles and in the "Stock" column, required, 200 with no balance made and no entry having been made of shipment. This will show at a glance that the goods on this order are being held and the memo on file will give the location of the order ready for shipment. If this precaution is not taken and the entries and much as it shows at all times an accurate record of the requisitions on file for goods to be made up for warehouse stock and orders from other departments that may be in the plant. The two methods worked together would undoubtedly be subject to many changes due entirely to the size of the plant, the number of departments and the general disposition of the goods manufactured.

(e) The forms shown, Fig. 2 and Fig 3, are intended to be used in the same department, but are to be handled entirely independent of one another: Fig 2 being a record of orders and shipments and Fig. 3 a stock record of castings and a record of orders issued on the foundry. This form is simple and needs little explanation. The method of locating the stock would, of course, be the same as outlined for the warehouse and a single sheet or page in this book used for each casting.

HAMILTON FACING MILLS.

The Hamilton Facing Mills Co., Hamilton, had a large booth showing "Wadsworth" core machinery, also an interesting display of various qualities of foundry sand, partings, facings, brushes, and other foundry supplies.

The Western Fuel Co., of Nanaimo BC have recently purchased a 90 inch double inlet half housed Sirocco mine ventilating fan having a capacity of 200,000 cubic feet of air per minute at 275 r.p.m. or 300,000 cubic feet of air per minute at 405 r.p.m. This fan will be built by the Robb Engineering Co., of Amherst, N.S., who have made arrangements with the Sirocco Engineering Co., of New York, to manufacture their fans in Canada.

The Canadian Electrical Association Convention.

Held in Toronto, June 17, 18 and 19, 1908.

The Eighteenth Annual Convention of the Canadian Electrical Association was opened by the President, Mr. R. S. Kelsch, in the Chemistry and Mining Building of the University of Toronto, on Wednesday morning, June 17. The attendance of members was large, and reflected the growth that has been made in the membership of the society during the past year. In the early part of the morning, the secretary, Mr T. S. Young, who had opened an office in one of the class rooms, was kept busy enrolling members, distributing tickets for the entertainments arranged and in taking fees.

President's Address.

It was shortly before ten o'clock when the convention was called to order by the President. In a brief address he congratulated the Association on its continued growth and progress, but insisted that there was still room for it to develop in usefulness to its members. What had been done to induce the government to lower the cost of electrical meter testing was an indication of what might be accomplished.

This subject, upon which the secretary also spoke, was a very interesting one to the Association, and aroused some discussion. The testing department, which is operated by the Dominion Government, and is intended merely to be self sustaining, has shown a profit during seven years of over $150,000. Last February, a deputation, arranged by the association, interviewed Sir Wilfrid Laurier and Hon. Mr. Templeman and induced them to abolish the registration fee. This in itself effected a saving of some $6,000 a year to the electric companies of Canada. The government could not, however, be induced to assent to a reduction in inspection rates until operation for a year or two on the new basis should show whether the department remained self sustaining or not. It was suggested that the association ought to continue to press this matter on the government.

One thing the association might do, suggested the president, was to take up seriously the study of the rate question. He predicted as not unlikely the appointment of a commission for the control of electric power rates. The association, he said, should have things in such shape as to leave very little for such a commission to do.

The president spoke with some enthusiasm of the advances being made in electric lighting on account of new discoveries.

When the president made a reference to the efficient work of the secretary, Mr. T. S. Young, on behalf of the association, the approval of the members was expressed by vigorous applause.

President Falconer, of the University of Toronto, briefly welcomed them to the University. There was need, he said, for close relations between the University and such associations. Dean Galbraith, of the Faculty of Science, spoke briefly to the same effect when invited to address the gathering.

Report of the Secretary.

The secretary's report indicated a total membership of 395, a gain of 98 during the year. A special effort, he said, had been made to get all electric light and power companies interested in the association, and there had been a good response. There were, however, still a number willing to reap advantages from the association's existence, without incurring any responsibility themselves.

He expressed the hope that the new plan for the question drawer, by which questions were more quickly answered, would prove a valuable one.

Mr. Young advocated the abolishing of the duty on electric light carbons, which amounts to 40 per cent. They are imported to the value of $40,000 a year, and as there are none manufactured in Canada he considered the duty an unnecessary burden. The financial report showed a balance of some $800 to the credit of the society.

The programme of the convention as published in The Canadian Manufacturer, for June 5, was adhered to, except that no evening session was held, Mr. C. H. Mitchell's paper on European Hydro-Electric Power Developments, being given Wednesday afternoon. Members of the convention were accorded the courtesy of free transportation by the street railway, on exhibition of their badges.

On another page is published the paper read Wednesday morning by Mr. W. N. Ryerson on Power Rates and Factors Which Influence Them. It is hoped in a future issue to deal with others of the papers presented.

Convention Exhibits.

In the main hall and in a room of the basement were exhibits of a number of firms handling electrical supplies.

The Universal Mfg. Co., of Chicago, and 28 Wellington Street, Toronto, exhibited a flat rate controller. With it, when more than the stipulated number of lights are attempted to be used, all lights begin to flash, until the extra load is taken off. The same firm had on exhibition a Universal adding machine, made in St. Louis.

The Philip Carey Mfg. Co., of Toronto, displayed asbestos pipe and boiler coverings and roofing, special attention being given to their 85 per cent. magnesia high pressure pipe and boiler coverings. O. A Cole, H. E. Rowell and H. W. Cook were in charge of this exhibit.

The Gas & Electric Power Co., Toronto, had an exhibit of electric meters. A. H. Dow and D. Hills represented the company.

The Canadian Fairbanks Co. showed small meters and electric supplies, their exhibit being in charge of A. Givens, Toronto.

The Ontario Power Co., of Niagara Falls, showed their standard 60,000 volt insulator and their aluminum cables.

In the basement was the exhibit of the Joyner-Greene Co., of the Stair building, Toronto. They are agents for central station equipment and for electrical contractors' supplies. They handle the goods of the Weston Electrical Instrument Co., Federal Electric signs, and many other lines of goods. H. Y. U. Joyner and E. A. Greene were present.

J. F. B. Vandaleur, Dineen Building, Toronto, had an exhibit of English electrical supplies. They drew special attention to the volt and ammeters of Evershed & Vignoles, London. One instrument is made to serve for both alternating and direct current. There was an extensive display of Evershed meggers and bridge meggers.

The Canadian Westinghouse Co., of Hamilton, had one table devoted to an exhibit of Nernst lamps. The main hall upstairs had also been specially lighted by Nernst lamps to serve as an exhibit. Another table displayed various small Westinghouse attachments, such as small motors and dynamos and electric fans. The Westinghouse representatives were W. H. Eisenbeis, W. W. Lovell, H. I. Grobbs, A. E. Fleming and M. H. Smith.

A model of the steel tower to be used by the Hydro Electric Power Commission for the carriage of power cables was shown in the upper hall. The insulators shown are suspended, carrying the cables beneath them.

The Oneida Community, Niagara Falls, had an exhibit of galvanized chain for suspension of arc lamps. Wilbur L. Earl, of Montreal, and G. W. Noyes, of Niagara Falls, were the representatives in charge.

The Midland Electric Co., of Montreal, showed the Kallord Wolfram lamp, a metallic filament lamp, new construction.

Engineering Specialties, Limited, of Toronto, had an exhibit of Black Cat dry batteries.

In Room 13 of the basement the Canada General Electric Co. had an extensive exhibit of electrical supplies. They had various electric heating and cooking devices, including electric radiators and flat irons. A novel feature of their exhibit was an electric horse, operated by a small motor. Considerable merriment was caused by attempts of delegates to ride the electric pony. Mr. H. I. Edwards, with a large staff of assistants had the exhibit in charge.

Though Allis-Chalmers-Bullock, Limited, Montreal, did not have an exhibit, they were kept prominently before the convention by John S. MacLean, publicity manager of that company. An illustrated and handsomely bound bulletin was distributed to members of the C.E.A. Emphasis was given to the fact that Allis-Chalmers-Bullock are the only company in Canada which build both water wheels and all the electrical apparatus, such as dynamos, motors, transformers, etc., necessary for a complete installation of this kind. A number of their hydro-electric plants, either in operation or under construction, including those of the Quebec Railway Light & Power Co., on the Montmorency River; the Mond Nickel Co., at Wabageschik Chute, Vermillion River, Ont.; the New Liskeard Light, Heat & Power Co., Chester Falls, Ont.; and the Montreal, Light, Heat & Power Co., at Soulanges, Que., were described in the bulletin given out.

On Wednesday evening the members of the convention enjoyed a moonlight sail on the lake. Thursday afternoon they inspected the electro-metallurgical equipment of the University, Mr. Dushman conducting the demonstration. As this paper goes to press on Thursday evening we are not able to report the proceedings of Friday, association's luncheon at McConkey's at noon, the baseball match at Hanlan's Point which had aroused great anticipations must be similarly neglected.

The local committee having charge of the

arrangements was composed of R. G. Black, (Chairman); W. N. Ryerson, J. J. Wright, T. J. Lynch, W. A. Bucke, T. F. Dryden, W. G. Chace, W. H. Eisenbeis, J. A. Kammerer, W. B. Boyd, D. H. McDougall, C. H. Mitchell, H. A. Moore, R. J. Clark, G. K. Hyde and T. S. Young.

THE REGISTER.

The Register of the Convention, up to the time of going to press was as follows:—

R. S. Kelch, consulting engineer, Montreal Light, Heat & Power Co., Montreal, President Canadian Electrical Association.

W. N. Ryerson, General Superintendent Ontario Power Co., Niagara Falls, Ont., First Vice-President Canadian Electrical Association.

R. M. Wilson, General Superintendent Montreal Light, Heat & Power Co., Montreal, Second Vice-President Canadian Electrical Association.

T. S. Young, Secretary-treasurer Canadian Electrical Association, Confederation Life Bldg., Toronto.

R. G. Black, General Superintendent Toronto Electric Light Co., Toronto.

A. A. Dion, General Superintendent Ottawa Electric Co., Ottawa, Ont.

B. F. Reesor, Managing Director Georgian Bay Power Co., Lindsay, Ont.

Charles B. Hunt, Manager London Electric Co., London, Ont.

J. J. Wright, Manager Toronto Electric Light Co., Toronto.

W. Williams, Gas & Electric Light Co., Sarnia, Ont.

H. O. Fisk, Peterboro Electric Light Co., Peterboro.

J. W. Purcell, Hiram Walker & Sons, Walkerville,

J. G. Glassco, Hamilton Cataract Power, Light & Traction Co., Hamilton,

W. A. Bucke, Canadian General Electric Co., Limited, Toronto.

T. J. Lynch, District Manager Allis-Chalmers Bullock, Limited, Toronto.

W. H. Eisenbeis, Canadian Westinghouse Co., Limited, Toronto.

C. H. Mitchell, Consulting Engineer, Toronto.

D. H. McDougall, Toronto & Niagara Power Co., Toronto.

W. G. Chace, Consulting Engineer, Toronto.

T. F. Dryden, District Manager Canadian Westinghouse Co., Limited, Toronto.

J. A. Kammerer, Toronto.

H. A. Moore, Manager Engineering Department, Canada Foundry Co., Limited, Toronto.

W. B. Boyd, Toronto Street Railway.

G. K. Hyde, Engineer Scarboro Beach Park.

R. J. Clark, Toronto Street Railway.

R. A. Stinson, Canadian Crocker-Wheeler Co., Limited, Montreal.

George C. Burnham, Allis-Chalmers-Bullock, Limited, Toronto.

J. A. Shand, Allis-Chalmers-Bullock, Limited, Toronto.

Chas. A. Smith, Hamilton Anchor Co., Hamilton.

Miss Williams, Sarnia.

Alvan L. Woolf. Midland Electric Co., Montreal.

D. M. McGargar, Electrical Engineer, Belleville Portland Cement Co., Belleville.

H. S. Brown, Canadian General Electric Co., Toronto.

D. R. Price, Sunbeam Incandescent Lamp Co., Toronto.

C. R. McKay, Toledo Railways & Light Co., Toledo, Ohio.

H. G. Nicholls, Canadian General Electric Co., Toronto.

Irving Smith, Sales Manager R. E. T. Pringle Co., Limited, Montreal.

E. I. Jenking, Canadian General Electric Co., Toronto.

T. R. Roseburgh, University of Toronto, Toronto.

B. Van Winckle, Canadian Fire Underwriters' Association, Toronto.

W. W. Lovell, Canadian Westinghouse Co. Toronto.

T. Beecroft, Barrie Electric Light Co., Barrie.

A. B. Lambe, Canadian General Electric Co., Toronto.

H. W. Cook, Philip Carey Co., Toronto.

H. O. Edwards, Canadian General Electric Co. Toronto.

A. T. Hicks, Trenton Electric & Water Co., Trenton.

H. R. Carruthers, Alvinston Power Co., Alvinston.

F. A. Chisholm, St. Johns Electric Light Co., St. Johns, Que.

W. L. MacFarlane, St. Lawrence Power Co. Cornwall.

E. J. Kyle, Merrickville Light & Power Co., Merrickville.

R. J. Smith, Canadian Electric & Water Power Co., Limited, Perth, Ont.

M. H. Smith, Nernst Lamp Department, Canadian Westinghouse Co., Limited, Toronto.

John F. B. Vandaleur, Toronto.

J. D. Archibald, Woodstock Electric Light System, Woodstock, Ont.

A. Sangster, Gas & Electric Department, Sherbrooke, Que.

Alfred Collyer, Alfred Collyer & Co., Montreal.

Geo. Campbell, Electrician Robt. Simpson Co., Limited, Toronto.

F. A. Mahoney, Canadian General Electric Co., Limited, Toronto.

J. P. King, Stratford Gas Co., Stratford, Ont.

F. Rose, Canadian General Electric Co., Limited, Toronto.

Wm. McCaffrey, Canadian General Electric Co., Limited, Toronto.

Mrs. J. W. Purcell, Walkerville, Ont.

Philip H. Hover, N.Y., Insulated Wire Co., New York.

Geo. Williams, 60 Wall Street, NewYork.

John Murphy, Electrical Engineer Department of Railways & Canals, Ottawa.

J. D. Lachapelle, Eastern Electrical Engineering Co., Montreal.

Sydney S. Anderson, Sandwich, Windsor & Amherstburg Electric Railway, Windsor, Ont.

T. R. Fulton, E. F. Phillips Electrical Works, Montreal.

H. W. Heise, Central Electric & School Supply Co., Toronto.

J. Allan Fletcher, R. E. T. Pringle Co., Limited, Toronto.

G. Theoron Goddard, Moloney Electric Co., St. Louis, represented by R. E. T. Pringle Co., Montreal.

B. F. Anderson, Canadian Westinghouse Co., Limited, Hamilton.

C. W. Stokes, Harpell-Stokes, Limited, Toronto.

P. Alexander, Alexander & Miller, Peterboro.

John S. MacLean, Allis-Chalmers-Bullock, Limited, Montreal.

H. T. Gibbs, Canadian Westinghouse Co., Limited, Toronto.

Henry Oestreich, Jos. E. Seagram, Waterloo.

George Grosz, Waterloo Electric Light Co., Waterloo.

H. F. Strickland, Inspector Canadian Fire Underwriters' Association, Toronto.

O. A. Cole, Phillip Carey Mfg. Co., Toronto.

Joseph Cave, Canada Foundry Co., Toronto.

W. H. Lytle, Canadian Independent Telephone Co., Toronto.

G. H. Rolland, Allis-Chalmers-Bullock, Limited, Toronto.

Wm. McKay, Robb Engineering Co., Toronto.

W. E. Reesor, Light, Heat & Power Co., Lindsay, Ont.

J. M. McLennan, Light, Heat & Power Co., Lindsay, Ont.

A. H. Skene, Wahnipatæ Power Co., Sudbury.

A. E. Fleming, Canadian Westinghouse Co., Limited, Nernst Lamp Department, Hamilton.

A. M. Wickens, Canadian Casualty Co., Toronto.

R. J. Dunlop, Canadian Westinghouse Co. Limited, Toronto.

V. Boyd, Canadian General Electric Co., Limited, Toronto.

P. S. Coate, Chatham Gas Co., Chatham, Ont.

Geo. C. Knott, Benjamin Electric Mfg. Co., Toronto.

N. S. Braden, Sales Manager Canadian Westinghouse Co., Limited, Hamilton.

Paul J. Myler, General Manager Canadian Westinghouse Co., Limited, Hamilton.

H. L. Griffin, CANADIAN MANUFACTURER, Toronto.

Prof. R. W. Angus, University of Toronto.

H. S. Dodd, Gas & Electric Power Co. Toronto.

L. Grant, British Insulated & Helsby Cables, Limited, Montreal.

A. F. McBean, Western Counties Electric Co. Brantford.

P. B. Yates, Gould Storage Battery Co., Toronto.

J. B. Dougall, Electric Light & Waterworks, Barrie.

J. W. Putnam, Toronto & Niagara Co., Toronto.

W. L. Adams, Ontario Power Co., Niagara Falls, Ont.

G. D. Bly, Monarch Supply Co., Toronto.

J. Johnson, Public Works Department, Ottawa.

T. J. E. Papineau, Toronto Electric Light Co., Toronto.

E. D. McCormack, Canadian General Electric Co., Limited, Toronto.

J. H. Jenkins, General Electric Co., Limited, Schenectady, N.Y.

J. Herbert Hall, The Conduits Co., Limited, Toronto.

H. H. Beasley, Storekeeper, Toronto Railway Co.

N. S. Richards, Canadian General Electric Co., Limited, Toronto.

D. D. Smith, Federal Electric Co., Toronto.
H. E. Hunter, Canadian General Electric Co., Limited, Toronto.
A. S. L. Peaslee, Canadian Westinghouse Co., Limited, Toronto.
A. Esling, Canadian General Electric Co., Limited, Toronto.
Joseph Rogers, Rogers Electric Co., Toronto.
John F. S. Madden, Canadian General Electric Co., Limited, Toronto.
E. J. Phillips, Municipal Lighing Plant, Berlin.
C. U. Peeling, Electrical Engineer, Campbellford Corporation.
A. Landan, Electrical Specialties, Toronto.
J. Meafurchy, Brampton Electric Light Co, Brampton.
Alfred von Wattinwye, Berne, Switzerland.
J. M. Deagle, Cataract Electric Co., Orangeville.
D. F. Shub, Muncipal Plant, Collingwood, Ont.
J. J. Knight, Toronto Electric Light Co., Toronto.
J. A. Woodman, Hamilton.
B. F. Selby, Canadian General Electric Co., Toronto.
H. M. Kensit, Smith, Kerry & Cehace, Toronto.
C. W. Wright, Canadian General Electric Co., Ottawa.
Thomas Stewart, Lindsay.
E. D. Smith, Montreal.
D. W. M. McCargan, Belleville Portland Cement Co., Belleville.
J. C. Arner, Canadian Machinery, Toronto.
E. D. Mote, Toronto.
H. Boultbee, Canadian Electrical News, Toronto.
Geo. D. Stanley, Rochester.
W. Northgraves, Waterloo Electric Light Co.
S. P. Lewis, Creemore Electric Light Co., Creemore.
H. W. Jutton and A. Henion, Canadian Westinghouse Co., Hamilton.
J R. McLenden, Owen Sound Electric Light Department.
J. Wilson, Electric Light Commissioner, Collingwood.
C. Mortimer, Toronto.
D. O. McKinnon, CANADIAN MANUFACTURER, Toronto.
F. S. Joy, Canadian Machinery, Toronto.
J. J. Salmond, Canadian Engineer, Toronto.
A. A. Kirschman, Canadian Concrete Review, Toronto.
E. A. James, Canadian Engineer, Toronto.
T. A. Merrick and C. A. McLean, Canadian Westinghouse Co., Toronto.
R. B. Hamilton, Packard Electric Co., St. Catharines.
W. T. Dean, Canadian General Electric Co., Toronto.
F. C. Smallpiece, Canadian General Electric Co., Toronto.
John P. Thompson, Eugene F. Phillips Electrical Works, Toronto.
A. C. Haight, Canadian General Electric Co., Toronto.
E. B. Walker, Canadian General Electric Co., Toronto.
John Knox, Dominion Power & Transmission Co., Hamilton.
W. Lang, Knight Bros., Limited, Burk's Falls.
A. W. Givin, Canadian Fairbanks Co., Limited, Toronto.
J. H. Bennett, Barrie Corporation.
P. Whatmore, Electrical Specialties, Limited, Toronto.
Herman P. Kimball, Standard Underground Cable Co., New York.
A. T. Laing, University of Toronto.
R. S. Wilson, Manager, Oakville Electric Co., Oakville, Ont.
W. T. Earl, Oneida Community, Limited, Niagara Falls, Ont.
W. M. Andrew, Canadian Westinghouse Co., Limited, Toronto.
G. R. Noyes, Oneida Community, Limited, Niagara Falls, Ont.
W. R. Reynolds, Water, Heat & Light Commission, St. Mary's, Ont.
H. Webster, Electric Lighting Plant, Norwich, Ont.
P. E. Hart, Georgian Bay Power Co., Toronto.
W. J. Wyles, Electric Light Plant, Corporation of Wingham.
E. F. Stoll, Universal Mfg. Co., Toronto.
F. Ryan, Electric Supplies, Limited, Hamilton.
H. T. Bray, Cully & Bray, Hamilton.
E. Smith, Gravenhurst Power & Light Co.
D. F. Streb, Municipal Lighting Plant, Collingwood.
J. H. Sloan, Muncipal Lighting Plant, Tottenham, Ont.
Elvin F. Brough, Electrician, Sulphide, Tweed, Ont.
H. A. Burson, Chief Engineer The Packard Electric Co., Limited, St. Catharines.
C. S. Manchester, Electrical Superintendent, Welland Canal, St. Catharines.
A. F. Fifield, Electrical Contractor, St. Catharines.
A. G. Sangster, Manager Lincoln Light & Power Co., St. Catharines.

Trend of Canadian Trade Must be East and West

AN ADDRESS BY SIR THOMAS G. SHAUGHNESSY, PRESIDENT OF THE CANADIAN PACIFIC RAILWAY, BEFORE THE TORONTO BOARD OF TRADE.

In reply to a toast in his honor before the Toronto Board of Trade Sir Thomas Shaughnessy, President of the Canadian Pacific Railway, delivered an address of general interest to Canadian manufacturers.

It is now, said the speaker, just 26 years ago when certain Ontario newspapers which at that time were not in accord with the policy or methods of the newly-organized Canadian Pacific Railway, and which found a good deal of fault with the importation of men trained in the technical features of railway work, were publishing articles to the effect that "another Yankee O'Shaughnessy" had been brought in by the Canadian Pacific Railway. But the people of Canada refused to believe that an O'Shaughnessy could be a Yankee.

Now just 26 years after those criticisms I have the temerity to come here, supported by my friends Sir Sandford Fleming, Senator Forget and Messrs. Matthews and Osler, my colleagues in the company, to meet and join you good citizens of Toronto in celebrating the completion of a new link forged by the Canadian Pacific Railway, which practically places Toronto on our main line.

In view of the occasion and of the kind words used by his Honor the Lieutenant-Governor and by your President, it may not be out of place to say that during these entire 26 years in which I have been connected with the company I have received nothing but the most cordial support, the greatest possible friendship, the greatest possible consideration and encouragement from my fellow-Canadian citizens. During so long a period and with so varied interests it would be impossible that everyone should agree with our policy at all times: but I can say this to-day, that, no matter what may have been the outcome of our disputes, I cannot point to a single indication of resentment, and I certainly carry none.

As the subject has been raised I think it is fitting that I should say to-night what are the facts with regard to the original construction of the Canadian Pacific Railway, because I do not believe that to-day the actual circumstances are understood even by Canadians.

THE ORIGINAL MEMBERS.

The original syndicate was composed of George Stephen, Donald A. Smith, Joseph J. Hill, Duncan McIntyre, R. B. Angus, with John H. Kennedy associated with them. Messrs. Stephen, Smith, and, in a smaller way, R. B. Angus, have made their fortunes with the rehabilitation of the old St. Paul & Pacific, afterwards the St. Paul, Minneapolis & Duluth Railway, and from that they have realized fortunes which even to-day would be considered vast. By reason of this they were in a position in 1881 to form the syndicate which afterwards became the Canadian Pacific Railway. That is where the money came from. The work was carried on, the company organized, and the stock sold on a basis to realize 45 cents on the dollar on an average, including the original subscription. Not one of these men realized one single dollar from his connection with the Canadian Pacific, until in recent years Lord Strathcona, who had kept some of his stock, secured his benefit of the increase in value. But in 1895 any gentleman in this room could have bought the stock of the Canadian Pacific Railway on a lower basis than the original founders received away

back in 1882, when no one had any faith in the company.

The great genius of the company, the man who, beyond all others, was responsible for its successful completion, was George Stephen, now Lord Mount Stephen. He was the bold man, the man of originality and resource, while Strathcona was the strong and faithful second, always ready to follow Stephen.

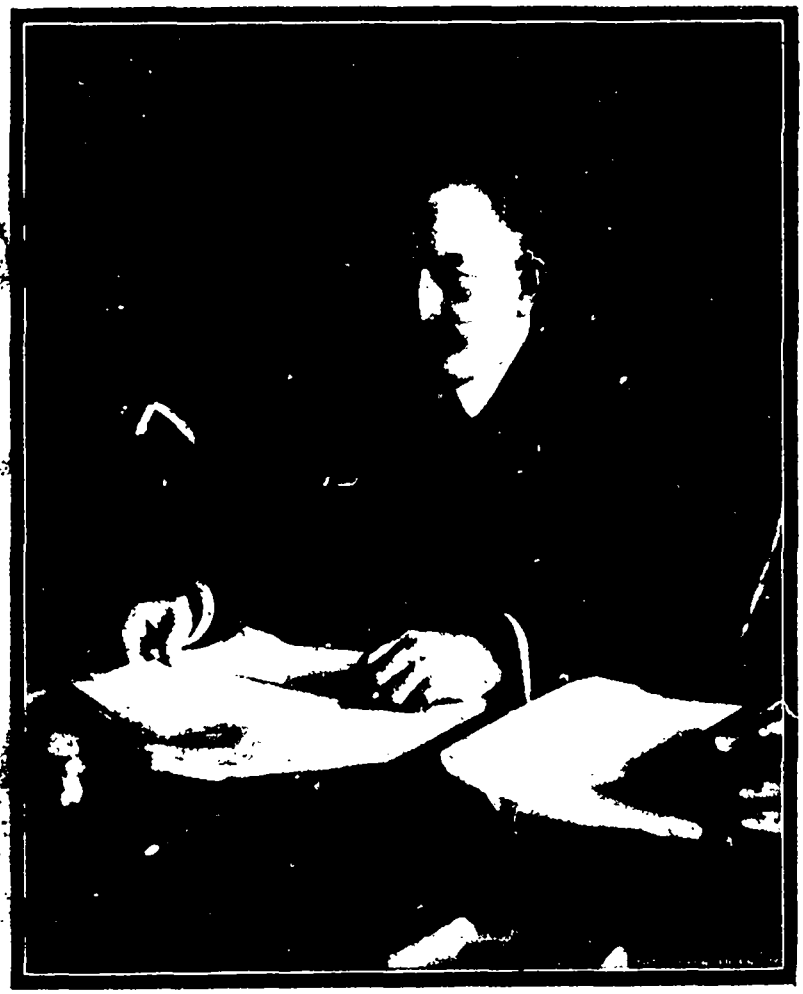
AN HONEST ENTERPRISE.

Proceeding, Sir Thomas said it was a peculiar source of gratification to him that it could be said of the Canadian Pacific Railway, as the President had just stated, that it had been an honest enterprise. He had never made a statement to his directors and shareholders with greater satisfaction than when, at their last annual meeting, he had told them that every dollar of outstanding securities of any sort, excepting the original capital stock, had been sold at not less than its face value.

And, continued the speaker, I have this proud boast to make that in the 26 years that we have been in operation, notwithstanding the hundreds of millions of dollars which have been handled by many thousands of employees, the sum total of defalcations which have occurred would not amount to one hundred thousand dollars.

AN IMPORTANT EPOCH.

The completion of this Toronto-Sudbury line marks an important epoch in the history of Toronto, because it not only practically places this city on the main line of the Canadian Pacific, but brings it in closer touch with the nickel districts of Sudbury, with the industrial activities at the Soo, with Winnipeg and all that vast empire of the west upon which we all rely so much for our future greatness; but besides this it opens up a by no means unimportant section of Ontario hitherto served by no transportation line. *It has been a hard and almost heartbreaking* job. We intended from the first to make it a high-class line and made liberal estimates,



SIR THOMAS SHAUGHNESSY IN HIS OFFICE.

but owing to engineering difficulties these have been largely exceeded, but you will agree with me that nothing is too good for Toronto.

A LITTLE HISTORY.

The connection of the C.P.R. with Toronto was established in 1884 by the construction of the Ontario & Quebec Railway from Toronto to Carleton Junction. Originally this road was 331 miles from Montreal via Ottawa, subsequently reduced to 338 miles by the construction of the Smith's Falls cut-off.

It might be well here to refer to an old Toronto citizen whom I never knew personally, but who was a great factor in connection with that Ontario & Quebec system—the late George Laidlaw. Mr. Laidlaw devoted himself to the Credit Valley and Toronto, Grey & Bruce Railways and other similar enterprises, never with profit to himself.

At the time the Ontario & Quebec Railway section was completed Toronto had a *population* of 105,000, and its assessment was $66,000,000. To-day you have a population of about 300,000 and your assessment roll is nearly $206,000,000, a record of which I am sure very few cities of this continent can boast. I would not have you imagine that I attribute all this great growth of population and wealth to the connection formed at that time, but *I am sure that I am justified in saying it* was no small factor in securing these results.

The magnificent strides of Toronto and of the other cities and towns of Ontario, and, indeed, of every section of eastern Canada, are due beyond any question of doubt to the opening up by the C.P.R. of that vast empire west of Lake Superior which has brought you so much new trade, and which has given so much additional occupation to your people. Think of what you are sending to that country—groceries, provisions, implements, bicycles, machinery, stoves, pianos, books and merchandise of every possible description, which are being sent from your stores, factories and laboratories. It is by these means that Toronto's wealth and population were built up.

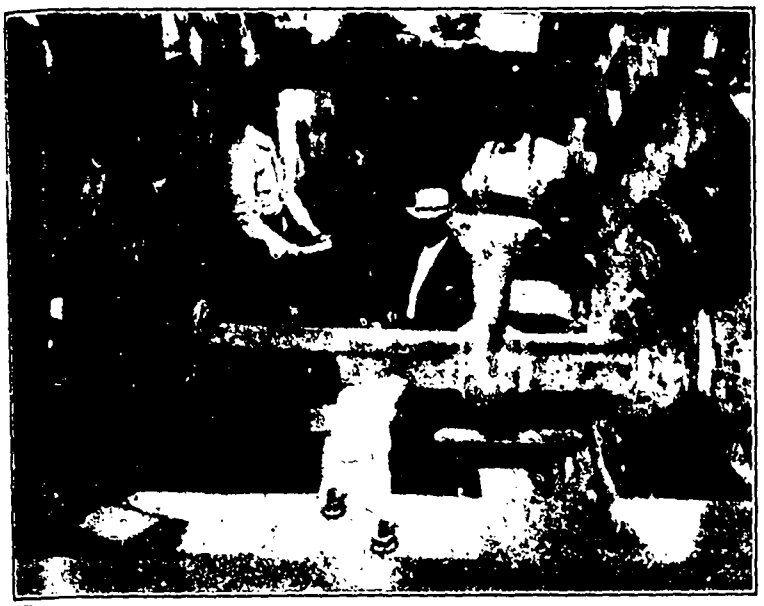
It is true that the opening up of the West caused something of an emigration from Ontario to the West and a temporary falling off in the value of farm lands, but any loss suffered in that was a mere bagatelle compared with the enormous advantages you have gained from the other causes I have mentioned.

ONE HUNDRED MILLION CROP.

It is not necessary to refer here to what has taken place in the territory west of Lake Superior during the last few years; the growth of population and extent of lands which have been brought under cultivation in Manitoba, Saskatchewan and Alberta. That is an open book which has been read by every Canadian. I do not propose to resort *to anything in the nature of a statistical* forecast. But we all know that given reasonable weather—and it looks as though we were going to have it—the crop of that country this year should produce at least 100,000,000 bushels of wheat. And this with the proceeds of their cattle, dairy industry and other produce can give you some estimate of the enormous purchasing power west of Lake Superior; and you people in Toronto will profit by every additional dollar of purchasing power they possess, provided that we Canadians are true to ourselves and realize that we must do whatever is in our power to strengthen the ties between that country and eastern Canada so as to make the Canadian West an essential portion of the Dominion.

ADDITION TO PURCHASING POWER.

We are all too apt to think only of the prairie country in connection with agriculture, but in British Columbia the fruit industry means a great deal for Canada. This year alone I am informed that no less than 17,000 acres of orchards have become productive, and this new yield will bring a return of no less than $5,000,000 This will mean a gain, an important addition to the purchasing powers of the farmers of the prairie country, while the mines and lumber industry will be given increased activity, and will come to you for their supplies; so that from every side you receive advantage from the growth of that western territory.



WELDING
WROUGHT IRON AND STEEL

THIS illustration shows a THERMIT WELD on the stern-wheel shaft of a river steamboat. The repair was carried out without causing the steamer to miss a trip.

By the Thermit Process, steel sections of any size may be welded IN PLACE. All appliances are light and portable and may be *brought to the job.* Locomotive frames may be welded without dismantling the engine; stern-posts, rudder-posts and stern-frames of steamships may be quickly repaired without dismantling the vessel. In the same way important repairs may be made to crank shafts, gear wheels and other broken steel sections. Write for Pamphlet No. 18-G.

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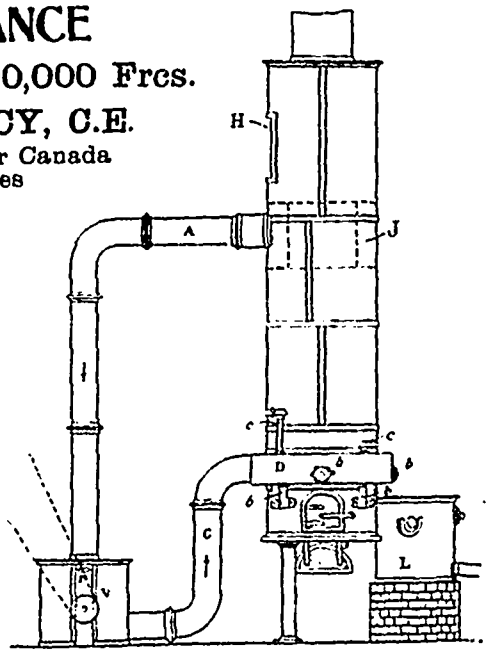

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Write for particulars and illustrated catalogue. Cupolas may be seen in operation in Montreal

JULES DE CLERCY, C.E., Sole Agent for Canada and the United States

62 Ontario Street West, MONTREAL, Canada

With a good harvest, as I hope we shall have this year, we are sure to forget this financial stringency which has so much troubled my friend Mr. Wilkie and others. But I earnestly trust that while we forget these disagreeable days and the trials that everybody connected with financial affairs was put to, we shall not forget the lesson of that period—we shall not forget that a boom, if it be an ephemeral boom, must have serious results.

Future of the West.

I have referred to the practically ascertained results of this year's operations in the Northwest. We know that next year, with similar conditions, we shall have still greater improvement. But is there any gentleman in this room with the requisite temerity to make a forecast as to the conditions ten years hence? Can anyone place a limit upon the possibilities of Manitoba, Saskatchewan, Alberta and British Columbia —I would not say within the next quarter of a century—that is too long—but within the next ten years? I think I know the western country as well as most people. I have watched it as carefully as any, and I would hesitate very much indeed to prophesy upon its future possibilities.

But while we are giving attention to our agricultural interests and encouraging development of our farms and our fruit lands and our mining and lumbering operations, we have other things to do in Canada which we must carry out if we are properly to fulfill our destiny.

Canada's Internal Waterways.

We have our internal waterways. We must endeavor to shorten the distance between the Georgian Bay and the seaboard, and improve the routes so as to make traffic cheaper. We must amplify and improve our ocean ports so as to give cheaper handling of traffic there. We must see that our St. Lawrence navigation and the approaches to our Atlantic seaboard are made as reliable and safe as modern methods can make them.

By doing this we shall be encouraging shipping to our ports, and by bringing additional ships we shall be bringing what we want most—people from the various countries of Europe to occupy our vacant lands.

Year by year the requisite work should be done without an attempt at unwise economy, but efficiently and intelligently, so that we may bring to our own country and commercal centres all the business of the West that belongs to us, and send back our merchandise over the same routes, and handle through our own national termini all the imports and exports of this country.

Grown to a Great Fleet.

The C.P.R. has spent many years and many millions of dollars in carrying out its own plans with this purpose in view. The original three vessels that we had on the lakes have grown to a fleet of seventy on the Atlantic and Pacific Oceans and our internal waterways, so that the red and white house flag of our company is now met on the waters all the way from Hong Kong to London and Antwerp.

But we have not reached a finality by any means. We should adopt every improvement and not hesitate in any expenditure necessary for the safeguarding of Canadian traffic that may be undertaken by the Government for the protection or improvement of our waterways. In this connection it may not be uninteresting to mention a report I have just received giving the passengers carried by various vessels from Liverpool across the Atlantic during the last week in May. These show in first-class passengers the Mauretania, 144; Baltic, 116; Caronia, 135; Empress of Britain, 153. In second-class passengers, the Mauretania, 165; Baltic, 128; Caronia, 155; Empress of Britain, 453; and in the third-class, which means real settlers, the figures are even more impressive: Mauretania, 343; Baltic, 587; Caronia, 407; Empress of Britain, 893.

He Likes a Little Commerce.

So you see that such little progress as we have made in improving the character of our vessels on the Atlantic is commencing to bring results. I do not believe in Mauretanias for us at the present time. They cost too much. The Mauretania cost nearly four times as much as the Empress of Britain, and nearly three times as much to operate her. It takes too much sentiment and too much Government subventions to operate such boats. There is too much sentiment in it. I like a little commerce myself.

There is one other subject that I cannot help referring to. We are finding our population continually being increased by immigration from Europe and the United States. These settlers coming here have naturally not the same national sentiments as we have, but we want their co-operation and countenance in carrying out the great works before us for the still greater advancement of our country. The question is how to secure that co-operation. If after he has been here a little while the settler from the United States finds that he can buy his agricultural implements and other supplies to as good advantage there as in Canada he will naturally do so, and the trend of trade and all social intercourse will thus become northward and southward, and in the same way foreigners from Europe will follow the example of their neighbors, and you can all see what the result of such a condition of affairs would be in the course of a few years.

Intercourse East and West.

This is something which we must try earnestly to avoid. We must establish such relations between the merchants and manufacturers of the east and the merchants and consumers of Western Canada as will make the trend of traffic and social intercourse in Canada east and west. If we succeed in doing that we shall not only make these strangers, these colonists who have come here to build up homes for themselves and their families, good Canadian citizens, but shall be able to make them strong advocates of every policy calculated to advance the material interests of the country and bring the various Provinces into closer connection and thus more firmly establish the original idea and intention of confederation.

How are we going to do this? Without talking as an expert, we must rely upon two things. first, a strong and well thought out transportation policy. By that I do not mean that we should deny people the right to build railways north and south. That would create dissatisfaction, and we do not want that. Let who will build railways from the international boundary northward into the western Provinces or westward through them if they wish them. But let the men in charge of the transportation interests of Canada devote themselves to such an improvement of their properties as will enable them to carry traffic more cheaply, if possible, than it can be carried in any other country. The C.P.R. has been doing that. Since 1902 our system has spent $36,000,000 for additions to its property and $90,000,000 for additional operating facilities—that is no small record for less than six years.

Should Have Trade Commission.

But besides this transportation policy we should have a wise, prudent and statesmanlike tariff policy; not with a view to enriching the manufacturer or making the goods more expensive to the consumer. That, I think, can be regulated. I do not see any reason why there should not be a trade commission as well as a railway commission. But the work should be done so as to definitely and beyond any question fix the channels of Canadian trade eastward and westward.

There is a tradition, an unwritten law, that a man in my position should not talk politics. I have great respect for traditions and would not wish to be misunderstood or construed as saying anything of a political character. To my mind, neither the transportation policy nor the trade policy of this country involves one single element of partizanship. On the contrary, every loyal citizen of Canada from New Brunswick to the Pacific, every British subject who wishes to see this country occupy the place she should in this fabric of empire, approximating the position of Great Britain herself, must agree with me that these subjects cannot receive too serious and impartial consideration.

Thanks for the Reception.

I find it difficult to thank you members of the Board of Trade and citizens of Toronto for this magnificent reception to-night and for the complimentary terms with which you proposed the health of the company of which I am President, and of myself. I do not know that I can say anything to you here to encourage the belief that the C.P.R. will in future be a greater factor in the progress and prosperity of Toronto than in the past. Probably you do not feel about the past as much as I do. You may not realize as much as I do the factor the C.P.R. has been. But I can promise you this without question or reservation: that everything that can be done profitably and on business lines to bring Toronto to a still more prominent position in the business situation of the country than she occupies at the present time the C.P.R. will do. We appreciate the loyalty with which you have supported us with your business, even at times when we did not agree upon all questions. We appreciate the importance of your position here in Ontario as the centre of a magnificent agricultural district. We are building some few lines, not very important, 30 miles here, 30 miles there, and 30 miles in another direction, to bring other sections into touch with Toronto, and no doubt that will go on probably with some degree of acceleration during the next few years. And I trust that when we meet here again after the completion of some other important railway connection the same good fellowship and kind feelings will exist between the people of Toronto and the C.P.R. that I find here to-night.

The Qualifications of a Factory Superintendent.

ADDRESS BY MARION W. BLAIR, BEFORE THE ILLINOIS CLAY WORKERS' ASSOCIATION.

Shakespeare says, "I would sooner teach twenty what were good to be done than to be one of the twenty to follow mine own teaching." Not only does that hold true in reference to a superintendent, but it would probably take twenty superintendents to do the things that any one of us might see to be done on even a moderate-sized plant.

A comparison might be drawn between the superintendent and a horse. Often the needs or the individual taste of his owner determines his value. The owner rarely condemns and virtues alone are published. If he balks, kicks, or lays down in the harness, it is best policy to let the new owner discover these traits. He may have been bought because he paced or trotted or jogged or walked, for each gait has its admirers and often the one sought-for quality overshadows all faults. However, horses are bought or hired to get there and carry a load and so are superintendents. The destination is a profit and the load one of the most trying jobs in the whole clayworking business.

The successful operation of a moderate-sized plant involves a general knowledge of many engineering subjects, as well as ability to organize and systematize a working force and a certain experience in general business. The superintendent must be able to handle steam, air and electricity and to direct and control many chemical changes. He must have some knowledge of construction and be familiar with foundry and machine-shop practice. In fact, I doubt if there is another manufacturing business in which there is required such a variety of general scientific knowledge and which is so dependent for success on little things of a scientific nature and yet in which this knowledge is so little valued or appreciated.

The mere handling of men is not superintendence. The successful superintendent of a large plant comes little in direct contact with his men. Discipline he must have, but he should preferably be an organizer and leave the handling to foremen in different departments. The essential thing in the superintendent is to watch his foremen, and see that each produces the greatest amount of work from the fewest number of men, or rather for the fewest number of dollars.

An incompetent superintendent often hides his inefficiency and lack of ability to organize behind the contract system. He does not seem to realize that broken car-decks and wreck on the transfer track add to the nominal 30 or 35-cent cost of his setting; for every No. 2 brick set and counted reduces the number of brick actually marketable, and thus occasions a reduction of profit. While he may pay his loaders 40 cents per M., yet it is comparatively simple to add a cent or more by careless sorting or breakage. I have actually seen No. 1 paving brick loaded in a car of culls, and every one so loaded meant the throwing away of nearly 1 cent of the company's money. Not much money, I will admit, but I should hate to risk changing a $5.00 bill into copper cents and scattering them through the lobby of this hotel with the expectation of picking them up again to-morrow.

Clay cars partially filled and drier cars short, mean thousands of dollars paid out in the course of a year for goods which are not delivered. The difference in records and shortage in the inventory is accounted for by breakage and is thrown on the bat pile on the yard and charged to profit and loss in the office.

A machinist seldom makes a good superintendent. He is inclined to think that if he *keeps up the machinery* the balance of the yard will run itself. Still, the superintendent must have a general knowledge of foundry and machine-shop practice. He must be able to determine when a machine is worn out and, equally important, when it is not. Often a machine may be continued in service by some repair or change in arrangement which makes it quite efficient. It is, however, almost criminal to run worn-out machinery. It lessens the per cent. of No. 1 ware, lessens capacity and wastes power. The junk to be found in operation in plants throughout the country, and the serviceable machines in the scrap pile would lead an unprejudiced observer to believe that this quality of distinction was lacking in many superintendents.

Nothing but a No. 1 product should be allowed to leave the machine room. A brick or drain tile never improves in shape or structure in the kiln, and as the burning is the vital point in the manufacture of clay ware, it should be given every advantage. The superintendent must understand the burning of the ware in hand. He should understand and be able to direct how the various ware should be placed in the kiln, and how the various stages of firing should be carried on. He should depend on his burner, but should never be at the burner's mercy. He should be familiar with the various forms of kilns, and their construction, operation, and maintenance.

The superintendent should know something of the uses of the ware he makes, and should be able to talk intelligently to possible customers.

Further, he should be ambitious to become more than superintendent; part owner, perhaps, or head of a new enterprise. The clayworking industry is destined to grow. The certain exhaustion of our lumber supplies, the constant adaptation of clay ware to new uses, and the general failure of substitutes, make the establishment of new plants a necessity and they will be owned and managed in large part by the superintendents of to-day. The success of the superintendent, however, is dependent to a large extent on his relations with the management under which he labors.

He should enjoy the fullest confidence of his employers, and should be aided in every way to solve his various problems. Often you will find dissatisfaction with a superintendent because his costs are high and yet he is not furnished a means of knowing what these costs are. Accounts should be so kept that the comparative cost of any department for a given time can be seen at a glance. Supplies, fuel, etc., in cost per unit of ware should be accessible to the superintendent at any time. He can then better regulate and distribute his labor and locate leaks in the supply account, and overcome excessive repairs.

Then, too, many of the best superintendents are *overloaded. Time-keeping, cost* distribution, shipping and looking after supplies will generally keep one man busy. The superintendent should only supervise such work; his time is too valuable in other directions. If you find him taking a man's place in the setting gang or loading a wagon, you will find things dead wrong on some other part of the yard. Some managements however, consider such labor by the superintendent *as a gain, and he is considered a hustler,* because it saves a man, when in fact it is like paying a bricklayer 70 cents an hour to lay brick and letting him wait on himself, when tenders can be hired for 15 cents.

In order to be progressive, the superintendent should attend such meetings as these and his attendance should not only be made convenient, but he should be urged to attend. He may in so doing help some competitor, but he will himself be *benefited and* will promote the interests of the business at large, and so add to the general welfare and comfort.

New Dyes for Men's Garments.

By T. BRANDT in the Textil und Farberei Zeitung.

In the course of the last twelve months several new dyes have been introduced for cloth for men's garments, and that for two reasons. The dyes hitherto in use were not so cheaply applied as is desirable under present conditions; and at the same time certain fashionable shades were very difficult to produce with the range of dyes at the disposal of the dyer so as to have the necessary degree of fastness to weather and the other agencies which masculine garments are expected to endure.

Among the older dyes used for the purpose above noted, the Anthracene Chrome dyes hold a nearly assured position. Anthracene Chrome Blue F, Anthracene Chrome Blue BB, Anthracene Yellow C and BN, and also Anthracene Chrome Brown D and Anthracene Acid Brown G are the best of them. The last four dyes have won a great place in dyeing cloths for uniforms, especially in producing a gray on an indigo ground. The two dyes first in the above list are used to replace the indigo ground as the topping gives the same shade with them as with indigo, and also give the gray greater fastness to milling than indigo does as a bottom color, when dyed in a sulfuric acid bath and after-chromed. The military grays are expected to stand four hours' milling, so that the felting will be equal to that obtained with a sample worked by hand.

For civilian purposes and for worsted yarn and worsted pieces, Anthracene Chrome Brown SWN and Anthracene Blue Black C render excellent service. Both are dyed in a single bath and after-chromed. So applied, they give dyeings which are not only fast to light, washing, milling, alkali stoving and carbonizing, but to decatising and pe-

ting. They answer capitally for dyeing worsted cops, as they are very soluble and make no froth in any part of the apparatus. Besides, they are not affected by contact with the copper parts of the machine, and penetrate well, so that the outer part of cops or hanks are never more dyed than the parts below the surface. Experience has shown that they dye the inside of cops to exactly the same shade as the outside, and a more severe test of penetration could hardly be devised. What is more, these dyes dissolve quite as well in hard as in soft water.

The practical dyer is concerned not only with the economy as regards the quantity of dye used, but with the appearance of the dyed goods. By this he can often judge of the body of a dye better from a light than from a dark shade. This is easily understood when we consider that a dye which, when dyed in the proportion of 2 pounds of dye on 400 pounds of goods, gives a disagreeable impression on account of differences in the coloration of different fibers, may give perfectly satisfactory results with higher percentages, i.e., may be quite suitable for dark shades of its own color and yet utterly unfitted for light and delicate mode shades. The two products under notice, however, have excellent covering powers. A dyeing with from 0.3 to 0.5 per cent. of Anthracene Blue Black C gives an absolutely uniform, clear slate-gray; while the same proportion of Anthracene Brown SWN gives a sand color equal in all respects to the slate-gray just mentioned, even if the yarn itself is not uniform.

Dyed alone, or combined with Anthracene Yellow C or BN, *it gives excellent dyeings* for evening dress, as the color looks the same by artificial as by natural light. Excellent browns for men's garments are dyed with from 2½ to 3 per cent. of Anthracene Brown SWN. The two dyes are dyed in a bath containing from 2 to 3 per cent. of the weight of the goods of acetic acid. Enter at about 40° C., boil up, and after half an hour's boiling exhaust the bath with acetic acid or sulfuric acid, according to the shade desired. Then after-chrome in the same bath with bichromate in quantity from half to two-thirds of that of the dye used, and for forty-five minutes at the boil. If a reddish shade is desired, the necessary amount of Anthracene Chrome Red A can be added to the dyebath before fixing with bichromate.

Harry de Joannis in Canada.

Mr. Harry de Joannis, known throughout Canada as well as the United States as the editor of "Brick," Chicago, has resigned from that paper and moved to Canada. He has bought an interest in Bechtels, Limited, Waterloo, Ont., and has assumed charge of the sales department of that company. One of the first things done by Mr. de Joannis has been to organize a publicity department and *the trade can expect to hear a good deal* about Bechtels and their products in the coming years.

With Mr. de Joannis to strengthen their organization Bechtels, Limited, are preparing to enlarge their business until they can manufacturing machinery for every branch of the clay working industry. Already arrangements are completed for adding new lines. They have taken the Canadian agency for The Barron Dryer Co., Chicago Ill., and will be headquarters in Canada for the *steam dryer made by that company, which is* especially adapted for tender clays such as those in Manitoba. Other lines will be added in the near future.

Canadian clay-working concerns will give Mr. de Joannis a warm welcome to Canada, as his genial manner and his intimate knowledge of *clayworking practice has made him* a popular man in all parts of the country

Controlling the Burning of Clay Products.

Paper Read by W. D. Richardson, of the Richardson-Lovejoy Engineering Co., Columbus, O., Before the Canadian Clay Products Manufacturers Association.

All manufacturers of clay products recognize that the success or failure of their business or the amount of their profits depends more upon the burning than upon any other operation. They know that it is not only the amount of fuel and labor expended in burning, and the expense for kiln repairs, but the *percentage of No.* 1 ware of the desired requirements, taken out of their kilns, that determines, more than anything else, the earning power of the plant. Moreover, there is probably no manufacturer who believes that he has attained the acme of perfection in burning, that his kilns are consuming the least amount of fuel, are being burned in the shortest time and that the results are the best that are practically obtainable. There are few, if any manufacturers, also who feel sure they can always duplicate any desired effects produced upon their clays by the action of the fire. In other words, they must acknowledge that they have not such control of the burning of their wares as enables them to secure the best product with the least expenditure of fuel, time and labor, nor to predict in advance just what the results from the kiln will be. There is such a large personal equation in burning operations, such dependence upon the skill and empirical judgment of the burner as to make results uncertain, and any positive improvement very problematical. In other industries, requiring the application of high temperatures, as for instance, in the steel industry, empirical and uncertain methods have been displaced by positive, systematic methods, made possible by the invention of apparatus for controlling the conditions governing the pyrochemical actions. We may say also that in the clay industries much technical progress has been made. We are now able by measuring the draft and analyzing the kiln gases by means of simple apparatus, to reduce the consumption of fuel and regulate the chemical action of the hot gases upon the clay. By measuring the temperatures and the settle, we are able to control the progress of the burning, prevent overfiring and to know when to cease firing in order to obtain the best results. It was the desire of your secretary that I should come before you to describe the most practical apparatus for controlling the burning and explain how such apparatus is used.

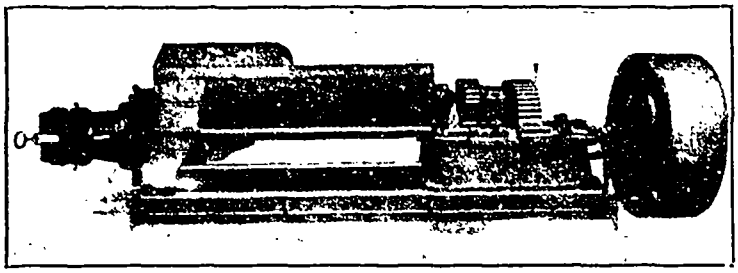
The burning of brick has for its object the producing from the complex and varying compound that we call clay, a durable body of the desired color and texture. All know that heat of a certain temperature is required to produce the chemical and physical changes in the clay, but in addition to heat there is also required, surrounding and penetrating the clay body, certain gases, which vary according to the character of the combustion maintained in the furnaces and the amount of air admitted to the kiln. Hence, the combustion of fuel in a kiln furnace may differ from that in a boiler furnace. In the latter, heat alone is necessary for evaporating water and the object always is to produce the greatest amount of heat with the least expenditure of fuel. In the former, during different stages of the burning, the object is to produce certain chemical changes in the clay, which take place at certain temperatures when the proper atmospheric conditions are maintained in the kiln, and to maintain these conditions, it is often necessary to sacrifice fuel, either by admitting an amount of air to the furnace largely in excess of that required for combustion of the fuel, or, in some cases, only enough air for partial, incomplete combustion. There are thus two chief things to be controlled in order to produce the desired results in clay burning—draft and temperature, since by these the character of the combustion and hence the composition of the kiln gases and the economy of fuel are regulated.

Draft Control.

It is astonishing how few brick-burners in America understand the importance of a proper regulation of the draft. In Europe, especially in Germany, no one attempts to burn a kiln of brick or other clay wares without a draft gage. In the United States, *the Hydraulic Press Brick Co.* has used draft gages on its kilns for the past 10 years or more, but it is only in the past two or three years that one sees draft gages at other brick plants and, in fact, only in the past year that there has been an active demand for such instruments.

Every brick-burner knows that the higher his stack, the stronger the draft and that the draft increases as the temperature in the

Imperial Size Brick and Tile Machine



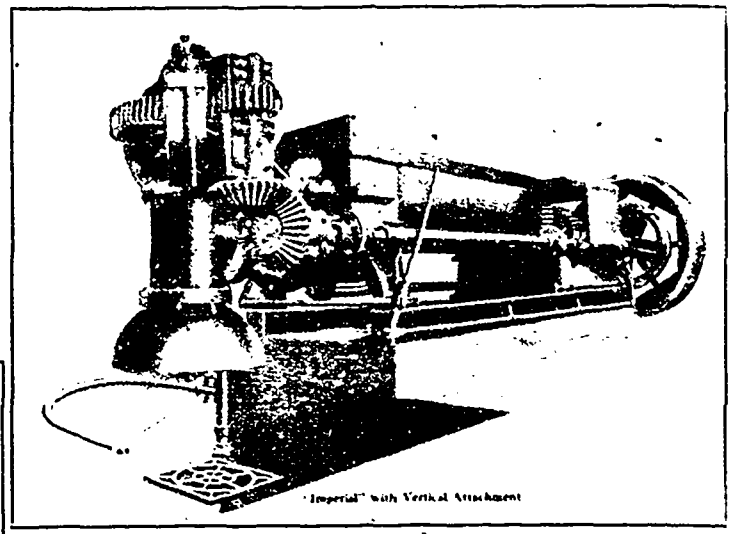
The J. D. FATE COMPANY

Manufacturers of

Clay-Working Machinery

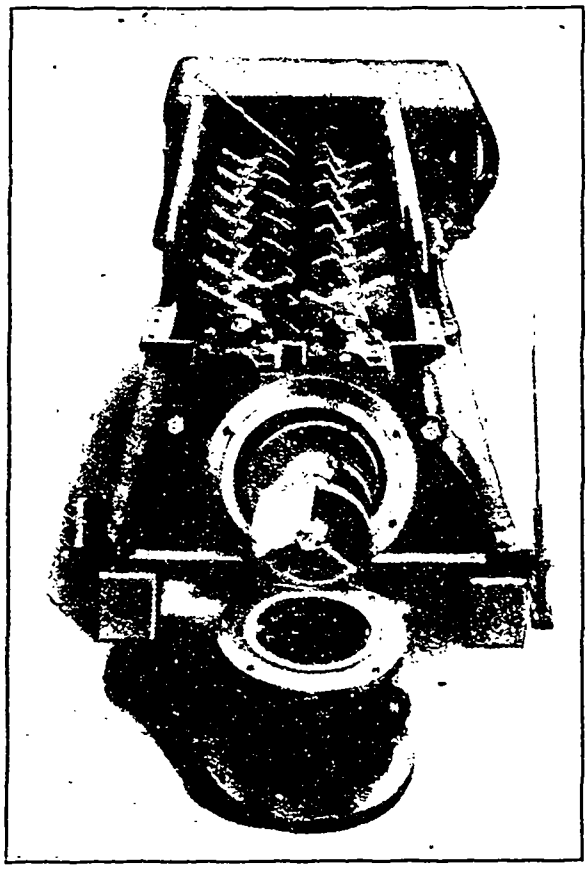
PLYMOUTH,
OHIO,
Richland County U.S.A.

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.

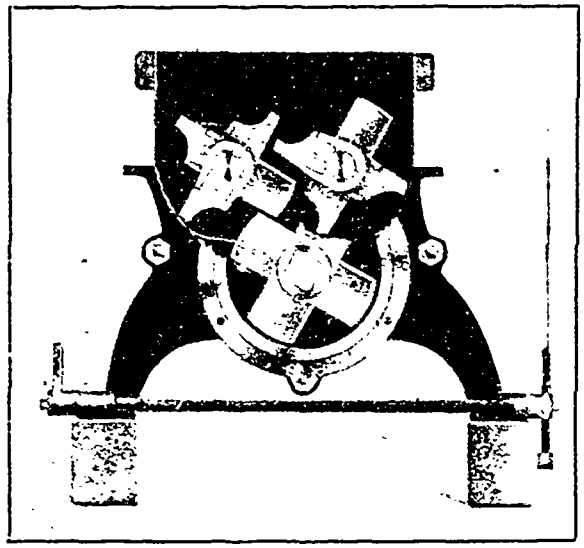


Imperial Machine with Vertical Attachment for making Large Tile

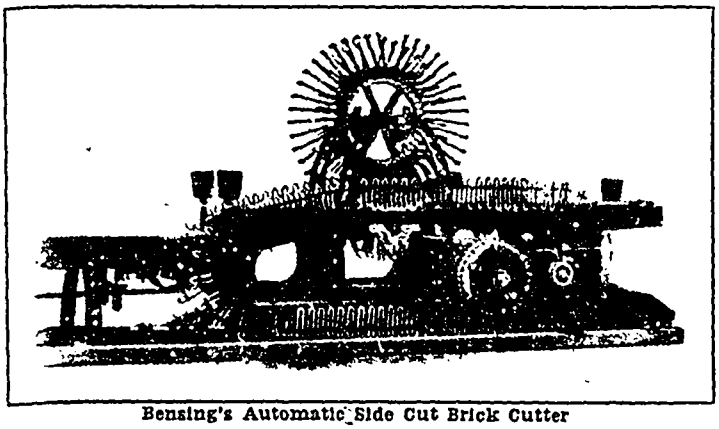
By placing this attachment on the Imperial Machine the larger sizes of tile can be made up to and including 24 inch. They are delivered vertically on pallets and so are kept in perfect shape.



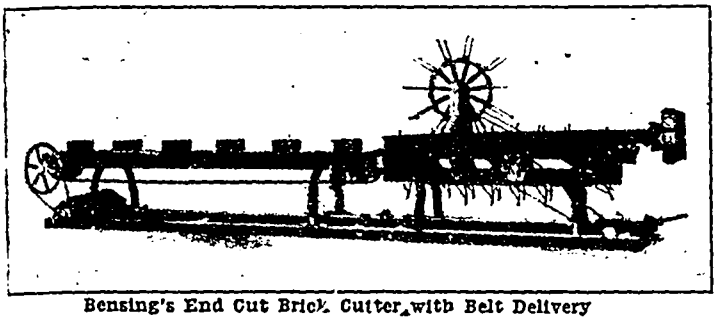
This shows an interior view of all of the Combined machines, and gives an idea of the immense pugging capacity obtained by the use of the double shafts. It has been conclusively shown that more effective pugging is done with 8 feet of double shafts than with 16 feet of a single shaft.



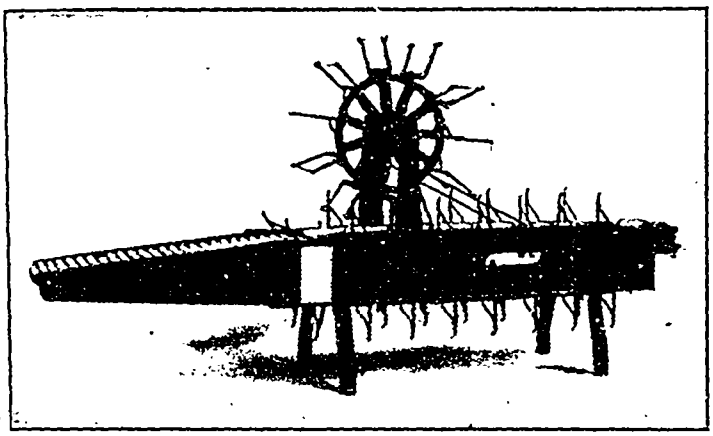
This cut shows a cross-section of the Machine, where the clay passes from the pug mill to the auger cylinder. This arrangement of the knives keeps the clay constantly pushed down and prevents bridging and clogging



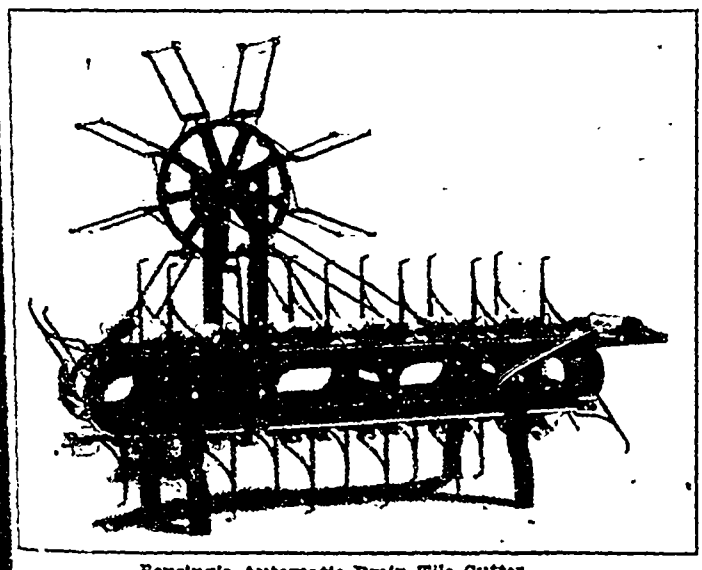
Bensing's Automatic Side Cut Brick Cutter



Bensing's End Cut Brick Cutter with Belt Delivery



Bensing's 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,
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stack increases, though he may not be able to give any intelligible explanation of why this is so. He will also have observed that the draft is affected by storms and other weather conditions. He knows too that the stronger the draft, the more rapidly the fuel burns. If he is an expert burner, he will also have found out that a strong draft during the watersmoking and oxidation periods, not only hastens the time of carrying on these processes, but, with many clays, lessens the danger of damage to the ware from squashing, scumming, blackcoring or bloating; while on the other hand, during the vitrification or settling period of the burning a strong draft wastes fuel, labor and time, and makes it difficult to burn the bottom of a down-draft kiln hard, without overburning the top. Moreover, since the strength of the draft governs the amount of air and oxygen entering the furnaces and kiln, it must also determine to a certain extent whether the kiln atmosphere is oxydizing or reducing in its effect upon the clay, as well as whether the fuel is being economically burned. Notwithstanding these facts, upon many plants no attempt is made to keep informed of the state of the draft on the kilns and hence no intelligent regulation of the draft is possible. In fact on some yards, the kiln dampers are not changed throughout the burning.

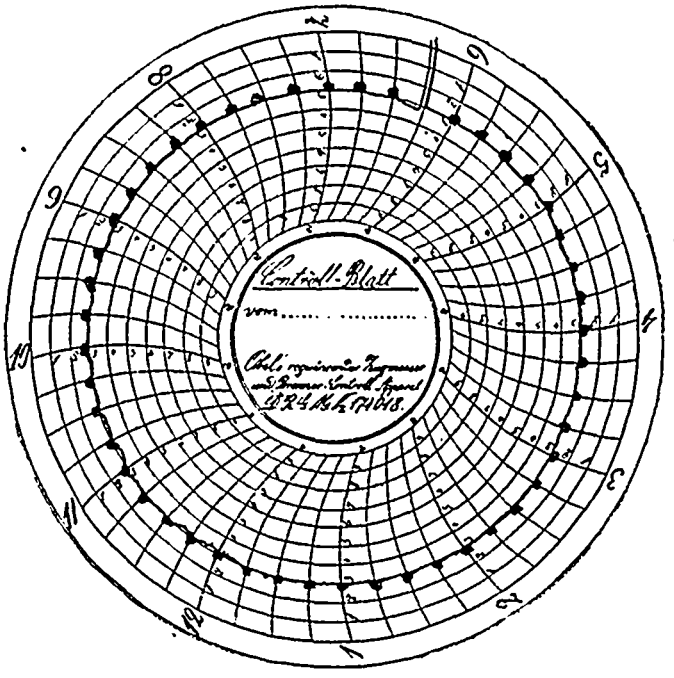


CHART NO. 1.

DRAFT GAGES.

There are three types of draft gages that are suitable for use on ceramic kilns. The simplest form of draft gage was devised by the renowned ceramist, Dr. Seger, and has been used for many years on down-draft kilns. It consists of a U tube expanded at the ends into larger tubes of equal size, the diameters of the larger and smaller portions being accurately calibrated to a ratio of 20 to 1. The tube is fastened to a board which carries a scale running parallel to one leg of the tube and which can be moved up and down by means of the slits and set-screws for adjusting of the zero point. The tube is filled with dark-colored carbolic acid and a clear saturated solution of carbolic acid and water. The point of contact of the two liquids is adjusted exactly at the zero point of the scale. The divisions on the scale are in millimeters of water pressure. By reason of the great ratio between the diameters of the small and large portions of the tube and also of the fact that the two liquids have very nearly the same specific gravity, the apparatus is very sensitive and accurate, a slight variation in pressure being easily noted on the scale.

The enlarged openings of the tube are closed by rubber stoppers, into which are inserted glass tubes. The right-hand leg is connected, by means of rubber tubing to the kiln, chamber or flue, of which the draft is to be measured, and the left-hand leg is open to the atmosphere. The apparatus is inclosed in a case with a glass front and is hung perpendicularly on the kiln near the point of attachment.

Another type of gage that has some advantages over the Seger gage is the inclined-tube gage. There are two forms of this gage, one a metal box, having on its front a glass tube, inclined at about 10 per cent. from the horizontal, one end of the tube being connected to the interior of the box and the other end open to the air. Another form has one end of the inclined tube expanded into a vertical bulb and the other bent up and open to the air, the whole being attached to an aluminum case. The liquid used in these gages is in one case kerosene and in the other case a light lubricating oil having a specific gravity of 39 to 40, the oil being colored red to make it more visible. One of these gages is suspended on a hook having a knife edge, so as always to hang level and the other is clamped on a vertical standard or screwed to a board, there being a leveling glass for adjusting the instrument to an exact level. On the upper side of the inclined tube is a metal scale graduated in millimeters or in hundredths of an inch, water pressure. By reason of the glass tube being so near the horizontal slight changes of pressure are easily noted.

The third type of draft gage is the recording draft gage. This is the gage of the future for ceramic kilns. We are unquestionably coming to the use of controlling apparatus that makes its own record constantly so that we may know positively just how faithfully the operator is attending to his duties. The recording draft gage besides giving a constant record of the draft, day and night, has another great advantage, in that it also

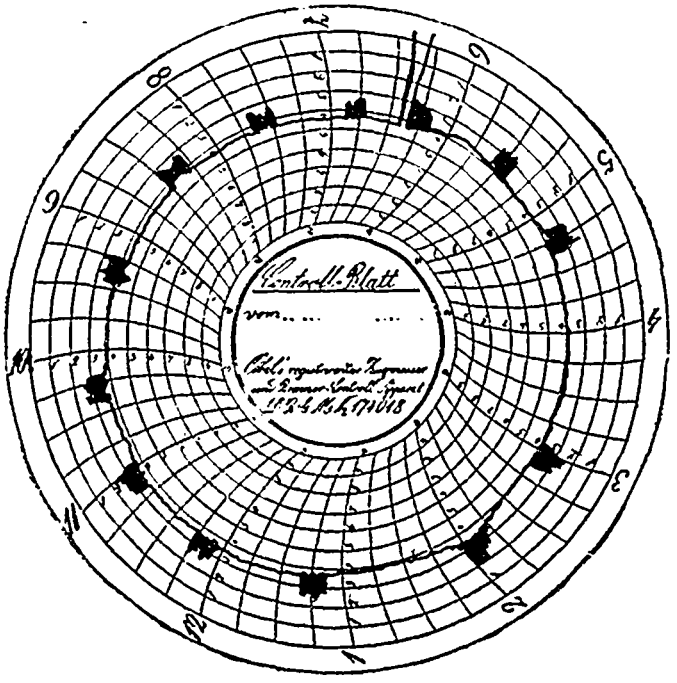


CHART NO. 2.

makes a record of every firing whether it be on a periodical kiln or on a continuous kiln. Hence, the superintendent, when he unlocks the recording dial and takes out the cha

can see how regularly the firing was done, and just at what time the fireman may have slept or neglected his duties.

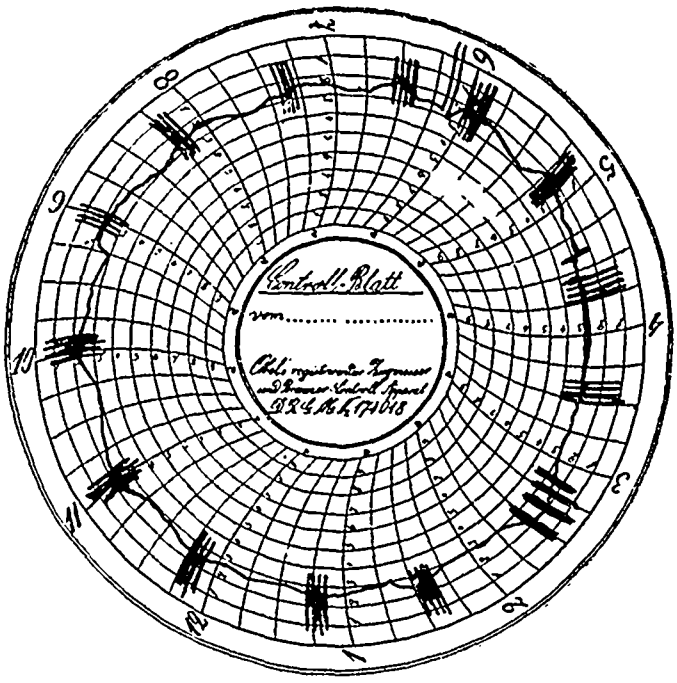


CHART NO. 3.

I have represented on these charts some control-sheets enlarged ten times, of the Obel Gage, taken upon some German kilns. No. 1 shows a control-sheet taken upon a continuous kiln which was faultlessly served. The firing was done promptly every 15 minutes. The draft, with the exception of very small variations, was held at 3 millimeters pressure. Chart No. 2 represents a sheet taken upon a very large continuous kiln which was served with coarse bituminous coal every 45 minutes. The strength of the draft was here not uniform and once, between one and two o'clock, the burner waited too long before firing and from three to a quarter of five he neglected his duties entirely. This chart shows how the recording draft gage exposes a careless burner.

In chart No. 3 is represented a control-sheet of the draft gage on a periodical kiln. This kiln has four furnaces and the fluctuation of the draft at the firing of each furnace is very great and is recorded plainly upon the sheet. After all of the four furnaces have been fired there is quite a noticeable increase of draft. About half past two the markings are especially strong. This is due to the burner cleaning his fires.

Chart No. 4 shows the fluctuation of the draft during a storm. The storm gradually abated from three o'clock and the fluctuations of the draft became less. The long marks show the firings of the kiln.

COMPOSITION OF FLUE GASES.

The control of the draft means the control of the quantity of air entering the furnaces and kiln. The quantity of air entering the furnaces and kiln determines two very important factors in brick burning; first, how much fuel is being unnecessarily wasted, second, whether the kiln gases are oxydizing or reducing in their action upon the clay.

In order to remove the hygroscopic water from the clay, which we call watersmoking, and in order to burn out carbonaceous matter in the clay and oxydize the iron, not only heat is required, but also a large amount of oxygen. Hence, during the watersmoking and oxidation stage of the burning, there must be admitted to the furnaces an amount of air largely in excess of that required for the complete combustion of the fuel. During the vitrification period of the burning however, where it may be desired to produce the color effects of a reduction of the iron, or of an alternate reduction and oxidation, it is necessary to admit to the furnaces a less quantity of air than that required for complete combustion of the fuel, so that the carbonic oxide and hydrogen that is unconsumed in the furnaces for lack of oxygen may rob the iron of oxygen and reduce it to a lower oxide, and that thus the brick may have the dark colors of the iron low in oxygen instead of the red color of the iron high in oxygen. In buff-burning clays containing granular iron compounds, a reducing atmosphere is required in order to reduce the iron to the lower oxide, which fuses at a lower temperature and in fusing unites with silica, forming the black spots often desired in such brick. Generally, however, an oxydizing atmosphere is desired in ceramic kilns, but during that stage of the burning when the largest amount of fuel is consumed, this only means that there should be admitted to the furnace the least practical quantity of air in excess of that required for the combustion of the fuel. It has been determined that the amount of air practically required in burning coal in a boiler furnace must be at least 30 per cent. in excess of that required for complete combustion. This excess is necessary because of the difficulty of mixing the gases in their short travel through the zone of temperature high enough for ignition. In a kiln, however, where the gases must pass through a close setting of hot bricks or other ware, the oxygen has a better chance to enter into combination and only a small excess of air need be used. Every pound of this excess of air means a positive waste of fuel, since it must be heated up to the temperature of the kilns. Analyses of kiln gases show that the per cent. of excess of air is often as high as 200. The amount of loss of fuel due to any excess of air, depends upon the difference in temperature of the air admitted to the furnaces and that of the gases escaping from the bottom of the kiln to the stack. In periodical kilns, during full fire this difference would probably average 700 deg. or 1292 deg. F.

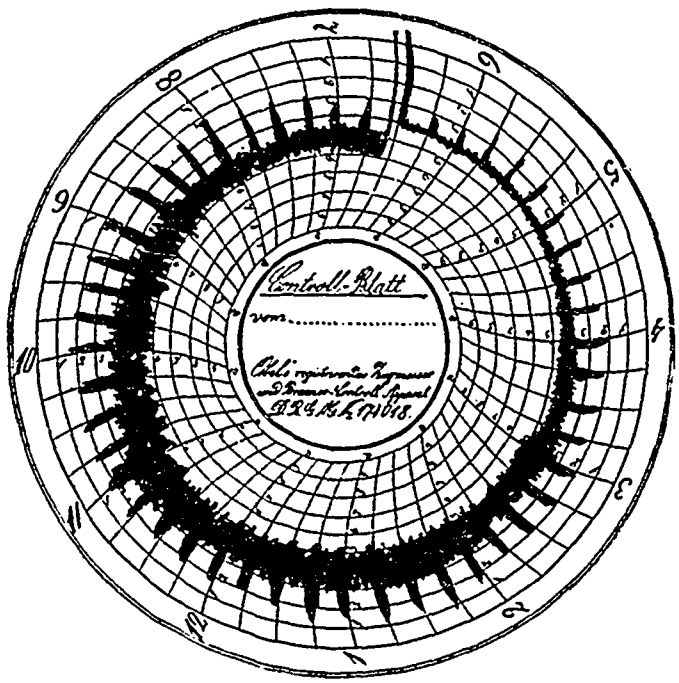
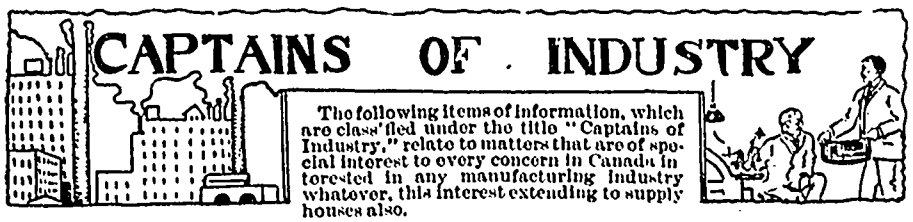


CHART NO. 4.

(To be continued.)



The Department of Marine & Fisheries, Ottawa, invite tenders up to July 1 for supplying the machinery required for fog alarm purposes during a period of one or three years.

The large sawmill of John Carew, Lindsay, Ont., was destroyed by fire, June 8. Loss, about $14,000.

The sawmill of P. Kyle, Merrickville, Ont., was destroyed by fire, June 3. Loss, about $5,000.

The Port Britain school house, near Port Hope, Ont., was destroyed by fire, June 2. Loss, about $1,500.

The Campbell Lubricating Co., Hamilton, Ont., will erect a brick warehouse at a cost of about $3,000.

A new Masonic Temple is being considered for London, Ont.

The Sydenham Glass Co., Wallaceburg Ont., are erecting a new factory at a cost of about $60,000.

The new armouries to be erected at Belleville, Ont., will cost about $75,000.

A new Y.M.C.A. building will be erected at Brantford, Ont.

The Ontario Marble Quarries, Bancroft, Ont., have been incorporated with a capital of $500,000, to manufacture stone, marble, etc. The provisional directors include G. H. Sedgewick, A. T. Struthers and L. Davis, Toronto.

Cragg & Austin are building a new sawmill at Kinmount, Ont., to replace the one destroyed by fire last winter.

The British-Canadian Smelting Co., Chippewa, Ont., are almost ready to commence operations.

The Standard Printing & Publishing Co., Kingston, Ont., have been incorporated with a capital of $50,000, to carry on a general printing and publishing business. The provisional directors include H. W. Richardson, W. R. Givens, Kingston, Ont.

Small Bros. have bought and are reopening the old wagon-making works of Wm. Platt, Niagara-on-the-Lake, Ont.

The Muskoka Foundry Co., Parry Sound, Ont., have enlarged their premises.

The Hunter Bridge & Boiler Co., Kincardine, Ont., are asking the town for a loan of $25,000 for twenty years.

The Quin Air Brake Co., Toronto, have been incorporated with a capital of $40,000, to carry on a general machine shop and foundry business. The provisional directors include R. C. Quin, T. A. Rowan and N. Somerville, Toronto.

A new school will be erected in Dryden, Ont.

An addition will be erected to Branksome Hall Ladies' College, Toronto, at a cost of about $22,000.

An addition is being erected to the Dominion Bank at Gravenhurst, Ont., at a cost of about $7,000.

St. Joseph's Catholic church, Toronto, which was destroyed by fire recently, will be rebuilt at a cost of about $9,000.

A new workshop will be erected in connection with the Industrial School, Mimico, Ont., at a cost of about $10,000.

St. Alban's School for Boys, Toronto, will be removed to Weston, Ont., where a new school will be erected.

The Grand Trunk Railway are relaying the rails on the main line between Montreal and Brockville, Ont., with 100 pound steel.

The Ottawa Construction Co., Ottawa, Ont., have been incorporated with a capital of $75,000, to carry on a general contracting and constructing business. The provisional directors include J. Foley, T. C. Bate and G. C. Edwards, Ottawa.

The Bredin Bread Co., Toronto, will erect a new bakery at a cost of about $30,000.

Walter Tyrrel, Lindsay, Ont., will commence the manufacture of wooden limbs.

W. J. Meyers, Toronto, will erect a building for the manufacture of brewers' casks.

The Wallaceburg Sugar Co., Wallaceburg, Ont., will erect an addition to their plant at a cost of about $40,000.

The Canadian Pacific Railway will erect a new station at Dryden, Ont.

D. Rossin, Toronto, will erect a new showcase warehouse.

The Canada Mill Stock & Metal Co., Toronto, have purchased a new site on which to erect an addition to their factory.

A number of new sewers will be constructed in Owen Sound, Ont.

A storm sewer will be constructed on Dalhousie Street, Brantford, Ont.

The Department of Public Works, Ottawa, invite tenders up to June 29 for the construction of two breakwaters at Cobourg, Ont.

The mills of Jas. Rhodes, Raleigh township, near Chatham, Ont., were destroyed by fire May 29. Loss about $15,000.

The town of Listowel, Ont., is asking for tenders to reach them by Thursday, June 18, 1908, for a complete electric lighting equipment of about 200 h.p. capacity, consisting of gas producers and engines, boilers and steam apparatus, generators, switchboards, transmission supplies, etc. For information apply, K. L. Aitken, consulting engineer, 1003 Traders Bank, Toronto, Ont.

Among the firms who have bought Smart-Turner pumps during the last few weeks are Jones Bros., Dundas; the Parkin Elevator Co., Hespeler; Wm. Laking, Haliburton, Ont.; the Kinleith Paper Co., St. Catharines; the Berlin Light Co., Berlin; Hoards Cheese Co., Hoards Station, Ont.; J. B. Snowball & Co., Chatham, N.B.; the Corporation of Chesley, Ont.

Extensive improvements will be made to the Walker Hotel, Berlin, Ont., at a cost of about $10,000.

A hospital is being considered for Fort William, Ont.

The Seventh Day Adventists, London, Ont., will erect a large church in that town.

A Home for Consumptives will be erected in Ottawa.

Hugh Black, township clerk, Rockwood, Ont., will receive tenders until June 26 for (1) 50 foot steel bridge and abutments; (2) 30 foot concrete arch bridge.

The Sacred Heart School, Brantford, Ont., is being remodelled.

Cavers & McRae have been awarded the contract for rebuilding Zion church, Carleton Place, Ont., at a cost of about $14,000.

The Western Bridge & Equipment Co. have been awarded the contract for the construction of a bridge on Eramosa road, Guelph, Ont.

The Temiskaming & Northern Ontario Railway Commission have awarded the contract to Demens & Fraser, New Hamburg, Ont., for the construction of several concrete culverts and abutments.

The Moyes Chemical Co., Toronto, have been incorporated with a capital of $100,000, to manufacture drugs, chemicals, etc. The provisional directors include E. G. Morris, D. W. Jameson and T. R. W. Wray, Toronto.

The Twin City Builders Supply Co., Berlin, Ont., have been incorporated with a capital of $40,000, to manufacture brick, tile, stone, cement, lumber, timber, iron, steel, etc. The provisional directors include B. E. Bechtel, W. J. Watson and H. de Joannis, Waterloo, Ont.

John Taylor & Co., Toronto, have been incorporated with a capital of $250,000, to manufacture soaps, oils, glycerine, dye stuffs, etc. The provisional directors include M. J Taylor, A. P. Taylor and O. F. Taylor, Toronto.

The Hamilton Tube Co., Hamilton, Ont., have been incorporated with a capital of $50,000, to manufacture tubing, etc. The provisional directors include E. H. Ambrose, Hamilton, Ont., J. L. Sharkey and R. N. Harry, New York city.

The Watson-Smith Co., Toronto, have been incorporated with a capital of $40,000, to manufacture screens, shutters, blinds, etc, The provisional directors include E. Watson, W. E. Smith and E. Watson, Toronto.

The Standard Construction Co., Chatham, Ont., have been incorporated with a capital of $40,000, to carry on a general contracting and constructing business. The provisional directors include W. T. Piggott, J. Piggott and W. R. Phillimore, Chatham, Ont.

The Twin City Coal Co., Toronto, have been incorporated with a capital of $600,000, to carry on a mining, milling and reduction business. The provisional directors include W. D. Earngey, W. Freeman and A. Green, Toronto.

The Standard Horse Hitcher, Toronto, have been incorporated with a capital of $50,000, to manufacture carriages, wagons, sleighs, harness, sadlery, whips, tools, metals, etc. The provisional directors include G. W. Morse, J. Green and C. E. Potter, Toronto.

The Government will improve the jails at Port Arthur, Kenora and Sudbury, Ont.

The Allman Patent Pipe Co., Toronto, have been incorporated with a capital of $125,000, to manufacture tobacco, pipes, etc. The provisional directors include F. J. Walsh, R. D. Moorhead and R. H. Pate son, Toronto.

The Reid Foundry & Machine Co., Ingersoll, Ont., have been incorporated with a capital of $40,000, to manufacture moulding and foundry machines, iron, brass, etc. The provisional directors include D. Reid, A. H. Marshall, Hamilton, and J. A. McCulloch, Ingersoll, Ont.

The Toronto Electric Co. will erect a substation at the corner of Tecumseh and Defoe Streets, Toronto.

The Anchor Screw Co., Toronto, have been incorporated with a capital of $200,000, to manufacture screws, nails, tacks, bolts, nuts, hinges, bits, augers, etc. The provisional directors include W. Johnston, R. Worth and G. A. Gauthier, Toronto.

The Nepigon Construction Co., Nepigon, Ont., have been awarded the contract for the construction of the 80 mile section of the Transcontinental Railway east of Nepigon.

On June 27 Toronto ratepayers will vote on a by-law providing for the expenditure of $5,200,000 on a trunk sewer and filter plant. The taxpayers will also be asked to assent to the expenditure of $200,000 on the Don bridges.

The Phœnix Bridge & Iron Works, Montreal, have taken out a permit for a building at No. 6 Shannon Street to cost $10,000.

The Standard Paper Box Co., Montreal, have removed from McGill Street to larger premises at 264 St. Paul Street. New machinery has been installed doubling the capacity of the factory.

Alex. Dessault & Co., Montreal, agents for the Record Foundry Machine Co., have removed to 268 St. Paul Street.

The Montreal Water & Power Co. will erect a building on Charlevoix Street at a cost of about $10,000.

Thos. C. Doyle, agent for labor saving machinery, has removed from 40 St. Antoine Street, to 776 St. Catharine Street, Montreal. The new premises are attractive and commodious, and are equipped with facilities for demonstrating the different sewing machines, which include those of the Union Special Machine Co., the Reece Button Hole Sewing Machine Co., Wilcox & Gibbs Sewing Machine Co., (lock stitch machines); Frederick Osann Co., (fur machines), and the Universal Button Fastening & Button Co.

The Canadian Buffalo Forge Co., Montreal, have removed their offices from the factory to 15 Bleury Street.

F. Reddaway & Co., manufacturers of Camel brand belting, have removed their head office for Canada from Recollet Street to 56 St. Francois Xavier Street, Montreal.

The Western Canada Milling Co. will erect a new warehouse at St. Louis de Mile End, Montreal.

The premises of the Danville Lumber Co., Montreal, were destroyed by fire, May 22. Loss about $16,000.

An aqueduct will be constructed at Pointe Claire, Que.

The ratepayers of Sherbrooke, Que., have approved a by-law to grant exemption from taxes for ten years to the Improved Paper Machine Co. and to assist the company in the purchase of a site.

The Sherbrooke Machinery Co., Sherbrooke, Que., have been incorporated with a capital of $20,000, to manufacture pulp machinery, pulp separators, cylinder moulds, revolving suctions, etc. The charter members include W. Morris, H. D. Lawrence, Sherbrooke, Que., and W. J. Morey, Brookline, Mass.

The Canada Iron Corporation, Montreal, have been incorporated with a capital of $8,000,000, to manufacture iron, coal, copper, metals, etc. The charter members include W. J. White, J. H. Dillon and A. W. P. Buchanan, Montreal.

The Boyce Carriage Co., Winnipeg, Man., will begin the manufacture of automobiles.

M. Walsh & Co., Montreal, Que., have been incorporated with a capital of $75,000, to manufacture fixtures, tin, iron, copper, etc. The charter members include M. Walsh, J. E. Walsh, and C. S. M. Brown, Montreal.

The Arbetter Filling Machine Co., of Canada, Montreal, have been incorporated with a capital of $150,000, to manufacture felling and sewing machines, etc. The charter members include J. Brault, L. T. Mongenais, and H. E. Bourdon, Montreal.

The Imperial Tobacco Co., Montreal, have been incorporated with a capital of $11,000,000, to manufacture tobacco, etc. The charter members include S. D. Harris, A. E. Woodworth and A. Charters, Montreal.

The Stanley Railway & Mfg. Co. will erect a woodworking factory at Ryan's Brook, N.B.

A new building for the Temple of Honor will be erected in St. John, N.B.

Horn & Sutherland, Yarmouth, N.S., have been awarded the contract for the excavation work in connection with the waterworks extensions.

The Intercolonial Railway shops at Moncton, N.B., to replace those destroyed by fire two years ago, will soon be ready for occupancy. The freight car repair shop and the planing mill are now completed, and the locomotive shop nearly so. All buildings are constructed of concrete.

An eight room school annex will be erected in St. John, N.B.

A school will be erected in Woodstock, N.B., at a cost of about $20,000.

The Stanley Railway & Mfg. Co., Ryan's Brook, N.B., are considering taking over the York and Carleton Railway and extending it eight miles to connect with the Grand Trunk Pacific, near Napidoggan Lake, N.B.

The section of the Transcontinental Railway between Chipman, N.B., and the Tabique River, will be built by the Toronto Construction Co., they having secured the subcontract from the Grand Trunk Pacific.

The Bank of New Brunswick are erecting a new branch at Carleton, N.B.

McCoy & Wilford, Lindsay, Ont., have a thirty mile contract for construction on the Transcontinental in New Brunswick.

The Department of Public Works, Fredericton, N.B., will receive tenders up to July 20 for the construction of three metal superstruction spans for the Fredericton highway bridge.

An electric light station is being considered for Sydney, N.S.

The Westville Wagon Co., Hopewell, N.S., have assigned.

A power house for the Prince Edward Island Railway will be erected at Charlottetown, P.E.I.

The Dominion Government has been asked to construct a new line around the Cohequid Mountains in Nova Scotia, so that the Intercolonial Railway trains may avoid the present excessive grade between Halifax and St. John.

The sewerage and waterworks systems, Dartmouth, N.S., will be extended.

The International Lighting & Heating Co. will erect three buildings for their new gas plant at Brandon, Man.

The muncipal council, Winnipeg, Man., will improve several of the streets in the city.

C. P. Walker, of the Walker Theatre, Winnipeg, Man., and several others, will erect a new hotel.

The Dominion Wagon Scale Co., Winnipeg, Man., have been incorporated with a capital of $25,000, to manufacture scales, etc. The provisional directors include R. Marshall and M. C. McLeod, Winnipeg, Man.

The warehouse of the Winnipeg Paint & Glass Co., Winnipeg, Man., which was destroyed by fire recently, is being rebuilt at a cost of about $40,000.

The ratepayers of Gilbert Plains, Man., will vote on a by-law to raise $15,000 for school improvements.

The William Robinson Co., Winnipeg, Man., have been incorporated with a capital of $300,000, to manufacture lumber, timber, doors, boxes, furniture, ties, poles, etc. The provisional directors include W. Robinson, R. G. Affleck, Winnipeg, and J. W. Jones, Selkirk, Man.

The Brookdale Brick & Tile Co., Brookdale, Man., have been incorporated with a capital of $40,000, to manufacture brick, tiles, sewer pipes, cement, stone, etc. The provisional directors include R. D. Hales, W. E. Hales, Rapid City, Man., and C. H. Cameron, Brookdale, Man.

The McBride Block, Souris, Man., was damaged by fire recently.

A new school house will be erected at Minto, Man.

A public school will be erected in Kildonan, Man.

The packing plant of J. Y. Griffin & Co., Winnipeg, Man., was damaged by fire, June 7. Loss about $75,000.

The large abattoir of Gordon, Ironsides & Fares, Winnipeg, Man., was destroyed by fire, June 4. Loss, about $50,000.

Work will shortly begin on the erection of the new post office in Dauphin, Man.

The Winnipeg Electric Railway Co. are considering the establishment of a belt car line in St. Boniface, Man.

Snyder Bros., Portage la Prairie, Man., have been awarded the contract for the erection of the training school, the contract price being $67,000.

The Canadian Pacific Railway have donated a site to Calgary, Alta., on which to erect a fire hall.

The Public Library Board, Calgary, Alta are asking the council for $20,000, to be used in the purchase of a site and books. $50,000 will be spent on the building.

C. Bertch, Edmonton, Alta., has decided to erect a theatre in that town, at a cost of about $90,000.

A Divinity College will be erected in Prince Albert, Sask., by the Anglican church.

George H. Archibald & Co., Winnipeg, Man., have been awarded the contract for the construction of a concrete culvert 275 feet long, across the Oxbow River, Oxbow, Sask., at a cost of about $100,000.

The city of Calgary, Alta., have placed an order for one 24"x48"x30" (1,100 h.p.) Robb-Armstrong Cross Compound Corliss engine, for direct connection to 750 k.w. Bullock generator, also one 13"x14" Robb-Armstrong horizontal engine and two 120 h.p. Robb Mumford boilers.

The sawmill of John Walter, Strathcona, Alta., was damaged by fire recently.

A new fire hall will be erected in Calgary, Alta.

The Great Northern Railway Co., propose extending the Crow's Nest Southern to Calgary, from Michel, Alta.

An addition will be erected to the Alexandra School, Saskatoon, Sask., at a cost of about $18,488.

A Roman Catholic hospital will be erected in Daysland, Alta.

Walker & Son have started a factory at Rosthern, Sask., for the manufacture of sashes and doors.

The Imperial Oil Co. are considering the erection of a large warehouse in Saskatoon, Sask.

A waterworks system will be installed in Taber, Alta.

The Canadian Pacific Railway are pushing the construction of their line in the vicinity of Saskatoon, Sask.

The Saskatchewan Telephone Co., Moose Jaw, Sask., will shortly build to the boundary line a distance of 75 miles.

Edmonton, Alta, will spend $180,000 on civic improvements this season; $140,000 on waterworks extension, and $40,000 to instal a new Decarie incinerator.

The Kimberley Mfg Co., Kimberley B C have been succeeded by the Yellow Head Pass Lumber Co.

The Shipley Heating Appliance Co., Vancouver, B.C., have sold out to the Hamilton Brass Mfg. Co.

The British Columbia Pottery Co. will erect a pottery plant at Burnaby, B.C.

The Enamel Concrete Co., Des Moines, Iowa, are considering the erection of a large plant at Vancouver, B.C.

A home for aged and infirm women will be erected in Victoria, B.C.

A new post office will be erected at Grand Forks, B.C., at a cost of about $40,000.

The Granby Smelter, Grand Forks, B.C., is being improved.

The British Canadian Wood Pulp & Paper Co., Port Mellon, B.C., will erect a new plant this summer.

The British Columbia Electric Railway Co., Vancouver, B.C., have let the contract for the construction of the first section of the Chilliwack line to Boyd & Craig for the sum of $100,000.

The three machine shops of the Victoria Machinery Depot Co., Victoria, B.C., were destroyed by fire, June 6. Loss about $18,000.

The ratepayers of Oak Lake, B.C., will be asked to vote on a by-law to raise $10,000 for the erection of a new school.

A two story addition will be erected to the Inns of Court building, Vancouver, B.C., at a cost of about $30,000.

Dangers in Lubricating Oils.

From the American Miller.

A correspondent calls attention to the fact that there is danger in lubricating oils, and that there is apparently little or no check on the sale of rank frauds to the public as lubricants. That many of the flour mill fires, the cause of which is reported as "unknown," are due to spontaneous combustion due to lubricating oil, has been the conviction of flour mill mutual insurance men for years. The oil dripping from journals into mill dust, bran or other products makes a good basis for spontaneous ignition.

Only animal and vegetable oils will produce spontaneous combustion; mineral oils which are all the products of petroleum will not take fire spontaneously, but, nevertheless, in many of these dangers lurk on account of having a low flash and fire test. Thus there is danger from fire in all classes of oils, dangers which are intensified by the practices of the trade.

It is a fact that some of the so-called oils sold as animal and vegetable oils are made entirely of petroleum, or possibly with some admixture of the oil whose name they carry. Among the animal oils used in compounding lubricants are dead horse oil, tallow oil, degras, menhaden and moeller oil Corn and cottonseed oil are largely used, as well as rosin oil, rapeseed oil and castor oil. The lubricating oils sold in the market are generally compounds of these and mineral oils. For some reason the public objects to petroleum oils, though it is safe to say that most institutions use them in the mixtures which they buy. Yet good mineral oils are safer than any of the others The mixtures of animal, vegetable and mineral oils may be quite as dangerous as the simple vegetable and animal oils, especially when the flash and fire test of the mineral oil is low.

There is no question that something ought to be done to put the business of selling lubricants on a higher basis, where the stuff should be sold for what it is and true to name, but how can such a thing be brought about?

DO you realize how difficult it often is for your salesman to get an interview with the heads of manufacturing firms—with the men who buy? This paper is an ever-welcome salesman. Why not get the benefit of its influence?

INDEX TO ADVERTISEMENTS.

ifc ..... inside front cover. ibc.....inside back cover obc.....outside back cover.

INDEX TO ADVERTISEMENTS (Continued).

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