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CANADIAN MANUFACTURER AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION.

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THE CONGRESS OF BRITISH CHAMBERS OF COMMERCE.

The sixth Congress of Chambers of Commerce of the British Empire convened in London on July 10, and its deliberations were continued through that and the two following days.

Mr. George E. Drummond, of Montreal, presented the first resolution, which embodied the views of about all the Canadian delegates, and which was, without doubt, the most important matter which came under the consideration of the Congress. It was as follows:

"Whereas in the resolution of the Fifth Congress of Chambers of Commerce of the Empire, held in Montreal in August, 1903, it was stated that the bonds of the British Empire would be materially strengthened by a mutually beneficial commercial policy, it is the opinion of this congress that it is in the interest of the component parts of the Empire that steps should be taken towards consumating such an arrangement. There are in the United Kingdom, her colonies and dependencies natural resources and industries which, if developed, would be sufficient to provide the British Empire with its food supply and all other necessaries and requirements of life.

"Be it therefore resolved, that this congress urges upon his majesty's Governments in the United Kingdom and in the various colonies and dependencies the granting of preferential treatment in their respective laying down the law as to customs duties."

In introducing his resolution Mr. Drummond spoke of the practical importance of calling a colonial conference in 1907 to give effect to the desire to make Canada an independent nation permanently allied to Great Britain. To this ideal the encroachments of United States trade, and the growth of the reciprocity party in that country, constituted, in his opinion, a grave danger. Within two generations Canada would have a population as great as that of the United Kingdom, and Canada would be a market worth striving for. Canada does not accept as final the verdict of the last election in Great Britain. Canada would not ask for reciprocal preferential trade if it would make bread dearer in the United Kingdom.

In seconding Mr. Drummond's resolution, Mr. W. F. Cockshutt, M.P., of Brantford, Ont., urged the acceptance of reciprocal preference by Great Britain for the benefit of the entire empire, not for any particular part of it. He said that Canada was now sacrificing five million of dollars a year in remission of duties because of the preference. The resolution was adopted by a very large majority.

A resolution was presented by Mr. J. F. Ellis, of Toronto, seconded by Mr. F. H. Mathewson, of Montreal, recording the opinion that the British Government should adopt such rates of postage as would encourage the circulation of British newspapers and periodicals in all parts of the Empire, and thus promote trade unity. Mr. Ellis said that Canadians preferred British and Canadian literature rather than American. Reduced postage in Canada had been followed by a surplus in revenue.

Mr. Mathewson said that Canada was inundated with American literature and advertisements to the disaster of commerce, as well as of sentiment. The Canadian rate of postage was one-sixteenth of the British rate, yet it is further from Halifax to Vancouver than from Liverpool to Halifax.

Mr. Ponton, of Belleville, said that it cost $184 to send a ton of British literature to Canada, and only $12 to send a ton of Canadian literature to Great Britain. An anomaly was pointed out where it is cheaper to send a parcel by post from Great Britain to Japan, via Canada, than for delivery in Canada.

A motion was also carried to recommend the colonial post office departments of the empire to adopt uniform rates of postage for parcels post, the same as now existing between Great Britain and New Zealand, which proposition was, according to the reports of the Congress, opposed by Mr. P. H. Burton in behalf of the Canadian Manufacturers' Association, who said that it would make the post office a cheaper means of delivery of goods than by any other way.

On motion of an Australian delegate, universal penny postage was endorsed as likely to promote the development of international trade.

A resolution was adopted recommending that steps be taken to establish uniform patent and copyright laws throughout the empire, giving British literary and artistic productions the same protection in the colonies as in the United Kingdom. A resolution to the same effect was adopted regarding insolvency legislation.

Resolutions were also passed favoring promotion of technical and commercial education, and arbitration of international commercial and labor disputes; and a recommendation that Canadian railways be considered as being for the general advantage of the empire and therefore should receive imperial consideration in any plan for imperial federation and defence.

A motion asking for a change in the naturalization laws was defeated. It was designed to accord to any citizen

duly naturalized in any part of the empire full privileges in all other parts of the empire.

Another resolution favoring the removal of the embargo in Great Britain on Canadian cattle was defeated, when it was shown that not a single chamber of agriculture in the kingdom was represented in the Congress.

STATISTICS OF THE CANADIAN IRON TRADE FOR 1905.

The American Iron and Steel Association has received direct from the manufacturers the statistics of the production of pig iron in Canada in the calendar year 1905.

The production of all kinds of pig iron in Canada in 1905 amounted to 468,003 gross tons, against 270,942 tons in 1904, an increase of 197,061 tons, or over 72 per cent. The production in 1905 was much the largest in the history of the Dominion and exceeded that of 1902, the year of next largest production, by 148,446 tons, or over 46 per cent.

In the first half of 1905 the production of pig iron in Canada amounted to 210,206 tons and in the second half to 257,797 tons, an increase of 47,591 tons. Of the total production in 1905, 432,870 tons were made with coke, 4,836 with mixed charcoal and coke, and 30,297 tons with charcoal.

The production of basic pig iron in Canada in 1905 amounted to 172,102 tons, against 70,133 tons in 1904, and the production of Bessemer pig iron to 149,203 tons, against 26,016 tons in 1904. Basic iron was made in 1905 by three companies owning six furnaces, and Bessemer iron by two companies owning three furnaces. The basic pig iron was all made with coke for fuel, but the Bessemer pig iron was made with coke alone, charcoal alone, and mixed charcoal and coke. Canada has not made spiegeleism or ferro-manganese since 1899, when small quantities of both metals were produced at Bridgeville, Nova Scotia, by a furnace which has since been abandoned.

The production of malleable Bessemer pig iron in Canada in 1905 amounted to 3,300 tons; foundry pig iron, 139,528 tons; forge pig iron, 3,500 tons; and white and mottled and miscellaneous grades of pig iron, including castings made direct from the furnace, 370 tons. Neither ferro-silicon nor ferro-phosphorus was made. The quantity of limestone consumed for fluxing purposes by blast furnaces in Canada in 1905 amounted to 290,310 tons.

The following table gives the total production of all kinds of pig iron in Canada, including spiegeleisen and ferro-manganese, from 1894 to 1905, in gross tons. Prior to 1894 the pig iron production of Canada was not ascertained by the Association.

Years.	Gross Tons.	Years.	Gross Tons.	Years.	Gross Tons.
1894....	44,791	1898...	68,755	1902....	319,557
1895....	37,829	1899....	94,077	1903....	265,418
1896....	60,030	1900....	86,090	1904....	270,942
1897....	53,796	1901....	244,976	1905....	468,003

On December 31, 1905, Canada had fourteen completed furnaces, of which nine were in blast and five were idle. Of the total ten usually use coke for fuel and four use charcoal. In addition, one furnace, to use coke, was being built and three coke furnaces were partly erected. Work on the latter was suspended some time ago.

During the first half of 1905 Canada had thirteen of its completed furnaces in blast and during the last half it had twelve furnaces in blast. In the first half of 1904 it had ten furnaces in blast and during the last half of the year ten furnaces were also running.

The American Iron and Steel Association has also received direct from the manufacturers detailed statistics of the production of steel ingots and castings, and of finished rolled iron and steel in Canada in 1905. The production of one rolling mill has been estimated.

The production of all kinds of steel ingots and castings in Canada in 1905 was much the largest in the history of the Dominion, and exceeded by 221,412 tons that of 1902, the year of next largest production, when 182,037 tons were made. As compared with 1904 the increase amounted to 254,665 tons, or over 171 per cent. Bessemer and open-hearth steel ingots and castings were made in both 1904 and 1905, the production of Bessemer steel amounting to 164,488 tons in 1905, against 42,738 tons in 1904, and open-hearth steel to 238,681 tons in 1905, against 106,046 tons in 1904. Almost all the open-hearth steel reported in 1904 and 1905 was made by the basic process. The Bessemer steel was all made by the acid process. A few hundred tons of steel castings were made in 1905 by minor processes. All the steel castings made in 1905 by various processes amounted to 9,394 tons, against 6,505 tons in 1904. Canada does not make crucible steel ingots or castings.

The following table gives the production of all kinds of steel ingots and castings in Canada from 1894 to 1905, in gross tons:

Years.	Gross Tons.	Years.	Gross Tons.	Years.	Gross Tons.
1894....	25,685	1898....	21,540	1902....	182,037
1895....	17,000	1899....	22,000	1903....	181,514
1896....	16,000	1900....	23,577	1904....	148,784
1897....	18,400	1901....	26,084	1905....	403,449

The production of finished rolled iron and steel in Canada in 1905 was also much larger than in any previous year and amounted to 385,826 tons, as compared with 180,038 tons in 1904, the year of next largest production, an increase of 205,788 tons, or over 114 per cent.

The following table gives the production of all kinds of finished rolled iron and steel in Canada from 1895 to 1905, in gross tons. Rolled forging blooms and forging billets are included for 1905.

Years.	Gross Tons.	Years.	Gross Tons.	Years.	Gross Tons.
1895....	66,402	1899....	110,642	1903....	129,516
1896....	75,043	1900....	100,690	1904....	180,038
1897....	77,021	1901....	112,007	1905....	385,826
1898....	90,303	1902....	161,485	.....	.....

The production of Bessemer steel rails in 1905 amounted to 133,690 gross tons, as compared with 35,155 tons in 1904; open hearth steel rails, 45,195 tons, against 1,061 tons in 1904; structural shapes, 885 tons, against 447 tons in 1904; nail and spike plate, 4,110 tons, against 503 tons in 1904; plates and sheets, 4,944 tons, against 3,102 tons in 1904; all other finished rolled products, excluding muck and scrap bars, blooms, billets, sheet bars, and other unfinished forms, but including for 1905 1,120 tons of forging blooms or billets, 197,002 tons, aginst 135,243 tons in 1904; total, 385,826 tons, against 180,038 tons in

1904. Of the 385,826 tons of finished iron and steel reported for 1905, about 318,405 tons were rolled from steel and 67,421 tons from iron, as compared with about 126,850 tons rolled from steel and about 53,188 tons rolled from iron in 1904.

In 1905 the rolling mills and steel works in Canada which operated cut nail or wire nail factories produced 366,800 kegs of cut nails and wire nails of 100 pounds each, as compared with 324,000 kegs in 1904.

On December 31, 1905, there were 21 completed rolling mills and steel works in Canada. In addition one plant was being built and two plants were projected. Of the completed plants three were equipped for the manufacture of steel castings only, one for the manufacture of open hearth steel ingots only, five for the manufacture of Bessemer or open hearth ingots and rolled products, and 12 for the manufacture of rolled products only. The building plant was being equipped for the manufacture of black plates and tinplates and terne plates.

Of the 21 completed rolling mills and steel works in Canada on December 31, 1905, four were located in Nova Scotia, five in Quebec, ten in Ontario, one in New Brunswick, and one in Manitoba. The building plant and the two projected plants are also in Ontario.

The production of iron ore in Canada in 1905 amounted to 259,908 gross tons, against 195,577 tons in 1904. The production of coal in 1905 amounted to 7,822,125 gross tons, against 7,370,174 tons in 1904. The coal figures for 1905 are provisional.

SMOKE PREVENTION.

As previously announced, a convention was held in Detroit on June 27, 28 and 29, called by Mr. John Fairgrieve, of that city, and Mr. Charles Poethke, of Milwaukee, both of whom hold the positions of chief smoke inspector in their respective cities. The object of the meeting was to arrange for the creation of legislation looking towards a uniform and effective handling of the smoke nuisance. The details of the convention, which was in the hands of Mr. Fairgrieve, included lectures on smoke combustion by men who have made a study of this subject, and visits to various steam plants in Detroit where different types of smoke consuming apparatus are in operation. The attendance was fairly large, both of officials of different American and Canadian cities interested in the matter, and of manufacturers also. It was the initial meeting of an organization which was perfected by the election of Mr. Fairgrieve, of Detroit, as president, and of Mr. Poethke, of Milwaukee, as vice-president, and of a Committee of Ways and Means, composed of Messrs. John Shubart, of Chicago, John Krause, of Cleveland, and Mr. Gilman, of Rochester, who, with the president and vice-president, were nominated to draft by-laws and to secure information regarding smoke ordinances and regulations in various cities, to be presented to the next meeting of the association, which is to be held in Milwaukee in June next.

Bituminous coal, used as fuel, is the chief offender in the production of smoke and soot, so inimical to health, comfort and cleanliness; and the question as to how most effectually suppress or lessen the nuisance, remains to be solved. There are many so-called smoke consumers on the market, but, if they effect the desired object, the public is not aware of it; and the only known abatement of it, is, to some extent, accomplished through the skill of the engineer in charge of the furnaces, in proper firing. A stoker, or smoke consuming apparatus, installed at large cost, is entirely ineffective unless under the management of a skilfull engineer, when some abatement of the nuisance may be obtained. The whole trick in burning soft coal without production of dense smoke seems to consist in feeding the coal gradually to the furnaces, in such a way that the smoke is produced only in the front part of the furnace, and is consumed in passing over the more backward part of the fire, which is a bed of incandescent coke, the whole bed of burning fuel being gradually moved from the front to the back of the furnace. Ordinarily, this feeding is done by an intelligent fireman, and none other should ever be employed, when more or less favorable results may be obtained.

NEWFOUNDLAND TRADE.

The Canadian commercial agent at St. John's, Newfoundland, calls attention to the valuable trade of that island. He says:

A perusal of the customs returns of Newfoundland for the year ended June 30, 1905 reveals the fact that there are still several items on the list of imports, in which Canada does not figure as prominently as it should and might do, if Canadian exporters gave a little more attention to the requirements of this market.

While it is quite true that the imports from Canada have doubled in volume during a period, in which those from Great Britain have remained about stationary, and goods from the United States have fallen off 50 per cent, which is a very satisfactory position from the Canadian standpoint, there seems to be no good reason why it should not be still further improved upon, and in order to draw attention to the matter, I append a list which will show the relative position of Canada in the volume of these imports, and which seems to be worthy of some consideration.

I am given to understand that it is mainly a question of price and quality of goods offered, and that if Canadian exporters can do at least as well as their competitors abroad in these respects, they will have very little difficulty in still further increasing their sales in this colony.

In recent years there has been such an improvement in the means of transportation by railway and coastal steamers, as well as in direct communication with Canadian ports, that the reason why trade was so largely directed into other channels has disappeared to a considerable extent, and at the present time every facility is given by the granting of through bills of lading by the Reid Newfoundland system to reach the most distant outports of the colony.

DUTIABLE GOODS.

Article.	United Kingdom.	Canada.	United States.
Aerated waters	$2,033	$200	$523
Ale, porter, beer	7,437	98	1,163
Biscuits, sweets	3,272	892	1,360
Cabbage	....	1,912	5,014
Cement	2,533	812	58
China, earthenware	34,831	2,395	697
Confectionery	11,382	1,080	5,331
Cordage	29,555	4,920	5,787
Dry Goods	738,522	69,640	131,180
Feathers	8	209	4,732
Glassware	14,448	7,342	12,291
Groceries, etc	68,434	24,829	50,515
Hats, caps, etc	58,438	5,478	5,437
Hardware	148,379	61,771	93,094
Ironware, boots, etc	12,549	29,016	38,648
Iron of all kinds	32,401	2,944	2,874
Jams, etc	7,105	59	50
Knife brick, etc	6,273	2,874	11,622
Leather, sole	231	39,097	82,625
Meats, canned	1,380	245	25,265
Meats, bacon and hams	4,256	1,444	16,166
Meats, beef	....	20,343	220,280
Meats, pork	1,082	44,397	305,701
Nails	12,285	9,748	17,574
Pianos, etc	5,297	3,837	10,411
Ready-made clothing	163,688	14,594	36,307
Soap, etc	21,286	3,650	5,703
Sugar	29,711	3,766	94,871
Vegetables	8,438	1,307	1,240
Vinegar	1,247	56	59
Window shades	1,718	233	1,475
FREE IMPORTS.			
Corn and brooms	....	....	3,493
Lines and twines	6,808	9,176	36,771
Lard	....	1,126	42,914

THE INTERNATIONAL POSTAL CONVENTION.

The International Postal Congress recently held in the city of Rome was in session 52 days, and the business transacted was of special interest to Canada.

The first of these congresses met in Berne, Switzerland, in 1873, where the international postal treaty was made, and the one which has just come to a close is the sixth. At the Berne congress there were 22 nations represented, while at the last one in Rome the number of nations had grown to 64. On May 26 the new postal treaty, which will be called the Treaty of Rome, was signed, and is the only document ever written and signed by all of the world's powers. Berne has been the international postal clearing house since the first congress met there, and in all matters referred there the decision is final.

This last congress, says Mr. Rosewater, a representative of the United States Post Office Department, has demonstrated again that that country is woefully behind other nations in postal matters. We have, he says, practically no parcels post, our money-order system is not nearly so complete as that of some European nations, and we have nothing which agrees with the declared-value service in operation abroad. There a parcel can be posted and insured just as we insure a package for a certain value with the express companies.

The government is responsible for the stated value of the package, and this and the other features of the parcels post are very desirable adjuncts of the postal service. We have given over that part of the business entirely to the express companies, says Mr. Rosewater, when, as a matter of fact, it should be part of our postal system.

A great many reforms were instituted in the international service by this congress, some of which are of vital importance to the public, although many related merely to the transaction of business in the post office departments of the various countries, and are, therefore, matters in which the public does not generally concern itself. All the new measures put into the treaty go into effect on October 1, 1907, which will give the various countries time to prepare for them.

One of the most vital changes relates to the weight of letters which may be sent through the mails from one country to another for a single five-cent stamp. Formerly the weight allowed for international letters was 15 grams in countries which have the metric system, and half an ounce in countries having the English table of weights. In the former countries after the date specified, letters may weigh 20 grams, and in the latter letters weighing one ounce will be carried for five cents. Any excess over the ounce or 20 grams will be carried for just one-half the present rates. This means that a letter weighing over an ounce and less than two ounces would go for eight cents, and fractions of weight over the ounce standard would be at the same rate up to the limit of weight which can be sent.

Of great importance was the agreement to issue in the country from which a letter is sent a prepayment coupon which will be exchangeable at the post office to which it is sent for a stamp. As each country retains all the money it receives for postage paid within its borders, these coupons would be kept and sent at the end of each year to the clearing house in Berne, where any credit difference will be allowed to the country to which it is due.

The importance of this provision cannot be overestimated. Heretofore, if a person wished to prepay an answer to a letter sent abroad, he was required to purchase a foreign stamp, never an easy matter, or put the prepayment money in an envelope. After October 1, 1907, all he need do is to put a prepayment coupon in the letter, which the recipient will take to his post office and receive therefor a stamp. It seems that much of the trouble arising in the consular service from failure to answer queries sent to consuls was caused by this lack of prepayment facilities. Consuls, especially those on small salaries, could not be expected to pay out of their own pockets the postage for replies to many letters of inquiry, and there were no facilities for the inquirers to prepay the answers.

It was decided also that there shall be no limit to the writing that may be put on postal cards. In other words, the communication can be written on both sides as well as the address, without incurring any penalty, as is now the case.

The next session of the congress will be held in Madrid in 1912.

UNIVERSAL PENNY POSTAGE.

The discussion being carried on in Great Britain as to the desirability of universal penny postage, including all countries, attracts wide attention everywhere. Recently Mr. J Henniker Heaton, a member of the British Parliament, who for years has taken most active interest in that system, wrote a letter to the London Times, which explained his ideas most admirably, the salient feature of which we reproduce. Mr. Heaton says:

There are two small but noisy classes of objectors to universal penny postage, and these two refute each other. "We have penny postage throughout the empire," cries some shortsighted Briton, "why should we give foreigners a share in the benefits of it?" "It is England," says the intelligent foreigner, "England with her worldwide commerce, England with 50,000,000 of her children at home and 50,000,000 more settled all over the globe, that will profit by this scheme, the cost of which will fall largely upon us."

Such arguments are based on the fallacy that it is possible to reduce the postage paid by the senders of letters without benefiting the recipient. I yield to no one in fighting for our colonies and colonists. But our colonists in the United States exceed in numbers by two to one all those who are located in Canada, Australasia and the Cape. The total number of emigrants from the United Kingdom during last century, 1815 to 1900, amounted to 15,160,959. On the other hand, there are innumerable reasons for adopting the proposal.

In the first place, not a single additional ship, train, cart, horse or man is required. Our deft sorters will not work an hour longer, the pile of plump mail bags in a corner of the steam-packet's hold will be a little higher, the grumbling letter carrier's wallet will not be perceptibly heavier. The existing machinery is ample to meet any development of correspondence. I may explain at once that the foreign letters will not be as a drop of water in the ocean compared with our immense inland correspondence.

It is pertinent to remember that the principle post offices in Europe, Africa and Asia are worked at a profit. Their officials cannot plead poverty—least of all Lord Stanley, who last year sent a cheque for £4,819,193, the year's surplus, to the chancellor of the exchequer. The United States postmaster-general in the 12 months made a profit of £6,000,000 on letters, but lost £10,000,000 by conveying freely, or nearly free newspapers and books. When he treats printed matter less generously he will be in a position to be just to the letter writers. An excessive postal surplus means bad finance.

It is right to tax luxuries, especially pernicious luxuries. But it is culpable to levy taxation of a representative character on the communications of the people. Such taxation is an offence against economics when applied to the domestic correspondence of a state; but when it restricts intercourse with those who have emigrated, it is worse than a crime; it is a blunder. Of these, 10,175,443 went to the United States, 2,297,548 to Canada, 1,801,164 to Australia and 886,804 to the Cape and other British settlements.

The Englishman will require the indispensable precedent. Here it is. We have already universal half-penny postage for printed matter. Anything in print—newspaper, pamphlet, prospectus, catalogues or circular—not exceeding two ounces in weight can be sent any distance for ½d—from Fleet Street, London, to Broadway, New York, or from one side of Fleet Street to the other, from Canada to Algeria, from China to Peru. This plan of charging a uniform rate for 100 yards or 10,000 miles is perfectly reasonable, for the actual cost of conveying a packet weighing two ounces to the other side of the world is but a small fraction of 1d.

We can send a ton of goods to New Zealand for £2. The cost of checking weight is saved; that of collection and delivery remains to be met. But this cost of collection and delivery is precisely the same for a letter as for a printed paper's weight. They are conveyed in the same train or ship, sorted by the same staff, delivered by the same hands, and from first to last give exactly the same trouble. On what ground then is the charge for a letter five times that for a printed paper? We have universal halfpenny postage for two ounces of printed matter. Why should we be denied universal penny postage for half an ounce of written matter?

Nearly all conceivable objections to universal postage are met by the success of the imperial penny postage. Thus the distances to be covered are not so great under the former as under the latter system. And the question whether the reduction of the rate would lead to a remunerative increase of correspondence is already answered by the fact that letters to and from the colonies have more than doubled in number since 1898. Some of the leading nations have already adopted international penny postage as between themselves and neighboring peoples. Anomalies so glaring as the charge of 2½d for a letter to France, 21 miles, and 1d to Fiji, 11,000 miles, cannot be matched in any other department of the public service.

It is doubtful whether those who would maintain these unjust anomalies have realized how small is the booty at stake as compared with the commercial interests imperilled. Our imports and exports amount annually to £1,000,000,000—one thousand millions sterling—while the lost of postal revenue under universal penny postage would be in the first year about £125,000, and in the third or fourth years, thanks to the development of correspondence under the lower rate, there would probably be a profit. To European countries we send 40,000,000 letters (or two-thirds of our total foreign mail), and the first year's loss, after allowing for a doubled output, would be £83,000. In the same way, after allowing for increase, it would cost us about £25,000 to establish penny postage to the United States.

There remains the so-called financial difficulty, which, however, on examination proves to be mere paper—as flimsy as the disc of paper through which an acrobat jumps. In conclusion, I have to say that the peoples of all the principal countries are in hearty sympathy with the project for a worldwide penny post. At least two countries are willing to adopt the proposal forthwith. It may suit England to agree to introduce the reform grad-

ually if timid financiers decline to accept the whole burden.

In any case I have an assurance that the proposal will be supported by the chief German commercial men and by leading French, Austrian, and Belgian chambers of commerce and bankers and merchants.

SMELTING IRON BY ELECTRICITY.

Speaking of electric iron ore smelting at Sault Ste. Marie, Ont., the Iron Trade Review says:

The experiments recently concluded at the Canadian Soo on the electric smelting of iron ore, under the general direction of Dr. Heroult, of aluminum fame, appear to have been more successful than iron and steel metallurgists in general would have anticipated, but it is probable that if commercial results follow they will likely be in the direction of producing material other than ordinary pig iron, and from other than ordinary ores.

The final report to the Canadian government has not been made. Meanwhile, the authoritative information available regarding the experiments is contained in an address before the Canadian Club by Dr. Eugene Haanel, who as Dominion Superintendent of Mines presided over the experiments as the representative of the Canadian government, and Dr. Haanel's preliminary report to the Minister of the Interior.

In the statements thus made there is only a bare reference to the probable cost, this placing it at $10.69 per ton of pig iron. Even the full data, which are not given, could not be relied upon to give an accurate forecast, because the largest single item of expense outside of the ore is the electrical power, amounting to several dollars a ton, and the cost of electrical power cannot be predetermined where, as in this case, very extensive plants must be erected to utilize water power in a comparatively untried region. The experiments of the Soo seem to have indicated a production of 12 tons of pig iron per 1,000 h.p. days. The experiments witnessed a couple of years ago in France by the Canadian Commission on Electric Smelting showed for one set of experiments 5.76 tons per 1,000 h.p. days; for another set, making white iron, however, the showing was 12.12 tons. On the Soo experiments the favorable unit indicated is one of 1,500 h.p., producing therefor about 18 tons per day. If $15.00 per h.p. year can be done at the Soo, and the Hydro-Electric Power Commission's estimate for Niagara Falls is not much more than half as much, while contracts in Canada have been made this year at $12.00. the cost per day for 1,500 h.p. would be $61.64, equal to $3.42 per ton of pig iron if 18 tons are produced per day.

The most important commercial results, however, do not lie in the direction of producing ordinary pig iron from ordinary ores. In the present course of manufacture, pig iron is only an intermediate stage, made necessary by the processes of smelting and subsequent refining which have been adopted. The smelting operation by the blast furnace leaves the pig iron with impurities which must be removed in the steel making. Hopes have been entertained that electric smelting could be so conducted that the intermediate form of pig iron would not be necessary; that, on the contrary, the electric smelting operation would produce steel directly. To ascertain to what extent, if any, such hopes have heen borne out by the experiments at the Soo the final official report must be awaited.

On other important points the information now available is more explicit. It was proved that Canadian magnetites can be successfully treated by the electrothermic process. Doubts had been entertained regarding magnetites, as compared with hematites, on account of the electrical conductivity of the former. It was proved also that ores high in sulphur can be made into pig iron, if not into a higher form of iron, containing only a few thousand per cent of sulphur, and that titaniferous iron ores, perhaps up to 5 per cent. titanic acid, can be used, as shown by an ore containing 35 per cent. titanic acid producing a pig iron of passable quality as judged by fracture.

Perhaps the most interesting conclusion of all is that roasted nickel-ferro-pyrrhotite can be made into a nickel-iron pig practically free from sulphur. If the operation could be refined a step farther, so that a nickel steel could be produced, the process would be of exceeding value.

The experiments showed that silicon could be varied at will, and that charcoal made from refuse and peat coke made from peat can be utilized without briquetting with the ore.

Exaggerated ideas should not be entertained as to gross results of electric smelting, even should the process prove entirely feasible, as the water power of the world is limited and the demand for electric smelting would be enormous. Thus, on the basis of 1,500 h.p. producing 18 tons per day, it can be estimated roughly that the total theoretical power of Niagara Falls would suffice only for producing the amount of pig iron made in the United States in 1902 or 1903. No such drain on any water power would be feasible, as the demand for power for other uses would advance the price.

A VALUABLE PUBLICATION.

The 1905 issue of the Canadian Annual Review, of which Mr. J. Castell Hopkins is compiler and editor, has been issued from the press of the Annual Review Publishing Co., Toronto. Regarding this valuable publication the Toronto Globe says:

"Every page manifests the painstaking care which Mr. Hopkins devotes to his work. Anyone at all acquainted with the preparation of such a volume will appreciate how difficult it is to preserve the history of current events, and on controversial questions to lean neither to the right nor to the left, but to keep straight along the path of facts and fair inference. The historian who treats of events long past has the advantage of occupying a position of measureable detachment—himself and his readers also are to a large extent freed from the prejudices and passions of the time. Not so the commentator on current events. He has first to conquer the personal equation, and then has to encounter the strong predispositions of his readers.

"A careful examination of Mr. Hopkins' treatment of

some of the thorny subjects which occupied the attention of men during 1905 will convince anyone that he has endeavored to approach them in the most impartial and judicial way, and the judgment of judicial and impartial men will be that he has succeeded admirably, and that such a book as this with its skilfully condensed statements of each side of a question will be a treasure to the historian who some years hence writes the history of these times.

"To use a well-known phrase, it is a work that should be in the library of every man who maintains an intelligent outlook on his day and generation. The very multiplicity of contemporary publications and the mass of printed matter that pours from the press on every important subject somewhat tends to confuse the mind. Nothing is more calculated to clarify it than a glance at the information contained in this volume. Men frequently feel a desire to recall occurrences of former years, but the time needed to make the inquiry discourages the attempt. Here is a volume that could resolve the difficulty in a few minutes, and with as great an approximation to surety and authority as is possible to attain."

Accompanying the volume is a separate pamphlet of 38 pages, giving a chronological statement of the leading incidents in Canadian history from Confederation down to the end of the century. This brings events to the period at which Mr. Hopkins' volumes begin, namely, 1901.

EDITORIAL NOTES.

In the House of Commons a few days ago, Hon. Mr. Paterson gave some interesting facts regarding the bounties paid on iron, steel, steel rods, binder twine and crude oil in recent years. Figures for bounties paid on production of iron and steel were:

	Iron.	Steel.
1897	$67,528	$17,366
1898	173,360	67,454
1899	205,465	74,644
1900	248,417	64,360
1901	367,962	100,058
1902	713,658	77,431
1903	626,651	775,154
1904	545,651	347,990
1905	632,362	614,433
1906 11 months	624,191	838,591

The bounties on the other articles have only been granted for a few years, and are as follows:

	Steel Rods.	Binder Twine.	Crude Oil.
1904	$5,373	$25,452	.....
1905	221,266	13,789	350,047
1906 (11 mos.)	273,440	13,478	267,048

Seventy-five per cent. of the farms of the country are a disgrace to their owners, from the standpoint of neatness and appearance of the buildings and surroundings. Wooden structures in varying stages of collapse, rotting fence posts, inefficient watering troughs, and floods of barns and cellars all speak of decay and temporary use. If these farmers could be awakened to the importance of building for all time instead of for a day, says an exchange, the sum total of prosperity in country life would be immeasureably increased. If farmers would but commence the use of cement construction, durable and satisfactory work that will not rot and fall into decay will result. Timber is becoming scarce, stone and brick are dear and need skilled labor whenever they are used. Not so with cement. This, combined with sand and gravel, makes strong and waterproof work as well as fireproof. It can be used for gutters in stables, cellar and stable floors, drain tile, silos, sidewalks, fence posts, bridges, houses, barns, watering and feed troughs, ice houses and cisterns. There seems no limit to its usefulness. The simpleness with which it is handled commends it to those unskilled in carpentry and other trades. Any farmer can use cement with a little practice.

At a special meeting of the British Tariff Commission held a few days ago in London, Mr. Joseph Chamberlain stated that during the past two years the Commission had published nine volumes of its report, and an exhaustive report on agriculture is now under consideration, and will be published shortly. This will be followed by a special report on preference, which will be circulated throughout the empire. The commission expects to complete its survey of British trade conditions in the early autumn.

A press telegram from London a few days ago stated that in a speech delivered by Postmaster General Buxton he announced that he was in communication with the Canadian government with regard to the reduction of postage on newspapers and magazines and was sure his proposals would be met in a friendly spirit, and he hoped in a favorable spirit. He had given considerable attention to the question and realized that Canada was being flooded with American literature and advertisements. This was a serious menace to imperial unity and trade. He was glad Canadians were sufficiently robust to withstand such appeals, but would like to see an end. He intimated that the question was a specific one between England and Canada. Owing to the peculiar situation of the latter, any arrangement, therefore, would not necessarily affect other parts of the empire.

The average Britisher dearly loves to be humbugged. Nobody objects to the rates of postage imposed in Canada. On the contrary, the Canadian post office authorities have time and again endeavored to get the British post office authorities to reduce their rates of postage on matter coming to Canada. If they did so British literature and British advertisements would be as free to flood Canada as that sent in from the United States. If the literature sent into Canada from the United States is a menace to imperial unity, which Canadian robustness is fortunately able to withstand, but which hazard might be reduced by cheaper postage on literature from Great Britain, why does not the British Postmaster General lower his rates to equalize the American and Canadian rates? Let Mr. Buxton lower his rates and the event will be accomplished. Canada can do no more than has already been done, and there is no need of any specific arrangement between the two countries.

Advices from Sydney, Australia, are to the effect that the existing Federal tariff will remain untouched until the end of 1907, as the report of the Federal customs commission will not be ready in time for consideration by the present Commonwealth Parliament.

As Seen from the Inside.

By the Business Manager.

OUR OPPORTUNITY.

Canada is in the very midst of a great forward movement, of an era of industrial expansion which is adding daily to the magnitude and importance of the manufacturing interests of this country.

This opens up greater possibilities for and adds to the responsibilities resting upon this paper, which for more than a quarter century has been the representative manufacturing paper in Canada.

Enlargements and improvements to the paper are necessary under the stress of such circumstances. Proof of our intentions in this direction has already been given in the establishment of new departments dealing with matters of vital importance to manufacturers; in the use of a better quality of paper, making possible better illustrating and a better appearance generally; in the starting of an exceptionally vigorous (and successful) subscription campaign.

But this is only a beginning. With the advice and coöperation of our readers we believe that we can double the size and treble the value of this paper before the end of next year.

If the paper is increased in value you will be gainers as well as ourselves. So we have no hesitancy in asking your good-will and coöperation.

A REQUEST TO OUR READERS.

This paper has ever possessed the confidence and good-will of a great proportion of its readers. This has been appreciated and no effort will be spared to retain such relationship.

Many readers have so generously commended the paper that new subscriptions have come in from all parts of the Dominion.

But even more vital to the paper is the service done it by such readers as make a habit of mentioning the paper to advertisers when writing regarding anything in it which interested them. This seems a simple matter—one neglected more frequently than remembered by the average reader—yet it means much to the paper.

You might be surprised how much there is in one issue that is of interest to you. Try this experiment: Start at the front cover of this issue and go carefully through the paper, marking each item which refers to something you should understand better than you do—even in prices you may have a totally wrong impression—then write to each advertiser, asking for the information you desire. Do this with each issue for a year and your knowledge of your business will grow in ways you cannot imagine.

ADVERTISING RATES.

It does not follow that because advertising rates are low that the subscription list is small.

Yet some advertisers seem to have this impression.

Low rates may be due to an entirely different cause.

Take the case of this paper, for example: The Canadian Manufacturer was started when advertising was not recognized to be the vital force it undoubtedly is. Rates for all classes of media were then low. The rates on this paper have not been increased in proportion to its circulation or its constituency.

This paper goes to the manufacturers in every branch of industrial activity. And it goes to the men in authority.

It goes to every part of the Dominion.

These manufacturers send us $1 each year for the paper—many have done so for a score or more of years.

We believe more manufacturing firms subscribe for this paper than for any other trade paper in Canada.

Our lists are open to any advertiser who desires to look into this matter.

Yet our rates are away below the level of other papers in the same field. The obvious result: they are to be advanced.

An advance of about ten per cent. will be made in our rates at the end of this year, and there will be further increases until a more equitable level is reached.

Old advertisers get the benefit, of course, for we never raise the rates any advertiser secures—as long as he continues in the paper.

THE PROBLEMS THAT ARISE.

All manufacturers find it necessary to devote much of their time to solving the problems that are continually arising in connection with their business.

In the factory, in the office, in the relations with the sales department, in every branch of the concern's activities, questions arise which seem at first simple enough but which lead to complications that call for the best of what skill, diplomacy and decision the manufacturer possesses.

So often similar problems arise in connection with different plants that we feel a service could be performed by giving publicity to the methods adopted by various manufacturers to unravel the various tangles into which one department or another had got.

What do you think about it? We propose to start a department in the paper, to which any reader is invited to contribute, either to ask for advice or to give it; either to ask how to solve a difficulty or to tell how he accomplished such a task. Ask any question you like; if we cannot answer it probably some of our readers can.

NO APOLOGY TO OFFER.

We have no apology to offer for our circulation or for our advertising patronage.

We invite you to examine our lists and note how many heads of firms get it.

We invite your attention to the fact that we have a greater number of regular advertisers than any other paper in our field.

And, we are getting our share of new subscriptions and new advertising. Note the number of new advertisers in this issue, for instance.

OUR NEXT ISSUE.

It is often dangerous to prophesy but we will risk this assertion: the next issue of The Canadian Manufacturer will be one of the largest and one of the most valuable numbers we have ever issued.

It will contain four, or possibly eight, more pages; will have several new features and will be particularly well illustrated. Several new advertisers will commence using space in that issue. Watch for it.

THE INDUSTRIAL NEWS SERVICE.

It has long been the boast of The Canadian Manufacturer that its news service of industrial happenings, of the extension of old plants, the establishment of new ones, of important contracts, of incorporations and partnerships, has been the most comprehensive and up-to-date published in Canada. We intend making a big effort to improve this service and to this end would appreciate the sending in by any reader of an item of industrial news. Often the publicity will be of value to the reader sending it in. This will not, however, lessen its value to us as long as the information is fresh and accurate as to detail.

A NEW SMELTER.

Mr. Emil R. von der Osten, C.E., is the future superintendent of the German-Canadian Smelting & Refining Co. It is proposed to erect works on a site somewhere on the line of the Temiskaming & Northern Railway; the Provincial Government granting a free site. Mr. von der Osten has furnished the following details of the proposed undertaking:

The German process may be used in Canada on certain conditions, the most important being that the process is kept secret.

Final arrangements must be approved by the First Director of the Geological Institute and Mining Academy, Berlin, Herr Geheimrath Schmeisser.

The experts must be Germans.

The works will be concentrating, roasting, refining and cobalt-blue works.

The German National Bank would like to see the works in Germany if this were possible, and might then finance the whole; if they are established in Canada, the bank will assume a part of the financing.

In Germany 52 per cent. of the world's production of cobalt oxide is used, and Mr. von der Osten has guarantees for a market of 100,000 pounds. Ore was sent in November, 1905, by the Commissioner General of the Canadian Government at the Liege Exhibition to Germany for treatment, and the results were very satisfactory. The experiments were made by Prof. Pufahl and Dr. Krusch.

The intention of the company is to put up a concentrating plant first, to treat low grade ores, and then the cobalt oxide works; lastly a roasting plant. That means that the company's works will be started with the wet and dry process.

The expenditure in Canada will be about $445,000. The headquarters will be in Toronto, and the name of the company will be changed to the German-Canadian Smelting & Refining Co. The capital will be $1,000,000.

The Allis-Chalmers Co., Chicago, are supplying part of the machinery. The special machinery will come from Germany.

CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

Para Docks, Limited, Toronto, have been incorporated with a capital of $17,500,000, to construct wharves, piers, etc., to carry on the business of an electric light, heat and power supply company, to manufacture lumber, etc. The charter members include J. S. Lovell, E. W. McNeill and S. G. Crowell, Toronto.

Mr. John Williamson, Ottawa, has placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a power pump.

The Northern Engineering & Supply Co., Fort William, Ont., have been incorporated with a capital of $100,000, to manufacture electricity for power, light and heat purposes. The charter members include W. J. Ross, J. T. Horne and J. M. Patton, Fort William.

The Cobalt Drilling & Development Co., Toronto, have been incorporated with a capital of $50,000, to carry on a mining, milling and reduction business. The provisional directors include Stuart Jenkins, Douglas Ponton and G. J. Ashworth, Toronto.

The Smart-Turner Machine Co., Hamilton, Ont., are supplying a duplex double acting power pump, driven by gasoline engine, to the Sanitarium at Hamilton, Ont.

The Supreme Heating Co., Owen Sound, Ont., have been incorporated with a capital of $200,000, to manufacture stoves, ranges, furnaces, etc. The provisional directors include A. J. Ross, William Taylor, Owen Sound, and W. R. Hampden, Toronto.

The Amalgamated Cobalt Mines, Limited, Toronto, have been incorporated with a capital of $1,000,000, to carry on a mining, milling and reduction business. The provisional directors include G. M. Clark, T. C. Russell and John Lees, Toronto.

Mr. Wm. R. Webb, Hamilton, Ont., has placed an order for a 5-ton hand power traveling crane with the Smart-Turner Machine Co., Hamilton, Ont.

The Wabi Cobalt Silver Mining Co., Cobalt, Ont., have been incorporated with a capital of $500,000, to carry on a mining, milling and reduction business. The provisional directors include J. R. Gamble, George Keilty and W. A. Marsh, Cobalt.

The Niagara Falls Machine & Foundry Co., Niagara Falls, Ont., have a contract to supply four hundred tons of castings for the building of the new plant of the Ontario Iron & Steel Co. at Welland, Ont.

Mr. E. D. Smith, has ordered a duplex pump for his new canning factory at Beamsville, Ont., from the Smart-Turner Machine Co., Hamilton, Ont.

The Peterborough Lumber Co., Peterborough, Ont., have been incorporated with a capital of $40,000, to manufacture lumber, etc. The provisional directors include George Lenton, John Thomson and Dickson Davidson, Peterborough.

The Howard Cooperage & Lumber Co., Ridgetown, Ont., have been incorporated with a capital of $30,000, to manufacture lumber, etc. The provisional directors include D. A. Leitch, Alexander Leitch and W. D. Craig, Ridgetown.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order for an automatic feed pump and receiver from Messrs. Maxwell & Johnston, Toronto.

The Bell Telephone Co. have taken out a permit for a telephone exchange at Lee Avenue, Toronto, to cost $5,000, and for another exchange at Oxford Street and Bellevue Avenue, to cost $33,000.

A permit has been issued for a Baptist church for a colored congregation at the corner of University Avenue and Edward Street, Toronto, to cost about $7,000.

The J. B. Armstrong Mfg. Co., Guelph, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a standard duplex pump.

Mr. George E. Kingsley, Toronto, has purchased from the Toronto Liquid Carbonate Co., their three story brick factory where he will manufacture white lead, paints and similar products.

The Gatineau Drive Co., Ottawa, have been incorporated with a capital of $20,000, to carry on the business of a lumber company. The incorporators include W. C. Edwards and J. A. Cameron, Ottawa.

Messrs. Marlatt & Armstrong, Oakville, Ont., have ordered an automatic feed pump and receiver from the Smart-Turner Machine Co., Hamilton, Ont.

The Para Construction Co., Toronto, have been incorporated with a capital of $2,000,000, to carry on the business of a construction company. The charter members include J. S. Lovell, E. W. McNeill and W. F. Ralph, Toronto.

The Maitland River Power Co. by-law, asking Goderich, Ont., to guarantee the bonds of the company to the extent of $150,000 has been carried.

The Canadian Northern Railway have closed a contract with Mr. J. T. Schell, M.P. for Glengarry, for the construction of a branch from Hawkesbury to Ottawa, a distance of 55 miles. Work will be pushed with all possible despatch, and it is hoped to have the rails laid this fall.

The Hillrust Grape & Wine Mfg. Co., St. Catharines, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a duplex pump.

The medical building of Queen's University, Kingston, Ont., was damaged by fire. Loss about $25,000.

The Hamilton Steel & Iron Co., Hamilton, Ont., will build another blast furnace at a cost of about $250,000. It will be completed by 1907.

The factory of the Kemp Manure Spreader Co., Stratford, Ont., owned by the Massey-Harris Co., Toronto, will be re-opened by the latter company as a binder twine factory.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order for a standard duplex pump from the Polson Iron Works, Toronto.

The ratepayers of Cornwall, Ont., have voted favorably on a by-law to grant a bonus of $20,000 to the Modern Bedstead Co., Sherbrooke, Que., who will establish a large iron and brass bed factory.

The ratepayers of Glencoe, Ont., have voted favorably on a by-law to grant a bonus of $3,000 to the Fletcher Mfg. Co., Toronto, who agree to acquire and increase the Aldred works there.

A site has been secured on the bank of the Niagara River near Bridgeburg, Ont., for the smelting plant to be established by the Nicholls interests. It adjoins that of the Canadian Shipbuilding Co., an allied concern. Five hundred and fifty-seven acres have been secured.

The isolation hospital, which is to be erected at Peterborough, Ont., will cost about $10,000.

The contract for the large extensions to the works of the Canadian General Electric Co., Peterborough, Ont., has been let and work will be commenced shortly.

The ratepayers of Hastings, Ont., will vote on a by-law to grant a bonus of $5,000 and exemption from taxation for twenty years to the Peterborough Radiator & Boiler Co.

The Smart-Turner Machine Co., Hamilton, Ont., are building a second automatic spike machine for the Hamilton Steel & Iron Co., Hamilton, Ont.

Work has been commenced on a large factory for the Canadian Ethinite Co., Niagara Falls, Ont. The buildings will be constructed chiefly of concrete. Ethinite is a new product recently invented, and is similar to and used for the same purpose as calcium carbide.

"White Elephant," the talc mill at Hailesboro, Ont., was destroyed by fire July 7. Loss about $150,000.

The sawmill of the Goderich Lumber Co., Goderich, Ont., was destroyed by fire July 10. Loss about $15,000.

The National Drug & Chemical Co. of Canada, London, Ont., will erect a three story and basement warehouse 100x50 feet, at a cost of about $25,000.

The German Cardboard & Photo Mount Co., Peterborough, Ont., will erect a factory there for the manufacture of cardboard, photo mounts, calendars, etc.

Messrs. E. Leonard & Sons, London, Ont., have ordered an independent jet condenser, from the Smart-Turner Machine Co., Hamilton, Ont.

Works to be erected by the Ontario Iron & Steel Co., Welland, Ont., will be on an extensive scale. There is to be 80,000 feet of floor space. The steel casting shops will be 200x125 feet, the steel foundry 175x86 feet, and the pipe and tube building 300x119 feet. These are the three main buildings, and besides these there are to be three others—the smelter, with a 70 foot frontage, the office facing on the concession opposite the Michigan Central Railway Co., and the pumphouse. Water for the works is to be pumped from the Welland Canal.

The Town Council of Orillia, Ont., have awarded the contract for the construction of the new cement dam at the Ragged Rapids to Messrs. Quinlan & Robertson, Montreal. The cost of the dam will be about $52,000.

Toronto Street Railway officials have made the definite statement that power from Niagara Falls would be delivered in Toronto by October 1 to supply the street car system and for power and lighting purposes.

Arrangements are about completed, by which the Coventry Ordnance Works, Coventry, England, will start a factory near Ottawa to manufacture artillery, field guns and general machinery. It will be started by skilled workmen from England, aided by Canadian labor.

Since the London Machine Tool Co. removed to their new works at Hamilton, Ont., they have been exceptionally busy. They have been paying more attention to high grade machinery and have been successful in getting repeat orders already from some of the most difficult buyers. They have on hand at the moment more business than can be turned out in the next several weeks. This firm must now be recognized as one of the chief factors in the machine tool business of Canada.

The Hamilton Bridge Works, Hamilton, Ont., have so much business in advance of their output that they would put on a night staff at once if the men could be secured to do the work. There is a shortage in Hamilton, however, of both skilled and common labor.

Cowan & Co., Galt, Ont., have installed a Landis Tool Co. grinder, capable of grinding shafts 12 inches diameter and eight feet long.

The James Warnock Co., Galt, Ont., have been making several additions to their equipment. A few days ago they installed a 3,000-lb. drop hammer made by the McGregor-Gourlay Co. and they have just put in an ax-press made by the Toledo Machine & Tool Co., Toledo, Ohio. This new press is a special one for the work it has to do and is a large one, its weight being 41,000 pounds.

Sheldons Limited, Galt, Ont., have been so pressed with business that they have been compelled to build a large addition and to remodel their old premises so that they now have three times the floor space they formerly had.

The Berlin Co., Beloit, Wis., manufacturers of woodworking machines, will erect a factory at Hamilton, Ont. A Canadian company is being organized with a capital of $500,000. Building operations will be commenced in the near future, a site of ten acres having been secured.

Tenders will be received by R. Munro, village clerk, Port Elgin, Ont., until July 24, for the construction of a system of waterworks.

L. K. Jones, Secretary Department of Railways and Canals, Ottawa, will receive tenders up to August 15, for the construction of an 800,000 bushel capacity elevator.

The E. Long Mfg. Co., Orillia, Ont., have been incorporated with a capital of $75,000, to manufacture machinery, implements of iron, steel, wood, etc. The provisional directors include Erastus Long, Frank Smith and W. W. Bain, Orillia.

The grist mill and evaporator of J. H. Goodrich, Colborne, Ont., were destroyed by fire July 13.

The Canadian Bank of Commerce have awarded the contract for an office building to be erected in Woodstock, Ont.

The McGlashan Clarke Co., Niagara Falls, Ont., have been incorporated with a capital of $100,000, to manufacture cutlery, flat ware, etc. The provisional directors include J. G. Cadham, L. L. McGlashan, Niagara Falls and E. G. Clarke, Muncie, Ind.

The Canada Saw Mill Co., Blind River, Ont., have been incorporated with a capital of $100,000, to manufacture lumber, timber, etc. The provisional directors include R. B. Dolsen, Blind River; J. M. Thompson, Menominee, Mich., and C. G. Foster, Milwaukee, Wis.

The capital of the London Foundry Co., London, Ont., has been increased from $25,000 to $60,000.

The Tilden-Jackson Typewriter Co., Hamilton, Ont., have been incorporated with a capital of $500,000, to manufacture typewriters, bicycles, sewing machines, etc. The provisional directors include J. H. Tilden, H. P. Coburn, and J. H. Jackson, Hamilton.

The Stevens-Hepner Co., Port Elgin, Ont., have been incorporated with a capital of $150,000, to manufacture brushes, brooms, whisks, woodenware, etc. The provisional directors include H. H. Stevens, John Hepner, Port Elgin, and C. M. Bowman, Southampton, Ont.

The Watchman-Warder Printing Co., Lindsay, Ont., have been incorporated with a capital of $20,000, to carry on the business of printers, publishers, etc. The provisional directors include J. D. Flavelle, G. A. Miller and Peter Wilson, Lindsay.

The Canadian Axminster Co., Hamilton, Ont., have been incorporated with a capital of $50,000, to manufacture carpets, rugs, etc. The provisional directors include A. F. Hatch, R. B. Bruce and J. L. Counsell, Hamilton.

The Hudson-Cobalt Mining Co., Barrie, Ont., have been incorporated with a capital of $300,000, to carry on a mining, milling and reduction business. The provisional directors include J. K. Lindsay, Toronto; A. W. Wilkinson, H. D. Jamieson, Barrie.

The Atlantic Oil Co., Toronto, have been incorporated with a capital of $2,000,000, to manufacture and refine oil, etc. The provisional directors include S. Whittaker, A. A. Rogers and L. M. Heal, Toronto.

The Joliette Chemical Co., Joliette, Que., have been incorporated with a capital of $10,000, to manufacture pharmaceutical supplies, medicines, etc. The charter members include J. T. Gaudet, Emile Prevost, Joliette, and R. W. Gibson, Montreal.

Berard & Major, Limited, Montreal, have been incorporated with a capital of $200,000, to manufacture carriages, sleighs, automobiles, etc. The charter members include Alfred Berard, George Major and J. M. Mercier, Montreal.

The Canadian Consolidated Rubber Co., Montreal, have been incorporated with a capital of $5,000,000, to manufacture rubber boots and shoes, etc. The charter members include E. F. Surveyer, E. M. McDougall and A. C. Casgrain, Montreal.

The Clark Automatic Nut-lock Co., Montreal, have been incorporat d with a capital of $500,000, to manufacture nut-locks, bolts and nuts, etc. The charter members include W. J. Henderson, J. D. Good and Edward James, Montreal.

The Jenckes Machine Co., Sherbrooke, Que., have ordered three set of shaking grates from the Smart-Turner Machine Co., Hamilton, Ont.

Mr. F. A. Labelle, Hull, Que., and Mr. V. Bosvert, Ottawa, have recently purchased the St. Anthony mica mine at Gracefield, Que., and propose to go more extensively into the mining business and are installing an up-to-date plant, consisting of several steam drills and a steam hoist. The mine is located about six miles from Gracefield.

The Frontenac Gas Co., Quebec, Que., have been formed and will instal a gas plant immediately.

A five story building in Montreal, occupied by Desbarats & Co., engravers; B. Plow & Co., bookbind rs; Smith & McKeown, shirt manufacturers, and Scott & Hayward, printers, was destroyed by fire July 6. Loss about $50,000.

Messrs. Samson & Renaud's sawmill near Baie St. Paul, Que., was destroyed by fire July 8. Loss about $20,000.

The building permits in Montreal granted up to July 7 represent a value of $530,390. Of the new permits just issued is one for three warehouses of seven stories at 216-219 Craig Street West for Mrs. J. A. McIntyre, at a cost of $143,000, and one to Mr. Henry Birks for a store and additions in Phillips Square, amounting to $150,000.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied a girder frame slide valve engine, to Rev. Jos. Oster, Hull, Que.

The William A. Marsh Co. Western, Quebec, Que., have been incorporated with a capital of $75,000, to manufacture trunks, satchels, valises, etc. The charter members include W. A. Marsh, Quebec City, D. A. Gibson and J. W. Leathorn, Winnipeg, Man.

The Dominion Government will erect an immigration building at Quebec, Que., at a cost of about $200,000.

The piano factory of Lepage & Fils, St. Therese, Que., was destroyed by fire July 13. Loss about $10,000.

Work has been commenced on the new freight car repair shop of the Intercolonial Railway Co., Moncton, N.B. The entire building, including the walls and roof, will be built of reinforced concrete and steel, a mode of construction which the government engineers have found highly satisfactory, and is expected to be finished in less than ten weeks. It is the first of a number of shops which the I.C.R. intend to build at Moncton. The contract for the structure has been given to the Steel Concrete Co., Montreal, of which Mr. E. A. Wallberg is president, and the erection will be superintended by Mr. J. C. Nichols.

The Sweedish Planing Co., Nordin, N.B., have applied for incorporation with a capital of $75,000, to manufacture lumber, etc. The applicants include O. W. Nordin, B. Lindstrom, and L. W. Just, Nordin.

The Imperial Dry Dock Co., St. John, N.B., are about placing a contract with the

Dominion Engineering & Construction Co., Montreal, for the construction of a modern drydock at St. John.

About four trains of iron ore a week are going to the Londonderry Iron Co., Acadia Mines, N.S., from the old shaft and Wheelock shaft at the Torbrook mines. A new shaft is being opened a few rods from the Wheelock. A third shaft will probably be opened this year on the Martin farm, one-half mile further west.

Mr. Gibson, of Chester, Pa., one of the parties interested in the Victoria Gypsum Co., Munroe's Point, N.S., states that the company have chartered three steamers to carry the product of the mine to the United States. Development of the property is proceeding on a large scale. A railroad from the main deposit to high water together with modern shipping pier have been constructed, and it is estimated that 20,000 tons of ore will be shipped this summer.

The sawmill, offices, warehouses, etc., of the Timber Estate Co., Mintbrook, Newfoundland, were destroyed by fire July 11. Loss about $100,000.

The government of Nova Scotia have agreed with the Margaree Coal & Railway Co. to build a railway from St. Rose to Orangedale and Port Malcom, via East Lake Ainslie, the company undertaking to develop their coal property at St. Rose to a capacity of 1,000 tons per day. This road will also afford an outlet for extensive and valuable deposits of barytes at Ainslie.

The Winnipeg Printing & Engraving Co., Winnipeg, Man., have been incorporated with a capital of $100,000, to carry on a printing and publishing business and to manufacture photographic material, lenses, shutters, cameras, etc. The incorporators include A. W. Puttee, Gustavus Pingle and George Miller, Winnipeg.

R. Randall will erect a flour mill at Shoal Lake, Man.

The Don Cereal Milling Co., intend erecting an oatmeal mill at Minnedosa, Man., to cost about $30,000.

The Illuminated Sign Co., Winnipeg, Man., have been incorporated with a capital of $10,000, to manufacture illuminated signs, etc. The incorporators include E. C. White, H. W. Hutchinson and W. P. Dutton, Winnipeg.

The Wawanesa Wagon Seat Co., Wawanesa, Man., have been incorporated with a capital of $9,000, to manufacture wagon seats, etc. The incorporators include B. F. Lloyd, A. F. Kempton and Alexander Naismith, Wawanesa.

The Canada West Coal & Coke Co., Winnipeg, Man., have been incorporated with a capital of $2,000,000, to carry on the business of coal manufacturers, etc. The charter members include J. S. Hough, A. C. Ferguson and W. M. Graham, Winnipeg.

Contracts have been closed by an influential grain firm with the Northern Constructions, Limited, Winnipeg, Man., for the erection of 10 to 15 modern grain elevators to be ready for the handling of this seasons crop. This firm have also commenced the erection of a large storage elevator in Point Douglas, Winnipeg, for the Canada Paint Co.

Regina, Sask., is offering free sites and tax exemption to industries.

The Robbins Irrigation Co., Medicine Hat, Alta., have entered into a contract to irrigate 300,000 acres in Alberta. The company will spend $1,500,000 in erecting sugar plants, vegetable canning factories, etc.

Building permits for June in Regina, Sask. aggregated a little over a quarter of a million dollars. The larger items included $60,000 for the new Methodist Church, Canada Permanent Building, $50,000; Mackenzie & Brown extensions to store $15,000 and Clayton Peterson addition to hotel $20,000. The rest of the amount is made up to a large extent of dwellings, the number of private houses building being the most remarkable feature of this year's building boom.

The flour mill of John Lee, Arcola, Sask., was destroyed by fire July 9. Loss about $20,000.

It is reported that the Great Northern and Northern Pacific Railway Companies are to join in building a mammoth hotel in Vancouver, B.C., to cost three-quarters of a million.

An aerial tramway four miles long has been completed at Conrad City, Yukon, by the Conrad Consolidated Mining Co. It is said to contain the longest span of any aerial tramway in the world, two thousand nine hundred feet.

ELECTRICITY.

Electrical machinery and appliances of all kinds, electrical power plants and other progress in the electrical industries will be noted here.

What may be called the Brazilian Niagara, the largest hydraulic power installation in the South American continent, is now being erected on the Rio Das Lages River for the purpose of furnishing electric energy to operate street cars, electric lighting and manufacturing plants in the city of Rio de Janeiro. The plant will have an initial capacity of 40,000 h.p. and all the machinery to equip the plant is being manufactured in the United States. It is the largest single order for electrical machinery which has ever been placed in that country for shipment abroad, and it is being furnished by the Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Steel buildings in the United States are in constant danger of collapse through electrolysis, according to Maximilian Toch, of New York, who, in a paper before the American Society for Testing Materials, at the recent meeting at Atlantic City, drew attention to the risk upon steel-ribbed structures through the constant freeing of electricity from trolley, telegraph and electric wires. Mr. Toch said that every big city is loaded with free electricity, which is surely eating away the strength of all steel, especially that which is in any way exposed to close contact with wires. The speaker stated that it was almost impossible to tell exactly how much harm was being done, and said that some buildings might last for years, while others are likely to show the strain at any moment. Following the address, a resolution was passed providing for the appointment of a special committee to investigate the effect of electrolysis in some of the largest buildings in the country.

RICH VEIN OF COPPER.

The little town of Greenwood, B.C., is a hive of industry these days. There are located the rich holdings of the British Columbia Copper Co. The copper mines are rapidly being opened up, and the strikes fully justify the predictions of the prospectors.

In the power house is a 500 h.p. Westinghouse motor and three 300 h.p. Westinghouse motors. Then there is a Westinghouse motor generating set of 1,000 k.w. with a complete equipment of motors, transformers, switchboards, etc. Instead of using steam, or mules, the British Columbia Copper Co. adopted the most satisfactory and economical motive power and installed five Westinghouse electric locomotives.

Electricity may be said to have made mining profitable. Electrically operated machinery and electric mining locomotives not only increase the output and lower operating expenses, but actually make mining possible in localities where fuel—and, therefore, steam—is out of the question.

The types of mining locomotives and other mining machinery built by the Canadian Westinghouse Co are giving universal satisfaction wherever used

THE POWER COMMISSION.

The Hydro-Electric Power Commission of Ontario, legislated for under the act passed at the recent session of the Legislature, "to provide for the transmission of electrical power to municipalities," has been appointed by the government. It consists of:—

Hon. Adam Beck, M.P. for London, Minister without portfolio, whose interest in the power question has earned for him the cognomen of "Minister of Power." He is chairman of the Commission.

Hon. J. S. Hendrie, M.P. for West Hamilton, Minister without portfolio, and Chairman of the Legislative Railway Committee.

Mr. Cecil B. Smith, Toronto, engineer, Chairman of the Temiskaming & Northern Ontario Railway Commission, and engineer of the existing Hydro-Electric Power Commission.

The two first-named gentlemen, as members of the government, are debarred from receiving salaries for their work on the commission. It is within the bounds of probability, however, that with the waterpowers now developed, the scores of splendid waterpowers to be developed in this province, and the step taken by the government under the act referred to in relation to them, that the Cabinet may be increased in the not distant future by the addition of a "Minister of Power," with a salary equal to that of other Ministers with portfolios. The salary of Mr. Smith will be fixed later.

There is now existing a Hydro-Electric Power Commission which was appointed to make inquiries into and report upon a number of waterpowers in the province. Its work is almost completed, and it will shortly cease to exist. Hon. Mr. Beck is chairman of it, and he will simply transfer his allegiance to the new commission, so also will Mr. Smith, though in the meantime they will continue on the old body until its work is finished. Their colleagues on the latter are

Mr. George Pattinson, M.P.P. for South Waterloo, and Mr. John Milne of Hamilton.

The new commission is, in brief, empowered under the "power bill" to carry out the government's policy of supplying municipalities with cheap electrical power. The primary principle of the bill is the fixing of rates by the commission. This applies to existing or projected companies or undertakings for the supply of power which the government (through the commission) and the municipalities may enter into. The right to expropriate existing plants and to deal with complaints as to rates, etc., is vested in the commission. The latter is also authorized to make inquiries and investigations, and report the results, in regard to any waterpowers or waterpower privileges.

FUEL.

For names of fuel dealers see "Coal and Coke" in Classified Index.

The fuel supply question is a most important one to Canadian mauufacturers. The information published in this department will keep the readers posted on sources of production,

The work of reclaiming the Ford Pit seam of the Acadia Coal Co., which was commenced two years ago, is nearing completion. This seam was lost twenty years ago, when a fire in the mine workings made it necessary to flood the mine by turning the East River into it. After the pit had been pumped out two shafts were sunk, and the old seam was once more struck. The large seam of 47 feet thickness is turning out the very best quality of coal, while the smaller 19-foot seam in No. 2 shaft is also proving excellent. The management find that the machinery used in sinking the shafts is not heavy enough to hoist such large quantities of coal as are turned out daily, and is installing more powerful engines. Their new steel bankhead will be one of the finest on the continent, costing over $50,000.

According to the last annual report of the Department of Mines of Nova Scotia, the amount of coal raised during 1905 was 5,150,420 tons, as compared with 5,247,136 tons in the preceding year, a decrease of 196,750 tons. Two hundred and seventy-four thousand tons of iron ore were imported into Nova Scotia during the year. The province derived royalties from minerals to the amount of $613,811, gross, from which, however, must be deducted $41,732, which sum was paid as a bonus to the Cape Breton steel companies, on account of Provincial coal consumed in the manufacture of iron and steel. During 1905, coal to the amount of 4,475,284 tons was sold, a decrease of 69,325 tons, from the sales of the previous year.

SUB-AQUEOUS COAL MINING IN NOVA SCOTIA.

A correspondent of Mines and Minerals says:

In a recent issue of a Nova Scotia mining periodical I noticed the statement that there are now in Cape Breton six collieries working under water. It has occurred to me that a few particulars connected with the operation of the largest colliery there referred to might not be without some little interest, especially as it was also the pioneer colliery in undertaking such undersea workings.

The colliery to which I refer is the Princess pit, now known as Sydney No. 1, of the Old Sydney mines, situated in the town of Sydney Mines, in Cape Breton Island. This colliery was the first in North America to begin the getting of coal from beneath the bed of the Atlantic Ocean, and some 27 years have elapsed since a commencement was made thereat.

The seam of coal worked is known as the Old Sydney mines main seam. It averages between five feet six inches and six feet in thickness of coal of the very best quality. The dip of the seam is in a north-easterly direction toward and under the ocean, the angle of dip or inclination being five degrees or about one foot vertical in 12 horizontal.

The working of the "whole coal" under the sea by the bord-and-pillar system was commenced in this colliery in April, 1877, under an overhead cover at the shore line of 690 feet of solid measures, although part of the workings driven to the rise under Sydney Harbor was operated under a cover of 500 feet or less.

The present faces of the workings have reached a distance from the shore line of 5,800 feet to the dip. At this point the overhead cover is 1,140 feet in thickness of strata, with 33 to 40 feet depth of water above it.

The undersea workings in the whole coal, at the present, cover an area of more than 1,620 acres, with strata overhead averaging about 900 feet in thickness, and over that sea water of an average depth of 18 or 20 feet.

No sea water has yet found its way into the workings as a result of removing the pillars. A feeder of a few gallons of water per minute was encountered in some whole-coal workings driven to the rise, as also at the face of the water levels driven in the direction of the outcrop to the south, but this water evidently followed the seam of coal downwards from its outcrop under the waters of the harbor. There has been no water known to come from overhead across the measures.

This immunity from overhead leaks from the ocean is probably due to the presence in the superincumbent strata of 12 beds of fireclay or underclay of a total thickness of 39 feet in all, as well as to the numerous beds of shale which occur throughout. The subsidence of the overhead strata caused by the removal of a bed of coal of six feet in thickness would probably under these conditions soon choke itself, so that there would be no further actual motion, or settling of the strata, for more than, say, 100 feet upwards. Above that point the elasticity of the beds of shale and fire-clay mentioned above would prevent any rupture. Fire-clay when brought into contact with water soon forms a soft clay resembling putty, and impervious to water.

Out of the submarine area of which I have been speaking there has already been taken some 5,250,000 tons of coal from the main seam, while the present proprietors of the property have also commenced the working of another and thicker seam in the same area from which in all likelihood, they will secure as much coal as has already been taken.

PUBLICATIONS.

The publishers of The Canadian Manufacturer solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.

We are indebted to Mr. James M. Swank for a copy of the Annual Statistical Report of the American Iron and Steel Association for 1905. The statistics of the production of iron and steel in the United States for that year and preceding years are full and complete. Tables are given which show in detail the annual imports and exports of the United States of iron and steel, tinplates, iron ore, etc. Full details are given of the shipments of iron ore from the Lake Superior and other mines, the prices of Lake Superior iron ore, the prices of Connellsville coke, the imports and exports of coal and coke, the tonnage of steel vessels built in 1904 and 1905, etc. The price tables commend themselves to all who are connected with the iron trade. So also will the tables relating to the production of steel, which give the annual growth in recent years of all kinds of steel. The statistics of rail production in 1905 are given in detail. Tables showing the prices of Bessemer rails in the United States and in Great Britain for many years are given. There are some new features, including the separation of plates from sheets. Tables are given which show the production of leading iron and steel products iron ore, etc., by the United States Steel Corporation and by independent companies in 1902, 1903, 1904, and 1905. Canadian iron and steel statistics are full and complete. Detailed statistics of the iron and steel industries of Great Britain, Germany, France, and other countries are also given. The report contains 93 pages and is well printed on good paper.

PERSONALS.

Mr. Emil Stern, who for many years has been associated with Julius Pintsch, Berlin, arrived in Toronto, a few days ago to act as consulting engineer for the Economic Power, Light & Heat Supply Co., Toronto. This firm have secured the Canadian rights of the Pintsch suction gas producer and have already established a good connection in this market, both for this producer and for the "National" gas engine, for which they are also Canadian agents.

The following officers were elected for the ensuing year at the annual meeting of the Canadian Electrical Association: President, R. G. Black, superintendent of the Toronto Electric Light Co.; vice-presidents, R. S. Kelsch of Montreal, W. N. Ryerson of the Ontario Power Co., Niagara Falls; secretary and treasurer, T. S. Young, Toronto; executive committee, James Robertson, Montreal; A. A. Dion, Ottawa; B. F. Reesor, Lindsay; Charles B. Hunt, London; Louis Pratt, Brantford; J. J. Wright, Toronto; W. Williams, Sarnia; Lewis Burran, Quebec; J. W. Purcell, Walkerville. The matter of selecting the place for the next convention was left to the executive committee.

OFFICE METHODS AND APPLIANCES.

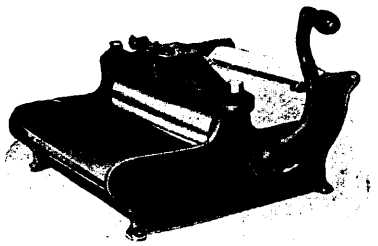
A Review of the Latest Suggestions in Office Systems and Supplies for Manufacturers.

THE MODERN WAY TO COPY LETTERS.

The passing of the letter book and the turn-screw copying press and the development of copying machines has been one of the features of the demand for the saving of time in office work in all parts of the continent.

One of the latest inventions for this purpose, known as "The Rapid Rotopress," is now being introduced on the Canadian market by Henry & Adams, Toronto agents for the Canada Cabinet Co., Adelaide St. West, Toronto.

On the Rotopress copies of business letters, bills, postals, etc., can be made with exceptional rapidity. The machine is so simple



THE ROTOPRESS.

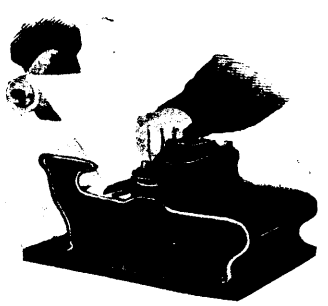
in construction and so mechanically perfect that it is being sold under a five years' guarantee that it will remain in good working order for five years, without any expense for repairs.

It is a compact little machine, weighing only eleven pounds, and as may be seen from the accompanying cuts, is both neat and attractive. The frame is of cast iron and contains two hollow brass rolls, one rubber roll, a small water tray and two wooden rollers for receiving the copying paper. The machine is finished with nickel-plated trimmings and all the journal bearings are detachable.

A feature of this machine is its simplicity of construction, this contributing to its wearing qualities as well as to its accuracy. A result obtained exclusively by this machine is the moistening of copying paper on one side only, and automatically winding up the copies by friction without blurring or offsetting.

HOW IT IS OPERATED.

The method of operation is simple. After the roll of copying is inserted the letters



DETACHING A ROLL.

are fed in and as the crank is turned the copies are wound automatically around a small wooden receiving roll and can be cut up into loose sheets very rapidly at any time desired by simply detaching the roll of copies as shown in the accompanying illustrations and separating them with cutter as shown. The machine will do the work distinctly as fast as the crank can be turned and the letters fed in.

"Will it copy anything in copying ink?" enquired one buyer.

"Yes," came the reply. "No special ink or typewriter ribbon is required. Anything written or printed in copying ink will copy in the Rotopress. The best results are, however, obtained from our 'Rotopress' typewriter ribbons."

"Can you file copies easily?"

"With the same trouble as filing a carbon copy, as they dry immediately. Loose sheets are usually filed the same as carbon copies, in any letter file. Some prefer to pin the copies to the letters they answer. Rotopress copies are heavy enough to stand upright in a vertical file."

"How does the Rotopress compare in price?"

"The simplicity and the small number of parts make it cheaper than any other rotary copier, though no better material or workmanship could be put into it."

"How does it compare in expense of operation?"

"It is twenty times as fast as the old copy-

REMOVING LETTERS FROM ROLL.

ing press and cheaper by half than carbon. Rotopress press is not dearer than a second sheet for carbon copying, so the cost of the carbon paper is saved entirely. It is faster, too, for copies can be made this way faster than the second sheet can be adjusted by the typewriter. Moreover corrections and signatures all show on the Rotopress—and the number of copies can be decided after the letter is written."

"Does it need an expert to run it?"

"No; just turn the crank, feed in your letters. It can be operated on any desk or table where space 12x12 inches is accessible."

"Could letters written by different people be separated easily?"

"That is one of the strong points of the Rotopress. It is especially adapted to large offices, as any number of different departments can copy on the same machine, each operator having their copies wound on a different receiving roller so they can take them away from the machine as soon as they are made. It will not wrinkle or blur the letter or copy."

HE HELD HIS JOB.

Often a truth can be told better by illustration than by explanation. In an interview in an exchange T. B. Laycock, an Indianapolis manufacturer, illustrated his point with a story every man should note:

"A young man should always have a deep sense of responsibility for the immediate duty at hand. The man who feels so does not long remain at a task inferior to his abilities. He is soon invited upward. He is soon invited higher into an executive position. He is not, like Macawber, 'waiting for something to turn up.' He makes his own way and if by chance or inheritance, he falls into the possession of money and business interests he knows how to take care of them."

Mr. Laycock has a way of illustrating every platitude and, like Lincoln's, his illustrations are always apt and interesting. "Several years ago," he said, "when the office was on a lower floor, a man came to the wire inclosure and said he would like to get work in our factory. I told him that there was no position open at the time, but not wanting to be too abrupt, I asked him where he had come from and other questions, until I happened to think of a new lumber shed which was being built, and suggested that he might get two or three hours' work digging post holes. He was delighted, and accepted the chance for work.

"I went out there, not watching him, but because I always like to be about where work is going on. That man seemed to be trying to get through the work in two hours instead of three, although I had bargained to pay him by the hour. When he had finished the job I gave him two more days' work assisting the carpenter in the erection of the shed, and he showed the same zeal he had in digging the holes. I became impressed with his industry and found a position for him.

"That man worked faithfully at whatever task was given him to do. He was soon at the head of his department. It was not long until other departments were placed under his management.

"To make a long story short, the entire management of the factory was reorganized and he was given one of the highest executive positions to be given. He is to-day with us. Willingness to work, as I have said before, amounts to much in any young man's success."

On the Care of "Matters Pending."

By Marquis Regan.

In the organization of any large business which serves a large number of customers (be they dealers or consumers) there is one vulnerable spot, requiring constant vigilance and perpetual care to prevent the serious impairing of the entire work of the selling force.

And this weak spot is none other than the handling of those records pertaining to matters which cannot be closed up to-day—perhaps not to-morrow—perhaps not until next week or next month.

Any manufacturer or wholesaler will recognize at once the possible scope of items covered by this classification.

These include:

Correspondence of every description;

Orders received, entered, and passed on to be filled;

Orders for shipment, particularly those scheduled to be sent by a specific date.

To these classes of "matters pending" in connection with customers may be added those matters entirely within the organization, such as:

Goods ordered for stock from the factory by the sales department;

Stock required by branches;

Printed matter, engraving, stationery and supplies in process of completion.

All these different matters are vitally intermingled with that fleeting element—Time. The sales department is making strenuous efforts to get business now, and yet prospective business followed in haphazard style—letters omitted through press of work or failure to note that this particular matter should have been queried again last week or yesterday—results in a time-postponement in the getting of that business.

The filling of orders and the making of shipments complicate in double measure the fulfilment of necessary time requirements, since the cog that slips is putting the whole machine out of business temporarily.

Under the most perfect conditions it is hard enough to fill customers' orders as promptly as they should be filled, and when the conditions involve a schedule depending on several different departments, only the most rigid follow-up will prevent the promised delivery from looking like a last year's New Year's resolution.

It is clearly up to the correspondence department, the order department and the shipping department (to say nothing of the many supplementary departments involved in the organization) to systematize as perfectly as possible the following of these "matters pending."

Any system that gets results is of course better than no system at all, but systems are like any other machines—the simpler you can make them the less overtime you will have to spend in keeping them shaped up to do business.

And how are these matters usually followed?

It would surprise you to know how few of the big manufacturers and wholesalers of the country have anything approaching an automatic method for this work.

The majority of them have a kind of a desk-book in which they keep letters, orders and other papers referring to such matters. These books usually have compartments labeled "immediate," or "in suspense," or "under consideration," though some of them are also supplied with 31 compartments for the days of the month.

None of these methods meet the actual requirements.

If you "tickle" an order, for example, to be called to your attention on the 28th, and have occasion before that date comes around to refer to your duplicate or triplicate copy of the order, it's a thousand chances to one that you will have forgotten where you put it, and you will have to look through the entire thirty-one compartments of your desk "tickler" to locate it.

This brings us then to the specific problem:

"How may you file letters or papers relating to 'matters pending' so that you may follow them automatically—systematically; and should you want to refer to any specific paper before the date for which you have filed it, how may you lay your hand on it instantly?"

An Office Specialty Vertical Tray Outfit In Use.

The key to this situation is the method of indexing the letters or papers or orders that you file, to be automatically called to your attention on some particular date.

The great advantage of the following method is that there is practically no time spent in making entries for indexing purposes.

First of all, each correspondence clerk, and order clerk, and shipping clerk (the man in charge of any line of duty requiring follow-up) is provided with a tray for vertical filing like the one here illustrated. This tray is made in two sizes—letter size for papers 11¾x9 inches, and cap size for papers 15x9 inches.

The tray itself is of quartered oak, with hinged covers which, when open, lie flat against the sides. This tray is fitted with a sliding compressor to keep papers upright, and a countersunk round rod which passes through a projection in the bottom of the vertical guides, thus keeping papers from slipping under the guides.

The equipment of the tray consists of:

Twenty-five alphabetical guides for indexing by name, subject, or town;

Twelve monthly guides printed Jan.-Dec., inclusive;

Thirty-one daily guides for the days of the month.

Let us take a typical example, the following of a prospect by the sales department:

An inquiry comes in from the Richards Dry Goods Co., of Peoria, Ill.

(We will assume that you are using the A-Z guides for indexing by towns.)

Having answered this inquiry on the 3rd, let us say you decide to "follow" it again on the 10th.

Now note carefully—here is the key to the method:

On the original letter you blue-pencil the figure "10" on the lower right-hand corner.

You then file the original letter in the vertical folder back of the "P" guide.

You next file your copy (not the original letter, but your carbon or rapid roller copier copy) in the folder back of the daily guide numbered "10."

Should you want to refer to both the original letter and your reply—say on the 9th—you have only to look for the original letter back of the "P" guide and—noting the penciled index "10"—quickly locate the copy filed for attention on the 10th.

Or, let us suppose that the matter comes to your attention on the 10th, and you write another letter, and then wish to advance the matter one week longer. This is done by attaching the copy to your second letter to the copy of the first, indicating "17" on the original letter, and filing both copies back of the guide for the 17th.

At any time you can get the original letter and the copies without wasting a minute looking anywhere but where they are!

The method is simplicity itself, if care is taken just simply to make on the original letter that little notation "10" or "17," or whatever date is to be indicated.

The credit man, for example, follows his collections this way with form—or special letters, and can quickly stop the follow-up—without chance of sending an extra letter—whenever he gets a remittance.

In the following of orders and shipments, the copies of the original order, as made out for the factory or the stockroom and given to the order and shipping clerks, constitute in each case the "original" paper for following up.

To keep track of these the order number is the important thing, so the order clerk need only enter on a sheet of plain paper the order number, mark on the order the first date on which he wants to call it to his attention, file the copy of the order back of the alphabetical guide for name, subject, or town, and advance the sheet bearing the number to the proper daily guide. The daily guide number is of course altered as the sheet is advanced from date to date.

Vertical filing is very widely used to-day by many big businesses, but this particular adaptation of it for some reason does not seem to be generally understood.

The tray outfit complete (its capacity is 3,000 letters or papers) costs less than $10, and it is in every sense convenient, since it may be placed on or near the desk (or on a swinging office stand attached to the end of the desk), and since these matters which are

vitally important may be safeguarded by placing the tray and its contents in a vault at night.

This is a method that makes for results, but it gets its results in a very simple way.

Results—obtained simply—that is the problem of office organization to-day, no matter what phase of filing or record-keeping is involved.

PLANT INVENTORY — IMPORTANCE, VALUE AND METHOD OF KEEPING A GOING INVENTORY.

The statement that a manufacturer must have his facts available for instant reference is to-day almost an axiom and requires no argument, writes F. B. Johnson in "American Machinist." There are, however, many owners of machine shops and other manufacturing plants who have still a great deal to learn and a great deal to do before they will have on hand, and under constant review, all the facts and figures that they should have for the most economical management of their plants.

Everybody, nearly, has heard of the man who ordered for his plant a certain kind of automatic machine and found, when he had it in place ready to use, but not running, that something much better had been invented since he had placed his order. He sat down with his pencil and figured for a while and then sold his new machine for little more than scrap iron and ordered in the new invention. He was a man who understood what increased speed of production means in the way of reduced fixed and other general expense charges per unit of product. He knew also that a machine that would be idle for repairs a good part of the time could not compete with one which could be used practically all the time. He was the sort of man that keeps an account of the net worth of each machine, tool and building in his plant and can tell to a nicety when to destroy, discard or dispose otherwise of any item of plant or equipment that has outlived its economic usefulness.

A number of manufacturers of my acquaintance are keeping records of which the card forms below are typical.

Form 1 is a good form for a permanent inventory of machine tools and similar equipment where the names of the articles so inventoried are short and constitute a sufficiently complete description of them, but for general use this card is defective in one or two points. A separate space should be provided for the name of the article recorded; a space also, probably at least a whole line, should be provided for description; a space should be given for the maker's number, as it may be necessary to use it in ordering duplicate parts for repairs; it should be made clear whether the order number mentioned under cost of installation is the number of the purchase order issued for the purchase of the item of equipment which the card represents or the number of a shop order issued to cover the labor of installation. From the form in which the card is drawn, it would appear that the cost of installation is added to the purchase price to obtain the total cost and it then appears that the item of equipment is carried into the books this total value and depreciated from this total year by year. I think that this method of procedure can hardly be followed in all instances. It is my belief that the cost of installation should, as a general thing, be charged to some general expense account and charged off during one year unless the equipment installed is so permanent in its nature that the cost of installation may, with evident propriety, be charged off more gradually.

It does not appear from the card whether or not costs of additions and repairs are added to book value of the item at the time repairs and additions are made. Whether this should be done depends on the nature of the repairs or additions. While no general rule may be safely formulated, it is safe to say that additions, which improve the machine so that it may be operated faster or at less cost, may be added to the book value of the machine. The same, however, is not true of most repairs; the cost of repairs steadily, for which reason it would appear that, in making estimates of general expenses for any coming period, allowance should be made for the amount of time the machine is likely to be idle; the ideal machine is one which needs no repairs and works full time during all working hours.

In addition to giving a basis for the retention or discarding of each item of plant and equipment, a card system, such as the above card represents, gives instantly, at any time, the current value of each item of plant equipment. A plant inventory may then be made very quickly if a sale of the plant is considered or a fire loss is to be adjusted. It is easy to tell what a machine or tool is worth, if it is to be sold or whether a second-hand machine of the same type offered for purchase is by comparison a

DESCRIPTION OF MACHINE	OUR NO.	MAKER	PURCHASED FROM	DATE	PRICE	COST OF INSTALLATION ORDER NO.	TOTAL VALUE
ACCESSORIES OF MACHINE	ACCESSORIES OF MACHINE	REPAIRS Date / Order No. / Cost		ADDITIONS Date / Order No. / Cost		Yearly Dep'c'n / %	

FORM 1. FOR PERMANENT INVENTORY.

Form 263-2
Department — Plant Investment — Machinery
No. — Name — Estimated Life
Made by or Purchased from — Date — O No. — Ratio of Depreciation
Date Installed — Original Cost $ — Ins. Cost $ — Total Cost $

Betterments Date	Order No.	Item	Value	Total	Depreciation Date	Amount	Bal.	Date	Amount	Bal.

FORM 2. FOR GOING INVENTORY.

COST OF MAINTENANCE

Date	Order No.	Val. of Repairs	Date	Order No.	Val. of Repairs	Date	Order No.	Val. of Repairs	Remarks

FORM 3. REVERSE OF FORM 2.

JIGS AND TOOLS

Name of Part — No. of Part

Order No.	Month	No. of Tool	Description	Operation	Cost	Date Discarded	Discard Charged to

FORM 4. SPECIAL FOR JIGS AND TOOLS.

should, in the main, be charged currently to general expense, as the repairs occur, though it may be distributed over several months if of such an extensive nature as to warrant so doing.

It is of great value, however, to preserve on such a card a record of the costs of all repairs; by this it may be determined how great the repair cost has been for any period, and, in this connection it should be kept in mind that during any idleness of the machine, whether due to the making of repairs or not, such general expenses as rent, interest, insurance, depreciation, etc., are going on bargain or not; such a record increases the sale value of any plant.

The importance of being able to tell instantly the sale value of an entire plant, and of each item it consists of, was very well illustrated lately in an instance which came under my notice. A manufacturer of a certain kind of steel product was approached by a would-be purchaser just at a time when he wanted to sell, and negotiations moved along very rapidly for a time, but when he named his price, the manufacturer was asked, as a matter of course, to justify it, and this he attempted to do. He stated

that his price included so many dollars for ground, so many dollars for buildings, so many for good will, so many for patents, so many for machinery, tools and equipment of all kinds. He had no trouble justifying his price until he came to machinery, tools and other equipment, and here he fell down. If he had possessed such a record as is outlined above, either he could have justified the price he asked, or he would not have asked so high a price in the first instance. In the end he accepted a lower price than he would have received had he been able to tell without hesitation the value of his plant.

Form 2 is likely to find more general favor, as it avoids a number of things criticized in Form 1. Four colors of this form are used by the concern that originated it; one for buildings, one for machinery, one for jigs and tools, and one for patterns, templets, etc. The reverse of Form 2 is Form 3, which is used for accumulating the cost of repairs. Such repairs as are clearly betterments are transferred to the front of the card. Form 4 is used by a third concern to cover jigs and tools only.

From my own experience, I cannot urge too strongly the value and importance of such records as are illustrated; the more complete and accurate they are, the greater their value. The full size of all the forms is 5x8 inches.

ELECTRIC POWER IN ONTARIO.

The act passed at the recent session of the Ontario legislature looking to the cheapening of electric power in the province should be kept in mind by manufacturers.

The proponent of the bill stated that current could be procured at Niagara at $12 per h.p., and could be carried to Toronto, 85 miles, and sold for $17. The main feature of the bill is the appointment of a permanent commission to apportion the cost of transmitting electric current among the municipalities which decide to go into the scheme. The commission will negotiate with the development companies for a supply to meet the stated demands. If the companies are reasonable in their prices, contracts will be entered into on behalf of the municipalities. In case the prices are not satisfactory, the commission will have power to erect a development plant or expropriate. The price of power at the point of development will be the same to all, no matter what amount of power may be used. The cost of transmission will depend upon the amount and the distance.

The government will borrow money on the credit of the province to carry the scheme into execution. The cost will be adjusted by accountants and engineers in the employ of the commission, and a rate of 4 per cent. will be charged the municipalities for the capital outlay; then, in addition, the municipalities will pay sufficient to provide a sinking fund to retire the securities issued by the province in 30 years. The cost of maintenance will be paid directly to the commission by the municipalities.

The scheme does not apply to Niagara Falls district alone. Wherever there is a development the municipalities in the district may apply to the power commission, and the electric power will be supplied. There are other features of the bill which are worthy of more than the mere stating. The commission may furnish power to railways or distributing companies, and whatever profits accrue will go toward lightening the burdens of the municipalities. For the purposes of this scheme the Conmee bill will not apply. The commission is given power to regulate rates charged by municipal companies for electric light, power, or heat.

A GASOLINE LOCOMOTIVE.

A gasoline locomotive for mining work has recently been built for the Britannia Copper Mining Co., of Vancouver, B.C. A 35 h.p. vertical four cylinder engine drives a shaft with gearing for two speeds (two and five miles an hour) either forward or backward. A bevel pinion on the transmission shaft engages with two bevel spur wheels, each carrying a friction clutch, through which passes a 3 inch shaft. From this shaft one of the axles is driven by a chain. The ignition is by the jump-spark system, and the exhaust gases are discharged into a water tank to absorb the odor and deaden the sound. The machine weighs about eight tons, and can haul a 60 ton train at five miles an hour.—The Gas Engine.

In the construction department of electric locomotives at the East Pittsburg factories of the Westinghouse Electric & Mfg. Co. there is a very busy time at present. Within the last week or two, orders came into this department for no less than fifty-five electric locomotives. Some of these are for mining plants and will be used for hauling coal in the pit. Others are for manufacturing plants, where the electric locomotive is now finding extensive use in the transportation of materials from the shops to the railroad siding, and a very large number are for railroad companies, who are gradually finding out the many advantages of this class of motor and use the electric locomotive for hauling freight Owing to the great facilities of the Westinghouse shops for the construction of electric railway material, and also because of the existing arrangement between the Westinghouse Co. and the Baldwin Locomotive Works, by which the latter builds the locomotive proper and the Westinghouse people furnish the electrical equipment, a larger part of this class of electrical business goes to the Westinghouse company.

The Windsor, Essex & Lake Shore Rapid Railway is to be operated by the use of the single-phase alternating current system. The management have found, after comparison with steam and the direct-current system of electric traction, that the cost of equipment and the operating expenses would be less, and a higher speed could be attained. It is the same type of equipment that is now used by the Grand Trunk Railway in its St. Clair River tunnel.

A snake sought shelter under the boiler of a flouring mill at Martinsburg, Ky., the other night, says an exchange. When the fire was started up in the morning the place became too warm for him, and, crawling out, he coiled himself about the rope attached to the whistle. The weight of the reptile opened the whistle valve and the whistle continued blowing until the snake was killed. The townspeople turned out to what they supposed must be a conflagration.

BUSINESS FAILURES IN CANADA.

Bradstreet's Report of Business Failures in Canada for Six Months, 1906 and 1905, with Assets and Liabilities.

Provinces and Territories.	No. of Failures.		Assets.		Liabilities.	
	1 06.	1905.	1906.	1905.	1906.	1905.
Ontario	193	228	$648,499	$685,315	$1,333,864	$1,588,974
Quebec	280	243	1,018,860	1,288,250	2,771,500	2,944,798
New Brunswick	21	29	41,230	81,375	80,162	185,257
Nova Scotia	33	46	89,240	689,250	143,489	1,314,243
Prince Edward Island	3	5	19,150	61,700	41,897	94,900
Manitoba	68	48	223,315	247,458	511,165	461,506
Alberta / Saskatchewan	13	28	44,600	174,670	70,405	268,336
British Columbia	15	45	55,000	160,975	127,100	346,350
Yukon Territory	26	2	159,000	24,000	218,000	35,000
Total	652	674	$2,298,894	$3,412,993	$5,298,482	$7,239,364

Canadian failures for six months of 1906 number 652, with liabilities of $5,298,482 and assets of $2,298,894, a decrease of 3.2 per cent. in the number and of 26 per cent. in the liabilities from a year ago.

The Scientific American directs attention to a new method of heating railroad switches. The greatest difficulty that railroads have to contend with in winter time is the blocking of switches with snow and ice. When the snow is wet and freezes, the difficulty increases. To overcome these serious conditions attempts have been made to heat the switches with electricity, but that has proved expensive and dangerous. Steam-heated switches have also met with but little success, due to the danger of condensation and subsequent freezing, which would entirely block the steam pipes. A new system has been developed in which oil is used in place of steam —hot oil of a special quality circulated through pipes placed between the ties. The advantage of oil over steam is that it retains the heat better, and will not chill to 25 degrees below zero. Furthermore, if it should chill, it will not expand and burst the pipes as water would when freezing. A test of the system on the Boston and Maine Railroad is said to have been very satisfactory.

THESE SHORT "ADS" SHOULD HAVE YOUR ATTENTION TO-DAY

FACTORY LOCATIONS.

The following Canadian municipalities are offering inducements to secure manufacturing establishments. Inquiries should be addressed to the *Mayor, Town Clerk or Board of Trade* of the respective cities.

Barrie, Ont.
Brantford, Ont.
Hamilton, Ont.
Peterborough, Ont.
Regina, N.W.T.
Sherbrooke, Que.
Toronto, Ont.

FOR SALE, CHEAP!

Fine 3-story brick factory building, besides other storage buildings. If you are contemplating starting a branch in Canada this is a grand opportunity. Cheap electric power and natural gas. For further particulars apply to

WM. CHAPLIN,
St. Catharines Ont., Canada.

First-class mills use
LOWELL CRAYONS
WHY? THEY ARE WORTH THEIR COST.
Will you try our Samples?
LOWELL CRAYON CO., - Lowell, Mass.
Original Manufacturers.

WM. BARBER & BROS.

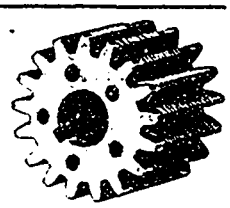
Georgetown, Ont.
Manufacturers of.....
Book and Fine Papers.

THE.....
Toronto Paper Manufacturing Co.,
Cornwall, Ont.
Manufacturers of Engine Sized Superfine Papers, White and Tinted Book Papers, Blue and Cream Laid and Wove Foolscaps, Account, Envelope and Lithographic Papers, etc.

R. SPENCE & CO.

HAMILTON, ONT.
FILE and RASP MANUFACTURERS
AND RE-CUTTERS.
A trial order solicited. Write for terms.
C. P. MOORE, PROPRIETOR.

RAWHIDE GEARS
MANUFACTURED BY
THE HORSBURGH & SCOTT CO.
Cleveland, Ohio.



Advertise in the
Canadian Manufacturer.

Cheap Power for Sale

Twenty h.p. for forty cents a day; thirty h.p. for sixty cents a day; fifty h.p. for a dollar a day; same proportion for larger or smaller powers. This is not Niagara electric power, but it is cheaper, better, and, above all, safer; information free for the asking. W Gillespie, 98 East Front Street, Toronto.

THE BEST GASOLINE ENGINE

On the continent for all purposes is the Sylvester. Parties wanting cheap power will consult their own interest in purchasing a Sylvester, built in sizes 1½ to 32 horse power; portable, stationary and marine; best and cheapest power available; if you want an easy starting, simple and reliable engine that will give full rated power in coldest weather, buy the Sylvester; works as easy in January as July on gasoline, coal oil or distillates; write for catalogue. **The Sylvester Mfg. Co. Limited, Lindsay, Ont.**

GASOLINE ENGINES

FOR LAUNCHES AND CANOES.
2-H.P. ENGINE COMPLETE FOR $65.
M O. CROSS ENGINE CO.
DETROIT.

A Perfect SMOKE CONSUMER For Sale

J. T. ELLIS' Improved Patent Device adapted for **Stationary Locomotive and Marine Boilers.** Consumes all the smoke and saves fuel. Can be seen working on steamer John Hanlan. Apply
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168 BAY ST - TORONTO

CLASSIFIED INDEX.

Abrasives
Williams, A. R. Machinery Co., Toronto.

Acids
Canada Chemical Co., London, Ont.
Canada Process Co., Toronto.
Nichols Chemical Co. of Canada, Montreal.

Air Compressors
Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Canadian Rand Drill Co., Sherbrooke, Que.
Darling Bros., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Alum
Nichols Chemical Co. of Canada, Montreal.

Aluminum
Northern Aluminum Co., Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Angles, Beams and Girders
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Aniline Colors and Dyewood Extracts
Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Norwich, England.
Canada Chemical Mfg. Co., London, Ont.
Canada Process Co., Toronto.
Cassella Color Co., New York City.
McArthur, Corneille & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

Annealing Muffles and Furnaces (Wire)
Leslie, A. C. & Co., Montreal.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Antimony
Syracuse Smelting Works, Montreal.

Anvils and Vises
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.

Architects
Gearing, H., Toronto.
Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Automatic Gear Cutting Machines
Becker-Brainard Milling Machine Co. Hyde Park, Mass.

Axles
Hopkins, F. H & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Babbitt Metal
Petrie, H. W., Toronto.
Syracuse Smelting Works, Montreal.

Banks
Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel
Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal,
Leslie, A. C. & Co., Montreal.
London Rolling Mills, London, Ont.
Union Drawn Steel Co., Hamilton Ont.

Belt Dressing
McLaren J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belt Fasteners
Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Cotton)
Dominion Belting Co., Hamilton, Ont.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.

Belting (Leather)
Montreal Belting Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

CLASSIFIED INDEX.

(CONTINUED).

Belting (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal.
Petrie, H. W., Toronto.

Belting and Supplies

Bristol Co., Waterbury, Conn.
Dominion Belting Co., Hamilton, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Montreal Belting Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Blast Furnace Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Elk Fire Brick Co., St. Mary's, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Blowers

Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Boiler Compounds

Canada Chemical Mfg. Co. London, Ont.
Canada Process Co., Toronto.
Hamilton Facing Mill Co., Hamilton, Ont.

Boiler Inspection

Boiler Inspection & Insurance Co., Toronto.
Canadian Casualty & Boiler Insurance Co., Toronto.

BOILERS (See Engines and Boilers)

Bolts and Nuts

London Rolling Mills, London, Ont.
Morrow John Machine Screw Co. Ingersoll, Ont.

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.

Building and Paving Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Conduits Company, Limited, Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.
Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Phillips, Eugene F. Electrical Works, Montreal.

Canada Plates

Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.

Cast Iron Pipe

Canada Foundry Co., Toronto.
Montreal Pipe Foundry Co., Montreal.
McDougall, John, Caledonian Iron Works Co. Montreal.

Castings (Grey Iron, Malleable Iron and Brass

International Harvester Co., Hamilton, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Maxwell, David & Sons, St. Mary's, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.
McDougall, John, Caledonian Iron Works Co., Montreal.

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinsville, N.Y.
Smart-Turner Machine Co., Hamilton, Ont.

Chain Making Machinery

(Welded Coil Chain)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Channels

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
McDougall, John, Caledonian Iron Works Co. Montreal.

Chemicals

Canada Chemical Co., London, Ont.
Canada Process Co., Toronto.
Nichols Chemical Co. of Canada, Montreal

Chemists

Heys, Thomas & Son, Toronto.

Clay Working Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Coal, Coke and Charcoal.

Bourne-Fuller Co., Cleveland, Ohio.
Hamilton Facing Mill Co., Hamilton, Ont.
Milnes, James H. & Co., Toronto.
Wilson, H. T Coal Co., Detroit, Mich.

Coal Cutting Machines

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples

Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Coil Chains

Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.

Coke Oven Brick

Dunbar Fire Brick Co., Pittsburgh Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. &. Co., Montreal.

Condensers

Smart-Turner Machine Co., Hamilton, Ont.

Conduits (Interior)

Conduits Company, Limited, Toronto.

Contractors' Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Contractors' Plants

Allis-Chalmers-Bullock, Limited Montreal.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Williams A. R. Machinery Co., Toronto.

Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Jeffrey Mfg. Co., Columbus Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall John, Caledonian Iron Works Co. Montreal.
Perrin, William R. & Co., Limited, Toronto.
Smart-Turner Machine Co., Hamilton, Ont.

Copper Materials

Greening, B. Wire Co. Hamilton, Ont.
Phillips, Eugene F Electrical Works, Montreal.
Syracuse Smelting Works Montreal.

Corrugated Iron

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Cotton Banding and Rope

McLaren, J. C. Belting Co., Montreal.

Covers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Cranes (Electric and Hand Power)

Smart-Turner Machine Co., Hamilton, Ont.

Crayons

Lowell Crayon Co., Lowell, Mass.
McLaren, J. C. Belting Co., Montreal.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Crucible Caps

Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co. Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Cruicible Covers

McCullough-Dalzell Crucible Co. Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Cutter Grinding Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Dashes

McKinnon Dash & Metal Works Co. St. Catharines, Ont.

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

Dies (Socket, Sewer Pipe and Tile)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Kelly's Directories, Limited, Toronto

Draw Benches (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Dredges

Allis-Chalmers-Bullock, Limited, Montreal.

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Petrie, H. W., Toronto.

Drills (Pneumatic and Rock)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland Ohio.

Dry Kiln Apparatus

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dust and Shavings Separators

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co. Boston, Mass.

Dye Stuffs and Chemicals

Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Canada Process Co., Toronto.
Cassella Color Co., New York City.
McArthur, Corneille & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamos)

Electric Meters and Transformers

Allis-Chalmers-Bullock, Limited, Montreal.
Packard Electric Co., St. Catharines, Ont.

Electric Mine Locomotives

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Bristol Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.

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(CONTINUED).

Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto
Keystone Engineering Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Forman, John, Montreal.
Hamilton Facing Mill Co., Hamilton, Ont.
Petrie, H. W., Toronto.

Engineers (Chemical)

Heys, Thomas & Son, Toronto.
Hunt, Robert W. & Co., Chicago, Ill.

Engineers (Civil)

Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Engineers (Consulting)

Aitken, K. L., Toronto.
Canadian White Co., Montreal.
Electrical Construction Co., London Ont.
Fensom, C. J., Toronto.
Gearing, H. Toronto.
Hunt, Robert W. & Co., Chicago, Ill.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Parke, R. J., Toronto.
Perrin, William R. & Co., Limited, Toronto.
Vogel C. H., Ottawa.

Engineers (Contracting)

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Canadian White Co., Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London Ont.
Fensom, C. J., Toronto.
Keystone Engineering Co., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Engineers (Electrical)

Aitken, K. L., Toronto.
Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Ltd., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Canadian White Co., Montreal.
Crocker-Wheeler Co., St. Catharines, Ont.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton Ont.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Gearing, H., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Hunt, Robert W. & Co., Chicago, Ill.
Kerr Engine Co., Walkerville, Ont.
Marion & Marion, Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont

Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Vogel, C. H., Ottawa.

Engineers (Mining)

Heys Thomas & Son, Toronto.
Mills, S. D., Toronto.

Engineers and Contractors

Canadian White Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Smart-Turner Machine Co., Hamilton, Ont.

Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R. Machinery Co., Toronto.

Engravers

Canadian Manufacturer, Toronto.
Jones, J. L. Engraving Co., Toronto.

Exhaust Fans

Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Exhaust Heads

Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park Mass.

Exhausters

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Factory Sites

(See Factory Locations, page 31.)
Central Ontario Power Co., Peterboro Ont.
Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Pittsburg Filter Mfg. Co., Pittsburg, Pa.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Feed Water Purifiers

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Files

Spence, R. & Co., Hamilton, Ont.

Fillet (Pattern)

Hamilton Facing Mill Co., Hamilton, Ont.
McLaren, J. C. Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Filters (Oil)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.

Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Financial

Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postlethwaite, Toronto.
Petrie H. D. Hamilton, Ont.

Finials

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Fire Brick and Clay

Dunbar Fire Brick Co., Pittsburgh, Pa.
Elk Fire Brick Co., St. Mary's, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Fire Escapes

Darling Bros., Montreal.

Fireproof Partitions

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Flour Mill Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Goldie & McCulloch Co. Galt, Ont.

Forges and Blowers

Canada Foundry Co., Toronto.
Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Founders

Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babcock & Wilcox, Limited, Montreal.
Sturtevant, B. F. Co., Hyde Park, Mass.

Furniture (Lodge, Opera and School)

Canadian Office & School Furniture Co., Preston, Ont.

Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio

Gas and Gasoline Engines

Economic Power, Light & Heat Supply Co., Toronto.
Morrison, T. A. & Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

Gauges (Steam)

Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto

Gauges (Water)

Babcock & Wilcox, Limited, Montreal.
Penberthy Injector Co., Windsor, Ont.

Generating Sets

Sturtevant, B. F. Co., Hyde Park, Mass

Generators

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa

Hames.

McKinnon Dash & Metal Works Co., St. Catharines.

Hardware

Butterfield & Co., Rock Island, Que.
Gartshore, John J., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Morrow John, Machine Screw Co., Ingersoll, Ont.

Heating and Ventilating Apparatus

Darling Bros. Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Allis-Chalmers-Bullock, Limited, Montreal
Jenckes Machine Co., Sherbrooke, Que.

Hoists (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Sadler & Haworth, Montreal and Toronto.

Hydrants

Kerr Engine Co., Walkerville, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Hydraulic Leather

McLaren, J. C., Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Hydraulic Machinery

Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Smart-Turner Machine Co. Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

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Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Montreal.
Metallic Roofing Co., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Pedlar People, Oshawa, Ont.
Petrie H. W. Toronto.
Union Drawn Steel Co., Hamilton, Ont.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co. Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

Lamps—Electric

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.

Lathes

Petrie, H. W., Toronto.
Williams, A. R. Machinery Co. Toronto

Lathes (Wood-working)

Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Loom Reeds

McLaren, J. C., Belting Co., Montreal.

Lubricators

Hamilton Facing Mill Co., Hamilton, Ont.

Machinists

Goldie & McCulloch Co., Galt, Ont.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Petrie, H. W., Toronto.

Machine Tools

Becker-Brainard Milling Machine Co. Hyde Park, Mass.
Darling Bros., Montreal.
Petrie, H. W., Toronto.

Malleable Castings

International Harvester Co., Hamilton, Ont.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Smith's Falls Malleable Castings Co., Smith's Falls, Ont.

Marine and Stationary Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Smart-Turner Machine Co., Hamilton, Ont.

Mechanical Draft

Babcock & Wilcox, Limited, Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Metal Doors

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshwaa, Ont.

Metallurgists

Mills, S. D., Toronto

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Becker-Brainard Milling Machine Co., Hyde Park, Mass.
Darling Bros., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm., Mfg. Co., Peterborough, Ont.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.
Spence, R. & Co., Hamilton, Ont.

Milling Cutters and Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Gartshore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co. Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Petrie, H. W., Toronto.
Sturtevant, B. F. Co., Hyde Park, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Moulders Supplies.

Hamilton Facing Mill Co., Hamilton, Ont.

Municipal Filtration Plants (Water)

Pittsburg Filter Mfg. Co., Pittsburg, Pa

Nickel

Canadian Copper Co., New York, N.Y.
Orford Copper Co., New York, N.Y.

Nozzles

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston, Ont.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
Imperial Oil Co., Petrolea, Ont.
Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Paints and Colors

Berry Bros., Walkerville, Ont.
McArthur, Corneille & Co., Montreal.

Paper Manufacturers

Barber, Wm. & Bros., Georgetown, Ont.
Toronto Paper Mfg. Co., Cornwall, Ont.

Patents

Budden, Hanbury A., Montreal.
Fetherstonhaugh & Co., Toronto.
Marion & Marion, Montreal.

Patterns (Wood and Iron)

Maxwell, David & Sons, St. Mary's, Ont.

Perforated Metals

Globe Machine & Stamping Co., Cleveland, Ohio.
Greening, B. Wire Co., Hamilton, Ont.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Piano Action and Key Machinery

H. Gearing, Toronto.

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Syracuse Smelting Works Montreal.

Pipe (Riveted, Iron and Steel)

Babcock & Wilcox, Limited, Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Montreal Pipe Foundry Co., Montreal.

Plaster

Albert Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Hamilton Facing Mill Co., Hamilton, Ont.

Pointer Rolls (For Rods and Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Darling Bros., Montreal.
Economic Power, Light & Heat Supply Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto
McDougall, John, Caledonian Iron Works Co., Montreal.
Packard Electric Co., St. Catharines, Ont.
Perrin, Wm. R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Presses (Tile, Sewer Pipe, Nozzles and Sleeves)

Turner, Vaughn & Taylor Co., Cuyahoga Falls Ohio.

Pulleys

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
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Jeffrey Mfg. Co., Columbus, Ohio.
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McLaren, J. C., Belting Co., Montreal and Toronto.
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Producer Gas Plants

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Purifying and Softening Systems (Water)

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Railroads

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Phillips, Eugene F., Electrical Works, Montreal.

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Roofing

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Metallic Roofing Co., Toronto.
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Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

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Rural Mail Boxes

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Saddlery Hardware

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Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Saw Mill Machinery

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Screws

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Screw Plates

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Darling Bros., Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Steam Shovels

Allis-Chalmers-Bullock, Limited, Montreal.

Steam Specialties

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Penberthy Injector Co., Windsor, Ont.
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Steam Valves

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Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

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Hopkins, F. H. & Co., Montreal.

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Stocks and Dies

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Petrie, H. W., Toronto.

Stoppers

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Pittsburg Crucible Works, Pittsburg, Pa.

Structural Steel

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Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.

Sulphate of Alumina

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Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Oil and Water)

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Tees

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Textile Manufacturers

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Petrie, H. W., Toronto.
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Williams, A. R. Machinery Co., Toronto.

Valves (Rubber)

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Berry Bros., Walkerville, Ont.

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Metallic Roofing Co., Toronto.
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Water Power Development

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