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CANADIAN MANUFACTURER
 AND INDUSTRIAL WORLD
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol 45.

TORONTO, OCTOBER 3, 1902.

No. 7.

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GALT, ONT., CANADA

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THE GOLDIE & McCULLOCH CO., GALT, ONT.

TORONTO, August 6th, 1902.

GENTLEMEN. In our recent fire which as you know was a total wreck and of which we are sending you a photo by mail, we had two Goldie & McCulloch safes in which we kept all our books. They have come through the fire in remarkable shape, and we feel that our praise for your safes cannot be great enough. This fire was an extremely hot one, the locality in which these safes were being surrounded by hay and grain as well as large quantities of packages, barrels and boxes. We might say that everything was burned to a crisp, heavy iron being twisted and melted into frightful shape. We had almost given up all hope of being able to get the books and documents from the safes in such manner as to make them of any use to us, which we can assure you would have been a very serious matter. We were agreeably surprised, however on reaching them. While we found the safes somewhat warped and bent on the outside, yet all our books and documents came out in such a manner that we can get everything from them all right. This without a doubt, was an extremely hot fire, and the way in which they came through it leaves no room for question as to the manner in which they are made and the stuff they are made of.

WE MAKE Wheelock Engines, Ideal Engines, Gas and Gasoline Engines, Boilers, Water Wheels, Pumps, Flour Mill Machinery, Oat Meal Mill Machinery, Oat Meal Steam Pan Kilns, Wood Working Machinery, Iron Pulleys, Wood Rim Split Pulleys, Shafting, Hangers, Gearing, Friction, Clutch Pulleys, Friction Clutch Couplings, etc., Safes, Vaults and Vault Doors.

Again congratulating you on the safes which you turn out, and trusting that we shall have the pleasure of purchasing from you when we again rebuild, as we know of none better, we are,

Yours truly, P. McINTOSH & SON.

Catalogue and any other information on application.

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MACHINE TOOLS

FOR IMMEDIATE DELIVERY

NEW AND SECOND-HAND

IF YOU NEED A LATHE OR DRILL right away or are likely to in the near future, look over this list and write us.

All improvements that improve and labor-saving feature that save labor are embodied in our new machines, but we do not sacrifice the weight, quality of material and superior workmanship, for which the Bertram tools have always been noted, to experimenting with impracticable ideas and freak devices. This special attention to the vital parts is the secret of the durability and capacity for work of our machine tools. It is this which enables us to compete successfully with the best American makers.

The second-hand lathes are all Bertram make. Although, through good care when in use, they have never been in other than good condition, we have had them all overhauled and refitted, and they are amply capable of standing up to all work within their capacity for some years to come, and are equal to many lathes doing satisfactory work in the best shops of the country.

For any of the above machines write for full particulars to

THE JOHN BERTRAM & SONS CO.

Limited

DUNDAS, Ont., Canada.

NEW LATHES and DRILLS

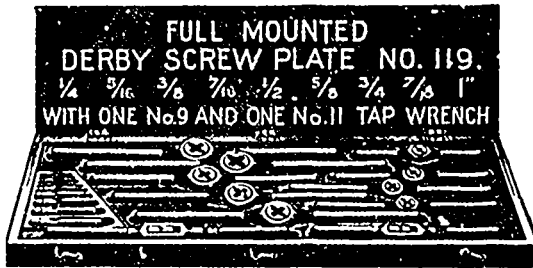
- One 40" Gap Lathe, 12 ft. bed.
- One 20" Turret Engine Lathe.
- One 16" Engine Lathe, 8 ft. bed.
- One 16" " " 6 ft. bed.
- Two 14" " Lathes, 6 ft. bed.
- Two 14" " " 8 ft. bed.
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- Four 36" Back Gear Drills.
- One 30" " " "
- Four 25" " " "
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- One 20" " " Power Feed Drill.
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- One 56" x 20' Lathe, Rod Feed only.
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- One 24" x 10' " Screw Cutting only.
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Spring, Reeled Machinery, Tire, Toe Caulk, Sleigh Shoe, Angles, Special Sections
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Tree Rails, 12, 18, 24 and 28 lbs. per yard

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"FERRONA" PIG IRON, For Foundry Use.

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60% to 77%.



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DOUBLE STRENGTH

BICARBONATE SODA

ABSOLUTELY PURE

Also for Mineral Water Manufacturers.

The Wellington Mills, LONDON, ENG.
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Oakey's Flexible Twilled Emery Cloth.
Oakey's Flint Paper and Glass Paper.
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Prize Medal and Highest Award Philadelphia, 1876, for Superiority of Quality, Skilful Manufacture, Sharpness, Durability, and Uniformity of Grain.

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Hosiery Yarns in single or double, in Cop, Skein or Cone.
Yarns of all kinds for Manufacturers' use.

Twines, Lampwicks, Webbing, Etc.

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For Water or Gas.



SPECIAL CASTINGS

*Ties, Crosses, Flange Pipe, Valves, Hydrants, Stand Pipes,
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SAMSON BRAND
MAGNET BRAND

MADE AT
SHALLOW LAKE, ONT.

Our Celebrated **Samson Brand** has been before the public for many years, and has made hosts of friends among Contractors and Municipal Corporations until it has become one of the leading Cements on the market to-day, being excelled by none. This year we have decided to place the **Magnet** on the market, and respectfully ask consumers to give it a trial. It will, we think, do its own advertising.

The OWEN SOUND PORTLAND CEMENT CO., Limited

GEO. S. KILBOURN, Sec'y-Treas.

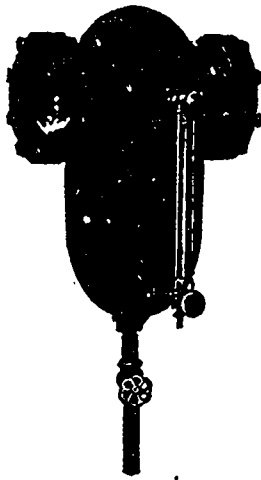
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Head Office, OWEN SOUND, Ont.

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are sold on this guarantee; no sale, if they do not leave less than one per cent. of moisture in the issuing steam.

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Saved 25 PER CENT.

A CUSTOMER SAYS:—We are well pleased with the Mumford Standard Boiler purchased from you a year ago. It steams very quickly and we find, on comparing our coal bill with the year previous, that we have saved 25 per cent. although we are using considerable more power and have double the area to heat.

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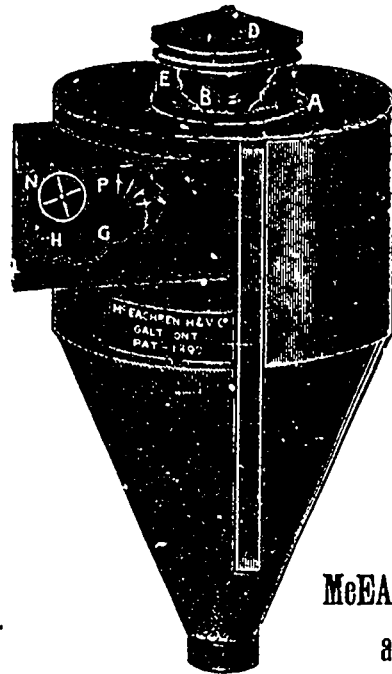
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**DUST and SHAVINGS
SEPARATORS**

FOR WOOD REFUSE



The air carrying the refuse enters the separator at the top and whirls around inside. The shavings being heavier than the air are carried by centrifugal force to the outer shell of the separator and they then take up a spiral path for the outlet at the bottom, the air passing out of the opening at the top.

Write us for prices and particulars of Separators, Fans, Etc.

**McEACHREN HEATING
and VENTILATING CO.**

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THE CANADIAN MANUFACTURER PUBLISHING CO., LIMITED, - TORONTO

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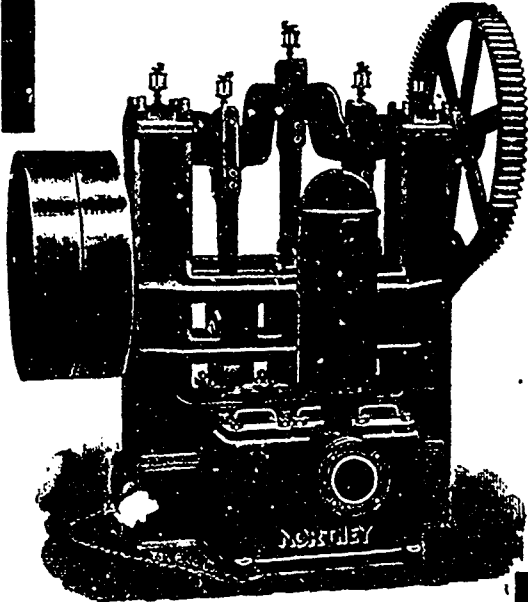
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**THE NORTHEY
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is a high class serviceable machine; it offers the best means of applying either steam, water or electrical power for pumping purposes. A special feature is the use of three cranks 120 degrees apart—ensuring a practically constant delivery. This pump, for Dollar Feeding, etc., and especially in connection with an electric motor, gives excellent results.

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Pumping Machinery

"For all Duties"

Many manufacturers who are users of Pumping Machinery pay coal bills that are from 10% to 50% higher than they should be, because their pumps are old and leaky, do not give the service they should, and waste steam. Would it not pay you to look into this matter? We can advise you what you can do most profitably with your present plant—discard it or repair it. Our business is the making of Pumps for all services—we do it on a large scale, and we are experts in our line. Write for Specifications and Catalogues.

We manufacture also the
Northey Gas and
Gasoline Engine
a handy and economical
motor.

**THE Northey
Company
Limited, Toronto**

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HAMILTON } OFFICES
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ELEVATOR
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RODERICK J. PARKE, CONSULTING ENGINEER TO MANUFACTURERS:—Competent and impartial advice on Industrial Electrical Systems of Lighting, Power Distribution, Heating and Welding, Etc. Plans, Specifications, Tests, Reports, Valuations.
Temple Bldg., - TORONTO.
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Reflectors, Shades, Lamps

We Stock a Large Variety of SHADES
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ALUMINUM, MIRROR, CELLULOID, PAPER, PORCELAIN,
FOR FACTORY AND OFFICE.

Imperial Lamps and Helios Upton Enclosed Arcs Give BEST LIGHT with LEAST CURRENT

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ESTABLISHED IN 1890.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

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Classified Index..... Page 37

Index to Advertisers Page 42

J. J. CASSIDY, Editor and Manager

THE PREFERENTIAL TARIFF.

Does the preferential tariff encourage British trade?

The trade and navigation tables of the Dominion of Canada, containing the values of imports entered for consumption and of exports for the fiscal year ended June 30, 1902, have not yet been published, but the usual unrevised statement for that year is before us. The figures published in this report are as far as possible, revised each month, and are therefore substantially correct, and near enough so for the purposes of this article.

The following table embodies the enumeration of 100 dutiable articles selected from different classes of goods imported into Canada, and their respective values, showing their source of origin, first from Great Britain under the preferential tariff; second, from the United States under the general tariff; third, from all countries including Great Britain and the United States; and fourth, the duty imposed upon them; and it should be borne in mind that the duty upon the British goods under the preferential tariff is only two-thirds of that imposed upon imports from other than British countries. There are hundreds of other articles enumerated in the report of the same character as those here named.

The countries of origin, values, and proportions of the whole value of these 100 different articles may be classified as follows:

Country.	Value.	Proportion.
Great Britain.....	\$18,747	0.2 per cent.
United States.....	10,806,584	96.6 "
All other countries.....	335,875	3.2 "
Total	\$10,661,206	100.0 "

No article enumerated in the list as having been imported from Great Britain under the preferential tariff amounts in value to as much as \$1,000; and of the 100 articles enumerated, only 67 came from that country.

These facts are further illustrated in the following table:

SELECTED LIST OF 100 ARTICLES, AND THEIR VALUE, IMPORTED INTO CANADA IN THE FISCAL YEAR 1902 FROM GREAT BRITAIN UNDER THE PREFERENTIAL TARIFF, AND FROM ALL COUNTRIES UNDER THE GENERAL TARIFF.

	Duty.	Great Britain.	United States.	All Countries.
Baking Powder.....	6c. lb.	\$54	\$93,532	\$93,709
Bells and Gongs.....	30 p.c.	945	23,944	25,806
Cats, pleasure.....	25 "	430	14,772	15,202
Brass nails, tacks, etc.....	30 "	498	7,395	9,862
Brooms and whisks.....	20 "	72	3,523	3,815
Cane, reed and rattan, n.o.p.....	15 "	497	38,044	38,591
Farm wagons.....	25 "	.....	95,512	95,512
Freight wagons, drays, etc.....	25 "	.....	28,434	28,434

The Canadian Manufacturer

Reaches all the Blast Furnaces, Iron and Steel Works, Rolling Mills, Manufacturers of Iron and Wood-Working Machinery, Steam Engines and Boilers, Pumping and Mining Machinery, Electric Machinery and Appliances, Machinery Dealers and Steam Fitters' Supplies, all Hardware Dealers, Cotton, Woolen, Knitting and Yarn Mills, Pulp and Paper Mills, etc., in Canada.

	Duty.	Great Britain.	United States.	All Countries.
Finished parts of carriages, n.o.p.....	25 p.c.	71c	63,154	63,870
Train or horse cars.....	30 "	.....	6,071	6,071
Box and flat cars.....	30 "	.....	442,479	433,931
Sleighs.....	25 "	.....	11,361	11,361
Wheelbarrows, trucks, etc.....	30 "	122	45,092	45,189
Bicycles.....	30 "	321	87,696	88,164
Childrens carriages, etc.....	35 "	934	10,240	11,177
Carpet sweepers.....	30 "	.....	9,067	9,067
Cash registers.....	30 "	.....	109,921	109,921
Clothes wringers.....	35 "	.....	16,916	16,916
Copper nails, tacks, etc.....	30 "	365	7,032	7,454
Copper wire.....	15 "	11	89,836	93,891
Glue, liquid.....	25 "	338	14,408	14,921
Liquorice paste.....	20 "	314	28,836	98,307
Yeast, compressed.....	3c. lb.	.....	68,799	68,799
Electric light carbons, n.o.s.....	35 p.c. over 6	1	25,488	29,250
1/2 inch diameter.....	15 "	.....	47,933	48,086
Emery wheels, etc.....	25 "	494	23,251	23,892
Fibre, indurated, etc.....	25 "	58	33,031	32,089
Fireworks.....	25 "	45	11,638	19,780
Glass bulbs for electric lights.....	10 "	.....	27,852	20,894
Powder and other explosives.....	3c. lb.	486	93,706	98,222
Gutta percha and rubber boots and shoes.....	25 p.c.	142	147,496	147,655
Gutta percha and rubber belt.....	25 "	146	29,735	30,625
Gutta percha and rubber mats.....	35 "	564	37,741	39,065
Gutta percha and rubber sheet.....	25 "	56	19,388	19,951
Cultivators.....	20 "	29	22,834	22,863
Drills, grain.....	20 "	.....	50,092	50,092
Forks.....	25 "	116	7,700	7,816
Harrows.....	20 "	12	36,718	36,730
Harvesters.....	20 "	.....	900,179	900,179
Hay tedders.....	25 "	.....	3,028	3,028
Horse rakes.....	20 "	.....	180,658	180,658
Mowing machines.....	20 "	.....	599,050	599,050
Plows.....	20 "	.....	214,069	214,193
Reapers.....	20 "	.....	36,329	36,329
Agricultural impts, parts of.....	20 "	93	489,734	489,827
Butts and hinges—iron, n.o.s.....	30 "	295	28,925	29,220
Shoe tacks—iron.....	25 "	2	3,880	3,882
Locomotives, railway.....	35 "	.....	611,925	611,925
Fittings, iron, for pipe.....	30 "	776	237,460	232,428
Iron or steel bridges.....	35 "	837	107,575	108,402
Portable engines.....	25 "	.....	261,188	261,188
Threshers and separators.....	25 "	.....	147,634	147,634
Typewriting machines.....	25 "	.....	129,913	129,940
Nails and spikes, cut.....	1c. lb.	233	32,492	32,722
Nails, wire, n.o.p.....	1c. lb.	10	12,829	12,862
Mouldboards.....	5 p.c.	.....	178,640	178,704
Screws iron or steel, "wood screws".....	35 "	329	13,795	14,124
Skates.....	35 "	.....	4,504	19,105
Stoves and parts.....	25 "	334	169,670	172,791
Stove plates, sad irons, etc.....	25 "	150	10,063	10,215
Switches, railway.....	30 "	.....	20,221	20,221
Tubes bicycle.....	10 "	170	16,048	16,550
Wire, door and window screen.....	30 "	864	9,751	10,660
Axes.....	25 "	14	50,134	50,143
Glove leathers.....	10 "	195	163,676	174,347

	Duty.	Great Britain.	United States.	All Countries.
Lime	20 p.c.	156	17,428	17,684
Malt	15c. bu.	175	68,901	69,076
Marble, finished	35 p.c.	862	8,684	11,828
Mucilage	25 "	308	12,301	12,752
Organs, cabinet	30 "	231	13,472	13,732
Organs, parts of	25 "	665	17,177	17,867
Pianos	30 "	107	104,775	105,347
Pianos, parts of	25 "	35	133,459	153,499
Other musical instruments	30 "	597	40,986	117,312
Oils, mineral, refined, n.o.s.	5c. gal.	...	877,753	878,087
Oils, lard	25 p.c.	...	18,877	18,877
Oils, lubricating	5c. gal.	10	133,668	132,726
Paper bags	25 p.c.	91	27,303	30,296
Paper, tarred	25 "	76	41,017	43,566
Paper, printing, at 2½c. per lb. 15 "		93	3,856	3,949
Provisions, n.o.s., butter	4c. lb.	555	160,459	162,533
" lard	2c. "	...	155,639	155,638
" bacon	2c. "	124	635,483	635,831
" lard in barrels	2c. "	...	77,554	77,554
" poultry and game	20 p.c.	...	68,447	69,218
" smoked meats n.o.s. 2c. lb. ....		...	49,102	51,738
Ship's boilers and machinery	25 p.c.	674	35,829	37,951
Slate and mfrs. of	30 "	148	17,677	17,825
Soap, castile	2c. lb.	2	5,199	45,282
Stone and mfrs. of	15 p.c.	641	68,865	69,972
Straw, mfrs. of, n.o.s., n.o.p. 20 "		65	2,082	19,073
Telephone and telegraph instruments	25 "	10	28,083	28,770
Watches	25 "	355	16,333	45,154
Watch cases	30 "	45	97,711	107,617
Watch movements	10 "	144	456,358	577,000
Caskets and coffins	25 "	...	10,709	10,749
Mouldings, wood	25 "	...	45,473	45,672
Show cases	35 "	170	4,610	4,806
Woodenware, pails, etc.	20 "	25	69,192	69,789
Veneers of wood	7½ "	417	113,960	114,377
Totals		\$18,747	\$10,306,584	\$10,661,206

THE GANANOQUE MEETING.

The visit of Hon. Mr. Tarte, Minister of Public Works, to Gananoque, Ont., a few days ago, on the invitation of the manufacturers of that place, was one of the most interesting events which has occurred in Canada for a long time, marking as it does their realization that some of the provisions of the tariff do not by any means accomplish the desired protection to many of our home industries already established, and to others just entering upon their development.

At the reception which was tendered to Mr. Tarte by the manufacturers and business men of Gananoque, he reiterated his often made declaration in favor of tariff protection to our manufacturing enterprises; and he also renewed his assertion that his course had not met with disapproval from the leader of his party.

Previous to the reception Mr. Tarte, escorted by a number of leading business men, made a tour of the town; and at every place visited there were gentlemen present to show him around and explain all he desired to learn. He enquired particularly as to what each firm imported and why it was that these imported articles were not made in Canada. In many instances he was told that the trouble lay chiefly in an insufficient duty. In each case the manufacturer was asked to draw up a memorandum, giving his opinion of what tariff changes were required and forward the same to Ottawa for the guidance of the Minister. The establishments visited during the day were: The Morden Mfg. Co., office furniture and specialties; Byers & Matthews, spring and axle factory; The Skinner Co., carriage hardware; The Parmenter & Bullock Co., carriage hardware; The Ontario Wheel Co.; The D. F. Jones Mfg. Co., shovels; Cowan & Britton, nails, hinges, etc.; St. Lawrence Steel & Wire Co., and others.

The friendliness displayed by the manufacturers to Mr. Tarte for his clearly defined protectionist ideas shows that they entertain and express sentiments entirely in harmony

with his; and they appreciate the fact that these are identical with the views of those who first framed the National Policy. Great things have been accomplished in Canada since the adoption of that policy under the leadership of Sir John Macdonald. In his Gananoque address, and frequently before and since, Mr. Tarte attributed his inspiration in behalf of tariff protection to our manufacturing industries to the example set by Sir John, his desire being that such industrial centres as Toronto, London, Guelph, Gananoque, Collingwood, Owen Sound, Berlin, Brantford, Montreal, Quebec, Three Rivers, St. Hyacinthe, Sherbrooke, Magog, Valleyfield—in a word, all the manufacturing centres of the Dominion—might be able to hold the home market against all competitors.

THE COAL SUPPLY.

In spite of the anthracite coal shortage caused by the strike, there is really little cause for alarm as to a fuel famine. So far as concerns the foundry and furnace fuel more than nine tenths of such fuel in the United States consists of coke manufactured from bituminous coal, the annual production of the United States coke output being about 25,000,000 tons, which will in no way be affected by the strike which is confined strictly to the anthracite fields. For steaming and other industrial purposes, bituminous coal forms the principal fuel in this country as well as in the United States. The bituminous coal output of the United States last year exceeded 230,000,000 tons, and the output for the present year will be much larger owing to the new mines opened and improved mining machinery introduced.

The annual anthracite production amounts to about 65,000,000 tons, of which probably one-half will be cut off by the strike, but this will be more than made up by the increased bituminous production. The anthracite field is confined to an area of probably 400 square miles in eastern Pennsylvania, while the bituminous coal area of the United States exceeds 200,000 square miles in thirty states and territories; and to-day all these vast fields are enjoying the most prosperous days of their history, the men being paid the highest wages with nothing in the way of labor troubles to hamper the industry. In addition to this British Columbia is being rapidly developed into a great bituminous coal producer, and Cape Breton and Nova Scotia are already numbered among the great bituminous coal fields of the world.

WOMEN AS PROTECTIONISTS.

Grace Miller White, a pleasant and accomplished writer upon economic subjects in *The American Economist*, declaring that upon women falls most heavily the hardships inflicted by free trade, says:

The day is fast approaching when men and women unitedly, will demand a sound, unattackable protective tariff in support of American commerce and industries. If the American women had long ago realized the fact that they were, above all others, vitally concerned in promoting home labor, this question would have been settled long ago. A great revolution will begin in the industrial world when it is demonstrated to the domestic producers that the women are more interested in the home industries than foreign, and prove their interest by demanding and buying home made articles. Original designers and pattern makers will spring into life. More work and higher wages will be given the skilled women laborers. The money which is now paid to the importing houses and carried out of our financial world, to the detriment of our wage earners, will again find its way back into the pockets of the working classes.

This plea for the advancement of American industrial production is not to the woman who goes abroad with eight or ten immense trunks, and returns with foreign made goods for the entire family, but to our great world of business men and women that is the foundation upon which we build our hopes for a future calm on the troubled sea of tariff controversies.

The head of a domestic firm said to the writer not long ago: It is on the good judgment of the women of the United States that we rely for business. True that some do not realize that manufactured home articles are often much more beautiful than those which would bring twice their value, if imported, simply because they have the foreign stamp. We have been for years identifying ourselves with the largest markets in the world, making superior goods and paying our laborers liveable wages. The advances we have made are positively due to a protective tariff, without which we would be compelled to close our factories. I can remember my grandmother carefully treasuring every scrap of fancy material and paying exorbitant prices for the trimmings of her kerchiefs and caps. Our women think nothing to-day of throwing into the wastebasket that which the dear old lady in those times so cheerfully darned and used over and over. The increase in the apparel for women and the reduction in prices, during the past generation, is due to the untiring efforts to men and firms who have insisted upon protection for home products. While many laces, silks and velvets are imported, the home industry is being advanced by domestic houses. They refuse to use imported fabrics in their shops, giving their time and money to defense of the American manufactures.

A Grand Rapids furniture man, while lamenting over the incongruity of certain women demanding foreign goods, said: A lady living in our city decided to refurnish her home. After examining our entire stock she gave her order to a Paris house. The furniture arrived, every piece marked with a Grand Rapids furniture company's stamp upon it. It had left our factory, had been sent to Paris, and been delivered to the lady, costing her many thousand of dollars more than if she had purchased it from us direct.

The time is far in the past when any measure derogatory to business can be said not to affect women personally. They are everywhere. That which affects the men hurts them, for their business ideas are one and the same. A free-trade measure would empty the larder and take the children out of school when mere babies. Women, as wives and mothers, had enough of this sort of distress during the last Democratic administration and will not submit to another siege of hard times. The present prosperity is too sweet; it keeps the hair from being sprinkled with grey, the brow from wrinkles caused by worry, the public schools filled with well-dressed, happy children and offices with well-paid girls. This was not true from '93 to '96, after a serious tariff reduction.

Women have been educated by adversity; they appreciate good times. Some men laughingly claim that the power of woman begins and ends in her home, that her world is small and influence smaller. The woman's influence may be small. She does not vote, neither does she take an active interest in politics, but the three years of disaster, from '93 to '96, taught her a lesson.

Every home ought to have hung in a conspicuous place this motto: "Protection Means Prosperity; Free Trade, Starvation."

CONDITIONS IN THE YUKON.

The Yukon Territory is now in close touch with the business affairs of older Canada. The latest issue of The Dawson Sun to hand takes strong exception to the letter of Mr. Hees in Industrial Canada, and protests that it has cast unwarranted reflections on the mining and commercial prospects of the territory. The Sun emphasizes in contrast the opinions of Dr. Morley Wickett, who, as a representative of the Canadian Manufacturers' Association, has made a careful investigation of the business conditions of the Yukon and the mining prospects on which the future of the Territory depends. The Sun regards the reaction in the mining

industry and the reduction of the output as the natural and inevitable result of a heedless rush into the country, the adoption of hurried, wasteful methods, and the concentration of efforts on the richest placers. That the reaction has not been sharper is regarded as a proof of the good prospects of Yukon mining. The Sun contends that the finding of gold in such prodigious quantities set up a fictitious condition of things which could not last.

That the camp has had no panic or no economic disaster speaks volumes, in The Sun's opinion, for its permanence. The vast area of gold-bearing ground, which has barely been scratched, and still will produce millions of dollars, with a probability of finding more ground of equal richness to that already worked, the vast quartz deposits which have been located, the enormous body of rich copper ore in the White Horse region, and the quantity of coal which is already known to exist, are enough in themselves to assure the future of the Yukon. The Sun gives abundant credit to the Canadian Manufacturers' Association for having sent a representative to investigate the conditions and prospects of trade at the camp, and, while hinting that the action was somewhat delayed, points out the good results likely to follow both to the Yukon Territory and the industrial interests of older Canada. There is certainly no faltering note, no trace of uncertainty or discouragement, is the tone of The Sun when discussing the future of the Yukon.—Toronto Globe.

THE CEMENT AGE.

The use of Portland cement is in its infancy and the manufacture of it on a large scale is only beginning in this country. Cement promises to replace stone for all kinds of heavy foundations and other wall works, to replace stone for paving, to replace brick very largely for building, and to replace lumber where lumber has been used. In fact, cement will soon be, next to steel, perhaps more than steel, the chief building material of this continent. Our houses will soon come to be of cement and every day sees the field for the use of cement growing at a surprising ratio.

We are glad to see that there are good prospects ahead for our new cement companies and that there is room for many others. We have large public works that must be undertaken in one part of the Dominion or another. Our farmers are learning themselves to build with cement without employing skilled labor, and cement for sanitary reasons, if for no other, is supplanting everything in the market in the way of flooring for buildings, and especially for stables and all kinds of public structures.

In Toronto we are bound to use any amount of this article, and men of capital and enterprise ought to be looking about to see if there are not some deposits combining all the elements of cement near this city. Freight is everything in the production of this article, and if the original elements can be found near Toronto it will be an inducement for Toronto capitalists to develop the production of cement in this immediate neighborhood.

The World trusts that all the new factories recently started or organized in this country will succeed, and that many others will follow suit to supply the unexpected and growing demand there appears to be for this article. The fact that the city of Toronto is experiencing such a shortage of cement at present that a great deal of the sidewalk laying arranged for this season may have to be laid over till next spring, alone constitutes a key to the true situation.—Toronto World.

CANADIAN TRADE.

In his recent Toronto address Sir William Mulock had the following to say concerning the opportunities being opened for Canadian trade with British colonies:

I may say that the Canadian Government is of the opinion that valuable markets under the flag outside of Canada await the enterprise of the Canadian people; and we are of the opinion that more and more as time goes on it becomes essential for us to develop trade throughout the world and not to lose sight of the great field that lies in the countries inhabited by our own people. The outside world has no interest in Canada except the interest of the trader, but our kinsmen in South Africa, New Zealand, Australia and at home—all are interested in developing this trade in every part of the empire, and we in Canada must not ignore the importance of developing each part of the empire so as to be a source of strength in the time of peace as well as in the time of trouble.

I am sure the association will always render the Government aid in assisting in the development of trade between the different parts of the empire. The two ought to work hand in hand to that end and work with the utmost frankness, and with an interchange of views much good can be accomplished. In reference to South Africa, the Canadian Government being of the opinion that there is a great market to be developed there, provided Canadians show their usual energy, we have endeavored to bridge over the sea and bring the producer and the consumer closer together. The ocean is the connecting link to-day; we have two great oceans connecting us with the great consumers of the world, and we being the highway of the world, it is the duty of all governments and good patriotic citizens to make use of our splendid waterways to bring our products to the markets of the world.

Recent events have made Canada well and favorably known in South Africa, and that circumstance will be a helpful feature in securing trade. In England the business men of Canada are certainly no less welcome to-day in consequence of the good feeling towards our country there. I feel more confident now than ever of the success of the new line to South Africa. Only the other day I received a letter from a gentleman, who stated that he had already shipped three thousand packages of butter via the line, and another letter from a party stating that he had shipped one cargo of cheese and expected to do the same in the next two sailings.

SUPREMACY IN THE IRON INDUSTRY.

The Board of Commissioners sent to the United States last year by the British Iron Trade Association has just issued its report. This statement of opinion from British manufacturers has been awaited with great interest especially because of the enormous increase in the production of United States iron and steel, which has been going on contemporaneously with a decrease in the output of both the British and German iron industries. A few figures will sufficiently demonstrate this condition of the rival nations.

Pig iron was produced in Britain to the amount of 7,761,830 gross tons in 1901, a decrease of 1,197,861 tons compared with the production of the preceding year. Bessemer steel ingots showed a loss of 138,751 tons over the same period, while open-hearth steel ingots alone witnessed an increase of 141,741 tons over the 3,156,050 tons produced in 1900. German reports on the production of pig iron show a decrease from 8,520,541 metric tons in 1900 to 7,860,893 metric tons in 1901. Steel ingots and castings witnessed a loss of 251,647 tons, from the 6,645,869 tons of 1900. The combined output of pig iron of the two countries falls 379,861 tons short of the 15,878,354 tons produced by the United States in 1901.

United States statistics covering the ten years from 1890 to 1900 bear witness to an enormous increase in every line of iron and steel production. The capital vested in the industries was only \$405,771,786 in 1890. In 1900 it had reached

nearly \$600,000,000. But it must be remembered that the present steel combine had not then been formed. Its capital alone stands at a billion dollars.

The value of the products has increased during the ten years by over 74 per cent., and in 1900 it stood at \$835,759,034. The number of blast furnaces and forges both show decreases, but in the case of the former the value of the product witnesses a decided increase. Rolling mills and steel works have increased in number from 395 to 438, and capital and reduction have almost doubled. A notable increase is to be found in the iron and steel shipbuilding industry. Only 17 institutions were in operation in 1890, compared with 44 in 1900. A capital of slightly over \$7,000,000 has been raised to \$60,000,000, and the value of the product has been increased by nearly 290 per cent. over its value of \$12,929,953 in 1890.

These are wonderful figures to be confronted with, but the British commission's report is optimistic. The gist of it is that, while it recognizes the great advances in the United States, it yet believes that the remedy for the ills of the British iron industry lies with the British manufacturers themselves. That is, United States supremacy will only be inevitable if they fail to take immediate advantage of the modern processes which will enable them to keep up an effective competition.

EDITORIAL NOTES.

An instance of fair dealing on the part of Canadian manufacturers with their employees is displayed in the decision of the Chatham Gas Co., of Chatham, Ont., to grant a voluntary bonus of six per cent. upon the earnings of their employees for the year ending June 30, 1902.

The action of the Dominion Government in setting apart 50 square miles of coal lands of the North-West as Government property is a move in the right direction. At present the coal is not needed and will form a valuable fuel reserve for the future.

The great anthracite coal strike in Pennsylvania, aside from causing a fuel panic in many parts of the country, has aroused an interest in the discussion as to whether the coal mines should not be placed in the hands of the Government. Whether or not such a plan would form a solution to the endless labor troubles in the coal fields is a question.

The visit of a representative of the Sydney, N.S.W., Chamber of Commerce to this country for the purpose of encouraging Canadian trade with Australia has aroused considerable interest as to that important foreign market, and it is altogether likely that Canadian exporters will make an effort to increase their trade in Australia.

And Samuel said to all the people, See ye him whom the Lord hath chosen, that there is none like him among all the people? And all the people shouted, and said, God save the King.—I Samuel 10: 24.

The question of compulsory arbitration is receiving much attention these days as a solution of the labor troubles which are of so frequent occurrence. Apropos of this discussion is the action of the Dominion Trades Congress when the other day it adopted a resolution for voluntary arbitration of differences arising between employer and employee, and it

would seem that such a plan would be more fully adapted to the situation than the more radical one now proposed.

An authority on the trade of the British West Indies says that there is no doubt but that Canada can supply 60 per cent. of the imports of those islands, freight from this country being as slow as from the United States and one-half that from Europe, the voyage from Canada occupying only seven days, one half the time required from Europe. With closer commercial relations with the West Indies many new opportunities would be opened up for Canadian products.

The United States has just struck a severe blow at the Canadian pulp wood industry, adding 25 cents per ton duty on ground wood and 35 cents per ton on unbleached sulphite and soda pulp. This move which applies to the whole of Canada is taken, it is inferred, through the Ontario restrictions which prohibit the exportation of timber cut in Crown Lands and the export stumpage tax imposed by Quebec on exported timber. This retaliatory rate amounts to about 20 cents a ton on wood pulp, and 40 cents on sulphite. The export of Canadian wood pulp in the fiscal year up to June 30 last was \$1,937,207, of which \$937,330 went to the States and \$934,722 to Britain. This new condition of affairs is very likely to have a tendency to open many new paper factories in Canada.

That the Canadian tariff contain not a few incongruities, not wholly in keeping with the interests of home industries is quite well known. Of the several instances of this which has come to our attention the following may serve as an illustration. In an important manufacturing town across the border two industrial establishments are located side by side, the one manufacturing wire making machinery and the other barb and fence wire. On the product of the former concern our tariff fixes a duty of 25 per cent., while some of the products of the latter are on the free list. Thus a ban is placed on home industry, for with a proper adjustment of tariff charges wire making machinery would be brought to this country and plants put in operation, but as it is with open competition in wire products from abroad and a tax on wire making machinery, home industry comes in for but little encouragement.

An important question now before the Dominion Courts is that of the Dominion Iron & Steel Co., for bounty on liquid pig iron manufactured into steel by the company. The iron bounty is \$3 per ton when manufactured from native ore and \$2 from foreign ore. The Auditor-General claims it was never contemplated by Parliament to pay a bounty on liquid pig iron, but only on solid pig. The Dominion company has a very strong case, the scientific publications and such a noted authority as Mr. J. M. Swank, general manager of the American Iron & Steel Association of the United States, holding the view that pig iron is pig iron whether in the liquid or solid form.

Mr. Swank's Bulletin very pertinently enquires, "Is the tariff the mother of trusts?" and answers the question in this way:

The only really oppressive trust in the United States to-day is the anthracite coal trust, composed of operators and coal-carrying railroad companies, and yet anthracite coal has been free of all duty since 1870, thirty-two years ago.

But, as all coal that is called anthracite is not a true anthra-

cite, a provision was inserted in the Dingley tariff of 1897 that fixes the line of demarcation. Paragraph 415 of the Dingley tariff says that all coal containing less than 92 per cent of fixed carbon must pay a duty of 67 cents per ton of 28 bushels, 80 pounds to the bushel. As the carbon in some of the Welsh anthracite is below 92 per cent. an analysis of each cargo that may now come to that country will be necessary to determine whether it is subject to duty or not. The Swansea anthracite analyzes only 89 per cent. The distinction made by the Dingley tariff was not incorporated in any previous tariff bill, so that it remains true that anthracite coal has been free of duty since 1870, with the exception noted since 1897. Welsh anthracite that shows 92 per cent. of carbon is not subject to duty. For 27 years all coal that could be called anthracite was admitted free of duty.

Uncle Sam will have his pound of flesh, no matter how much the people of his country may suffer for fuel the coming winter. Under the circumstances he might have closed his eagle eyes to the fact of the three per cent deficiency of fixed carbon in the Welsh coal imported to alleviate the sufferings of the poor.

The aggregate foreign trade of the Dominion for the year ending June 30 was \$414,517,358, exceeding that of the previous year by \$36,827,673 and is \$174,247,976 or 72 per cent. greater than 1893. The imports for consumption during the past year, including coin and bullion, amounted to \$202,791,595, compared with \$181,225,389 in 1901, and \$121,505,030 in 1893. The value of dutiable goods was \$111,657,496 as against \$105,958,535 in the previous year, and \$69,160,737 in 1893. The value of the free goods imported was \$77,822,694, as compared with \$71,729,540 in 1901, and \$45,297,259 in 1893. The total exports were \$211,725,563; in 1901 they were \$196,487,632, and in 1893 \$118,564,532. Our exports of domestic produce alone amounted to \$196,105,240, an increase of \$19,866,048 over 1901 and of \$90,616,442 when compared with 1893.

Germany is more determined than ever to exclude Canadian grain from her markets, orders having been issued for the stricter observance of the discriminatory tariff of 16 cents per bushel against our cereals. As a result, Canadian grain has ceased to figure to any appreciable extent in supplying Germany's needs. The United States farmer, on the other hand, is making rapid gains in his grain sales to the Germans. The alleged preference given to British goods in our own tariff was the cause of German hostility towards our grain. While our farmers are unable to escape the noxious grain tax, German manufacturers are actually making money by availing themselves of the privilege of the British preference, and supplying our home markets with goods that should be produced by our own manufacturers. According to the official reports only 8,000 bushels of Canadian wheat was imported into Germany during the year ending June 30, 1902, a falling off of tens of thousands of bushels.

According to figures just compiled the value of the foreign trade of all the various countries last year was, in round numbers, \$24,022,400,000, of which the sum \$195,000,000 exported by Canada, forms an important item. No year, except one or two since these statistics began to be compiled about forty years ago, has failed to show increase of trade, and this is particularly true of Canada. The total value of international commerce has doubled in the past forty years, cheaper, better and more commodities and cheap and fast transportation being the explanation. Most of this growth of international trade has occurred within the past two decades.

In reply to an enquiry concerning the status of the Imperial Institute, London, England, Harrison Watson, Esq., Curator of the Canadian section writes us as follows:

The Imperial Institute will be in future attached, not to the London Board of Trade, i.e., Chamber of Commerce, but to the Imperial Government Department of the Board of Trade, which is equivalent to the Canadian Department of Trade and Commerce. The transfer will take place on December 31 next, and under these powerful auspices everything will be reorganized and greater facilities provided for commercial and other work than has been possible in the past. Canadian interests will be under Canadian supervision. The reason why fewer commercial enquiries were received was because from June until August trade has been largely disorganized through the coronation celebrations, and from August up till now the regular holiday season has been in force. I shall continue to send you from time to time memos of such enquiries as I think may interest your readers. There is now a sample room and office in this city at 49 Eastcheap, which should be useful in helping to promote Canadian trade.

Hon. J. I. Tarte, Minister of Public Works, while in Montreal a few days ago, was shown a copy of the Toronto Globe in which was an editorial criticising Mr. Tarte's course in advocating tariff protection, to which the Minister replied as follows:

I am not astonished at The Globe's language towards me, said Hon. Mr. Tarte. As to the influence of that paper, however, you can see it in the result of its efforts. During the electoral campaign of 1900 it spoke in support of the Liberal cause. The elections came, and Hon. Mr. Mulock was the only Liberal candidate who returned victorious out of fourteen seats in and around Toronto. Mr. Archibald Campbell, who succeeded Mr. N. Clarke Wallace, was elected after saying exactly what I said—not for the first time—but ten times before the Prime Minister and his colleagues. The Globe is absolutely free to say what it likes about me. I know it represents influences which for a long time have been hostile to me. It is astonishing to me to see how some people refuse to notice and accept the true condition of the public mind. What I ask, what I sincerely believe the majority of the country demands, is a readjustment of the tariff in a truly Canadian sense. During the last session Hon. Mr. Fielding, speaking on behalf of the Government, announced a revision of the tariff for the next session. The general situation vividly recalls to my mind the situation of the country in 1866, 1867 and 1868, at an earlier period just after confederation. A group of young men, including Louis A. Jette, L. O. David, Cleophas Beausoleil, Wilfrid Laurier, Henri Joly, Hector Fabre and others, had founded the parti National, the National party, advocating the protection of national industries. They stirred public opinion during two or three years. Sir John Macdonald was beaten on the Canadian Pacific question, and Mr. Alexander Mackenzie formed his Cabinet. The Liberals of the Province of Quebec were forced to renounce their ideas of protection. What happened? The Conservative party took possession of the policy of the Liberals of Lower Canada, making of that policy their great arme de combat. You know the result of the elections of 1878.

According to recent advices from New Zealand statutory arbitration of labor troubles is not working satisfactorily. At a recent convention of the labor unions the delegates adopted a resolution strongly condemning the arbitration act and court. It seems, however, that the disfavor of the labor unions is directed not so much against the law itself, as it is against the manner in which it is being administered. The New Zealand arbitration act has hitherto been held up as a great success and satisfactory to organized labor. It forces employers to submit their difficulties with their employees to arbitration, and it also compels the employees to yield to the same process, providing penalties if the latter do not accept the decision. Fairly and impartially administered such a law

ought to work to the equal advantage of all. But the labor unions of New Zealand complain that the law is unfairly administered and they are agitating for its repeal.

The proposal of the Government at Washington for the appointment of a joint commission, by the United States and Canada, to investigate and report on questions connected with the changes of levels in the Great Lakes is a good one. Nature has given both countries lavishly of her bounties in the great inland seas, which furnish a good water route almost from the centre of the continent to tidewater on the Atlantic. Anything which seriously affects the water levels on the lakes is of the utmost importance to both countries, but to Canada of nothing short of vital interest. In a few years the enormously increasing production of grain in the West will demand the utilization of this splendid waterway to its fullest capacity. We have already spent millions, and will have to spend more, to give us a highway for heavy freights, from the head of Lake Superior to tide water. A serious reduction in the levels might render all that has been spent, and must in the future be expended, in improving this waterway of little use. More important still, the Great Lakes are the reservoir which feeds the mighty St. Lawrence. A reduction in its levels would ruin the port of Montreal. The Federal Government ought to see to it that Canada's representatives on this joint commission are able men, fully competent to guard the country's enormous interest in this question.

Under the preferential tariff by which English goods are admitted at a rate one-third less than that placed on goods from other countries, the value of the woolen goods imported into Canada has been about ten times as much per capita as the imports of woolens into the United States. The result, naturally, has been disastrous for the Canadian industry, and the orders for army goods to supply the troops in South Africa which the home government placed with Canadian mills have been but a drop in the bucket compared with the vast imports of foreign made fabrics. The close of the South African war removes the slight relief afforded by the army contracts, and the woolen manufacturers of Canada are now confronted with a prospect even darker than the existing conditions, under which so many of them have failed or been compelled to close their mills.—Textile World.

The coal strike in Pennsylvania fails to give up the ghost. On both sides there seems to be the same inflexibility of purpose, and the same stout denials of any inclination to surrender. Money is said to be coming in as freely as ever, and though without doubt many grievous hardships are being borne by the poorest of the miners and many debts incurred, and losses it may take years to recover are being pitilessly distributed, the starvation point has yet to show its sharpened tooth. On the other hand, the operators are seeing bushels of dollars slip through their fingers, mines are left to rodents and watchmen, the policing of shafts is costly and necessary, and valuable machinery is idle and rusty. All this aggregates an appalling loss of money and trade, the burden of which must sooner or later become intolerable. Meanwhile the price of coal is moving from the floor to the ceiling, mills and factories are emptying their bins, foundries in many instances are straitened for supplies, and the domestic consumer of coal sees but a cheerless prospect for the family stove during the coming winter. In short the consequences are as widespread as they are deplorable, and whole sections of the country are mutual sufferers in a common calamity. It is obvious that unless some steps are taken to end this industrial struggle that we will slide down to the razor edge of a grave crisis. It is a miserable state of affairs under any circumstances, and those responsible for present conditions are fit subjects for the penitent bench or the pillory.—The Age of Steel.

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 on those pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalis, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

Gillies & Co., are considering the matter of erecting a smelter plant at Kingston, Ont.

Messrs. Drummond, McCall & Co., of Montreal, have organized a company to engage in the iron mining industry near Pembroke, Ont.

The property of the Canadian Woolen Mills at St. Hyacinthe, Que., has been sold to Lafleur, MacDougall & McFarlane, advocates, of Montreal, for \$259,000 and a company is being formed to operate the plant.

The Dominion Packing Co., has been incorporated with a capital of \$1,000,000. It will carry on the business of buying and raising cattle, hogs, poultry, provisions, game, cereals, vegetables and fruits, and of canning, packing and pickling the same. The headquarters of the company are in Montreal, and the incorporators are Robert D. McGibbon, T. C. Casgrain, E. Fabie Surveyor, Douglas Armour and Montague Miller.

The Winnipeg Elevator Co., will increase its capital stock from \$300,000 to \$750,000.

The Eclipse Lighting & Heating Co., has been formed with a capital of \$200,000. In addition to the acetyloid and acetylene gas business, the company will carry on the business of general foundries, general metal turners, etc. The incorporators are Charles Henry Worsnop of Halifax, Eng.; James

W. Pyke, Montreal; H. E. Hodgson, Cleckaton, Eng., and T. P. Howard and C. D. Gaudet, Montreal.

The plant of the Erie Tobacco Co., at Kingsville, Ont., was destroyed by fire September 6. The building was owned by Hiram Walker & Sons, Walkerville, Ont., was erected two years ago especially for the Erie Tobacco Co., and was valued at \$15,000. The Tobacco Co.'s loss is about \$20,000.

The Robb Engineering Co., Amherst, N.S., through their Ontario representative, Mr. William McKay, Toronto, have been awarded the contract for four large engines, comprising the entire steam engine equipment for electric lighting, elevators, etc., for the new King Edward Hotel at Toronto.

The Phoenix Electric Lighting Co., of Victoria, B.C., has been incorporated; capital \$50,000.

The Revelstoke & McCullough Creek Hydraulic Co., and the East Kootenay Placer Mining Co., are two new British Columbia mining concerns recently formed.

A syndicate has laid before the Commissioner of Crown Lands a proposition for the development of water power at Fort Frances, an important point in the Rainy River district of Ontario, and a station on the Canadian Northern Railway. At Fort Frances are the Coochiching Falls, a cataract over which the Rainy River

tumbles in its course towards the Lake of the Woods. The cataract is twenty-three feet high, and the river, where it makes the descent, is 125 feet wide, and fourteen feet deep. The Rainy River, as our readers are aware, forms a portion of the boundary line between Ontario and the State of Minnesota, and the proposal is to develop power on both sides of the river by a joint dam erected by consent of both governments. It is calculated that from 3,000 to 3,500 h.p. can by this means be developed on the Canadian side of the line, and no doubt a similar power would at the same time be procured on the Minnesota shore. The Rainy River district abounds in pulp forests and other timber, and the proposed power, if developed, will be utilized in driving pulp and saw mills.

The Paris Plow Co., of Paris, Ont., has been organized by the election of the following directors: John Penman, J. B. Henderson, B. Travers, and G. D. Clump, Paris Ont.; W. D. Long, Hamilton, Ont.; D. Morrice and John Carruthers, Montreal.

A very meritorious exhibit at the London, Ont., Fair, was that of the St. Thomas Acetylene Mfg. Co., of St. Thomas, Ont. Three sizes of machines were shown. The chief peculiarities of these machines are: The absence of a gasometer, absence of water seals' loose parts, and hence of any odor; perfect safety and simplicity of operation; no after-generation, and no waste. The system is the invention of St. Thomas men, and the company's works are established in that city, where are made gas machines, gas stoves, acetylene incandescent burners.

Mr. J. B. Straith, of Owen Sound, Ont., desires to extend his awning business. It has completely outgrown his present facilities. He is the inventor of a process which he claims will prevent mildew and make the awning or tent absolutely waterproof. Offers for large quantities of tents from the railroad construction companies had to be refused, owing to his inability to meet these large orders with his present equipment.

The Strathy Wire Fence Co., of Owen Sound, Ont., had an excellent exhibit at the Owen Sound Fair showing the various

Pneumatic Tools and Appliances ARE GREAT MONEY SAVERS.

Air Hoists,
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lers, Agitation
of Liquids or
Syrups in Re-
fineries.
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pet Cleaners,
Chipping Tools
for use by Ma-
chinists, Boiler
Makers, Stone-
cutters and
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ing, Air Brushes

INGERSOLL-SERGEANT

PISTON INLET AIR COMPRESSORS FOR ALL DUTIES

THE JAMES COOPER MFG. CO. LIMITED

299 St. James St., Montreal

BRANCHES - - ROSSLAND, B.C. RAT PORTAGE, Ont. HALIFAX, N.S.

Pneumatic
Augers,
Punches,
Hammers,
Hammers,
Rotary Drills,
and Augers.
Reversible
Boring Machine,
Fluo Cutters,
Rollers and
Welders,
Air Lift Pumps,
Jacks,
Paint Spreaders,
Bolt Nippers.

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products manufactured by the company. This company is now one of the leading industries of Owen Sound, manufacturing all kinds of wire fence, gates, hinges, and in fact all kinds of plain and ornamental iron and wire materials for fences and other purposes.

Premier Tweedie, of New Brunswick, was recently in Montreal conferring with Wm. Harnsworth, of the London Daily Mail, who is now in Canada for the purpose of acquiring a paper mill or obtaining the output of one.

On Saturday Hon. J. Israel Tarte, accompanied by Mr. Myles, ex-President Montreal Board of Trade; Mr. George Anderson and Mr. D. Carlyle, visited the works of the Dominion Radiator Co., Toronto. The visitors were received by Mr. Joseph Wright, President, and Mr. Peter McMichael, Manager of the company. The works were thoroughly inspected, and the visitors saw shipments of the company's manufactures ready for dispatch to all parts of the world.

Plans are being prepared by the Metropolitan Bank, of Toronto, for the erection of a new 14 story office building in this city.

The Goderich Lumber Co., of Goderich, Ont., are contemplating the enlargement of their plant and building booms outside of the harbor to shelter their timber fleets.

Dr. A. E. Barlow, of the Dominion Geographical Survey staff, who has been working in the Sudbury district, reports that the mines are being vigorously

worked, and the prospects are that they will be worked stronger than ever during the winter. Nickel is in great demand at a good price, and the output is being increased.

The St. Gabriel Lumber Co., with head offices in Montreal, has been formed by New York and Montreal capitalists with a capital of \$2,500,000.

The Mexican Light & Power Co., of Toronto, has applied for a charter; capital \$12,000,000.

The Dresden Sugar Beet Co., of Dresden, Ont., will be ready for operation October 15. The factory will have an netise output of 600 tons per season.

The Athabasca-Venes Co., has been formed at Victoria, B.C.; capital \$500,000.

The Canadian Lake & Ocean Navigation Co., of Toronto, has been chartered; capital \$3,000,000.

The Chemists & Surgeons Supply Co. is a new Canadian concern capitalized at \$40,000. The headquarters of the company are in Montreal.

The L. T. Dundas Co., of New Westminster, B.C., has been formed and will take over the lumbering business of L. T. Dundas. The company has a capital of \$25,000.

The Pacific Coast Lumber Co. has been formed at New Westminster, B.C.

The Paris Plow Co., of Paris, Ont., has had \$127,000 of its capital subscribed for and the new plant will be in operation by January 1. The directors are John Pen-

man, J. B. Henderson, G. D. Clump, B. Traverse, W. Willet and F. Ward, of Paris; J. Carruthers and D. Morrice, of Montreal, and D. Long, of Hamilton.

The Canadian Oil & Mines Co. has been chartered at Victoria, B.C.; capital \$2,500,000.

The Goldie & McCullough Co., of Galt, Ont., is improving its shipping facilities by putting a switch connecting with the Grand Trunk Road.

Geo. M. Forbes, of Hespeler, Ont., has purchased the property of the Galt Carpet Factory.

The Robert Watson Co., Toronto, have ordered another 30 h.p. motor from the Jones & Moore Electric Co.

The Tilsonburg, Lake Erie & Pacific Railway Co. will extend its line from Ingersoll to Collingwood, Ont. The road is already completed from Port Burwell to Ingersoll.

The Canadian Beet Sugar Co., of Baden, Ont., has increased its capital to \$2,000,000 and will erect a large plant at that place.

The Jones & Moore Electric Co., Toronto, have secured an order for one 60 K.W. multipolar generator and two 30 K.W. motors with marble switchboard and all attachments from The John Dick Co., for their mill at Cobourg, Ont.

The Delaney & Pettit Co., of Toronto, have placed an order with the Jones & Moore Electric Co. for a complete lighting plant.

Glad to Endorse Burt Exhaust Heads

The Diamond Match Co., Barberton,
Ohio, write us under date of
Sept. 10, 1902, as follows:



GENTLEMEN—Replying to your favor of the 9th would say that we have a number of your Exhaust Heads in use in our different factories and find them very satisfactory. We would cheerfully recommend the "Burt" to anyone in need of a good exhaust head.

Yours truly,
THE DIAMOND MATCH CO.
M. A. Palmer, Asst. Mgr.

"Anyone in need of an exhaust head" means everyone who has an exhaust pipe that drips, rots roofs, disfigures buildings, forms ice underfoot in winter and mud the rest of the time. All Burt

Exhaust Heads are fully guaranteed, and sold subject to approval. Write for booklet.

THE BURT MFG. CO.,

Largest Mfrs. of Oil Filters in the World.

AKRON, OHIO, U.S.A.

A complete stock carried by the
FAIRBANKS CO., - Montreal.

BUFFALO VENTILATORS

FOR
SCHOOLS, CHURCHES, FACTORIES, FOUNDRIES
AND ALL INDUSTRIAL BUILDINGS



Impure Air, Smoke, Steam and Gases rapidly
and constantly withdrawn.

BUFFALO FORGE COMPANY, BUFFALO, N.Y.

The Jones & Moore Electric Co., Toronto, are installing a complete lighting plant for The Speight Wagon Co., of Markham, Ont.; also a plant in the woolen mills at the same place.

The new smelter and lead refining works at Trail, B.C., is now producing about 30 tons of pig lead daily. The bounty, which was granted by parliament in 1900, is \$5 per ton. The refinery is worked by a new process and produces a very fine quality of lead which will be manufactured in Canada into paint and other commodities instead of being shipped in crude state to Europe and the products of it imported back into this country.

The Industrial Soap & Oil Co., of Toronto, has been organized; capital \$200,000.

Capt. Strachan, a royal engineer, from London, England, has arrived in Hamilton, Ont., and is engaged surveying 1,000 acres of land at Beverly swamp. He is there at the instance of a number of

Galt, Preston and Toronto capitalists, who propose establishing a peat industry in that section.—Hamilton Times.

The Toronto Bolt & Forging Co. have placed an order with the Jones & Moore Electric Co. for one 60 K.W. multipolar generator with marble switchboard and the wiring of their premises for a complete lighting installation.

It is said that a rich deposit of galena has been found near the Shawinigan carbide works at Shawinigan Falls, Que. Specimens of the ore have been tested by Mr. Stan Gagne. A further test is to be made to determine the proportion of silver in the ore. It seems this is the first mine of the kind found in the Lake St. John region and Mr. Gagne says there is no doubt as to the nature of the deposit.

The Skeleton Lake Lumber Co., of Toronto, has been formed; capital \$40,000.

The Dominion Oilcloth Co., Montreal, are about erecting a large building in the vicinity of their present works. It will be

four stories high, of pressed brick with iron and cement floors, and fire proof, at a cost of about \$60,000.

H. Ledou, carriage manufacturer, Montreal is erecting an addition to his factory in that city 60x38 feet, seven stories high.

The Bourne-Fuller Co., Cleveland, Ohio, report that with the additional cutting off machinery they have just installed, they are able to ship immediately structural shape from their Cleveland yards. They have heretofore been rather handicapped, owing to the delay in setting up this equipment, but are now in better shape than ever to handle orders requiring prompt attention.

The Hatch Electric Smelting Co., of Parry Sound, Ont., has been formed; capital \$500,000.

Mr. P. W. Richardson, of the well known firm of Wigham, Richardson & Co., of Newcastle-on-the-Tyne, is now in Sydney, C.B., for the purpose of look-

CAMEL BRAND
BALATA
RUBBER

BELTING

Linen Fire Hose,
Water and Steam Hose,
Packings, Etc., Etc.

THE STANDARD



GOLD WATER PAINT

WEATHER PROOF, FIRE PROOF
WHITE AND COLORS.

MILL SUPPLIES

Lubricating Oils and Greases
PAINT, PAINT OILS, ETC.

W. A. FLEMING & CO.

Montreal and St. John, N.B.

THE CANADIAN PORTLAND CEMENT CO. LIMITED

MANUFACTURE "RATHBUN'S STAR" BRAND

THE LEADING CANADIAN PORTLAND CEMENT

Capacity of Works—500,000 Barrels per Year

THE RATHBUN COMPANY,
310-312 Front Street West,
Telephone Main 1379.

TORONTO, ONT.

SALES
AGENTS

ST. LAWRENCE PORTLAND CEMENT CO.,
2664 Notre Dame St. W.

Telephone Main 3987.

MONTREAL, QUE.

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ing over the ground with a view to establishing a Canadian branch of his firm.

The Ontario Mining Co., of Toronto, has been formed by Anthony Blum and Lauhe Blum, of Boston; W. R. Williams, Jas. G. Strong and Geo. Shaw, of Toronto, with a capital of \$1,000,000 to engage in mining, milling and reduction.

Among the recent Ontario incorporations was Boyd, Caldwell & Co., of Lanark, Ont. The company is capitalized at \$200,000 and will engage in the manufacture and sale of woolen goods, lumber, etc. The incorporators are Thos. B. Caldwell, Jeannette Caldwell, A. C. Caldwell, A. C. McCullum and C. McK. Forbes, of Lanark, Ont.

The Nipissing Telephone Co., of Sturgeon Falls, Ont., has been formed by C. W. Rantoul, jr., A. J. Young, Geo. Gordon and others with a capital of \$5,000.

The Dominion Oil Filter & Metal Co., of Guelph, Ont., has been formed by Jos. Brown, John A. McHardy, Frederick T. Coghlan and others, of Guelph, Ont., with a capital of \$40,000 and will manufacture and deal in oil filters, tin, iron and metal products.

The Power Equipment Co., of Ontario, with a capital of \$100,000 has been formed by E. I. Sifton, F. G. Mitchell and others, of London, Ont., and will operate heating and electric light plants in London.

The Morgan Co., of Toronto, with a capital of \$40,000 has been formed by Samuel Trees, Jas. D. Trees, Frank E. Morgan and others, and will manufacture and deal in saddlery supplies.

Among the new Ontario companies is the Western Foundry Co., of Wingham, Ont., which has been organized with a capital of \$50,000 by F. J. Taylor, J. J. Cunningham, H. W. Taylor and others of Wingham. The company will acquire the old plant of the National Iron Works and engage in the manufacture of machinery.

The Contractors' Supply Co., of Ottawa, has been formed; capital \$25,000; incorporators, Jas. B. McMillan, J. H. Hall, R. T. Holcomb and others. The company will manufacture and sell tile, cement, lime, brick, lumber, etc.

J. A. Carveth & Co., of Toronto, is a new firm with a capital of \$40,000 which will engage in the business of selling scientific and anatomical goods.

The Baden Machinery Mfg. Co., has been formed under the laws of Ontario with a capital of \$40,000 to manufacture and sell engines, boilers and wood-working and other machinery. The plant will also include a machinery repair shop. The incorporators are Chas. Hood, Andrew J. Snow, and Chas. Henry, of Buffalo.

The Owen Sound Fruit Packing Co., has been formed by Wm. P. Telford, John S. Pinch, and Stephen J. Parker, of

Owen Sound. The company is capitalized at \$25,000 and will engage in the packing business.

The Port Dover Gas & Oil Co., of Port Dover, Ont., has been incorporated to drill for gas and oil. Among the promoters are Jonathan Ellis, Matthew Truesdale, and F. M. Bond, of Port Dover.

The Brantford Varnish Co., of Brantford, Ont., has been formed by John Dowling, John Harold and others, of Brantford, with a capital of \$40,000 and will manufacture paints, oils, and painters supplies.

The Toronto Fire Brick Co., with a capital of \$60,000, will erect a plant for the manufacture of fire brick and building materials. Andrew Miscampbell, T. W. Leavitt, and John Ayling, of Toronto, are the provisional directors of the new company.

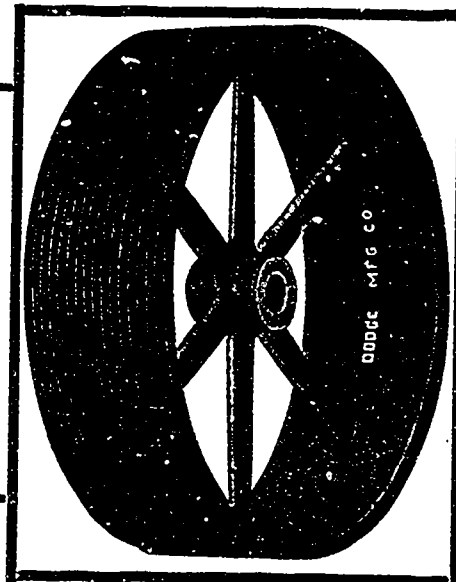
The Vulcan Reduction & Refining Co., of Toronto, with a capital of \$500,000, has been formed by A. A. Forbes, J. G. Harris and others, of Toronto, and will engage in mining, milling and reduction.

The Superior Portland Cement Co. is a new Toronto company formed by Edward Morgan, R. J. Daly, Jas. McCullough and others; capital \$50,000. The company will install a portland cement plant and also manufacture fire-brick, plaster, tile and sewer pipe.

The Oriental Silk Co., of Pittsfield, Mass., has applied for a Canadian charter and will remove to Montreal.

IRON GROOVED PULLEYS

Spiral Steel Conveyor.
Elevator Buckets.
Detachable Chain.
Sprocket Wheels.
Belt Conveyors.
Friction Clutch Pulleys.



Clutch Couplings.
Machine Moulded
Iron Pulleys.
Steel Shafting.
Flange and Compression Couplings.

..Improved Ball and Socket Adjustable Hangers..

DROP AND POST, SAFETY COLLARS, ETC.

Power Transmission Machinery. GRAIN HANDLING MACHINERY.

SEND FOR CATALOGUE

DODGE MANUFACTURING CO., - TORONTO, ONT.

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Considerable work is being done at the shipyards of the Cramp Co., at Collingwood, Ont. The dock now being constructed will require 4,000 barrels of cement which is being furnished by the Owen Sound Portland Cement Co.

Henry McCoullray and others, of St. Johns, N.B., are interested in a company just formed for the manufacture of fishermen's supplies. The company will have a capital of \$50,000.

The Woodstock Lumber & Mfg. Co., of Woodstock, N.B., has been formed; capital \$24,000.

The Restigouche Foundry & Supply Co., of Campbellton, N.B., has been incorporated with a capital of \$100,000, and will erect a foundry, wood working plant and machine shops.

The Canadian Pacific Railway Co. will expend several million dollars in improving its terminal facilities and in erecting elevators at Vancouver, B.C. Five new wharves will be erected, each 500 feet long and 175 feet wide, and in each of these wharves will be erected two warehouses 450x50 feet. The improvements are being made to enable the road to better handle Oriental trade.

Work is progressing rapidly on the new plant of the International Harvester Co., at Hamilton, Ont. The finishing building 353x90 feet and two stories high, the wood working building 250x90 feet, and the grey iron building 320x84

feet are now well under way. Contracts have just been awarded for a forge shop 550x84 feet, and a building 700x50 feet for a malleable iron plant. When all the buildings are completed the plant will have a building front of 6,840 feet. The company expects to have its Canadian made machinery on the market next spring.

The M. Brennen & Sons Mfg. Co., of Hamilton, Ont., has decided to rebuild their factory on the site of the building recently destroyed by fire.

The Government saw mill in Montreal was damaged by fire to the extent of \$10,000 last week.

The Fairbanks Co., Craig St., Montreal, have concluded arrangements with Dodge Mfg. Co., of Toronto, for their general agents for Montreal and vicinity. An entire new stock of Dodge standard pulleys has been received, as well as various stocks of Dodge transmission goods, including ball and socket hangers, flange and grim death couplings, safety collars, improved self oiling bearings, all types, etc. All of these standard lines will be carried in stock at the Fairbanks Co.'s warerooms, Craig St., Montreal, for immediate shipment at factory prices.

A syndicate, composed chiefly of Montreal men, has purchased the blast furnaces, mining lands, wood lands and waterpowers of the Londonderry Iron

Co., situated at Acadia Mines, N.S., and the property will be developed upon a large scale. The purchasers are:— Messrs. George E. Drummord, Thomas J. Drummond, James T. McCall, Lieut.-Col. Fred Henshaw, Edgar McDougall, all of Montreal; and Mr. Charles W. Brega, of Chicago. The area of the property is 30,000 acres, and up to a few years ago it was in active operation under the ownership of the Londonderry Iron Co. The new syndicate will at once place the plant in first-class condition, and the manufacture of foundry pig iron and castings will actively employ, mining operations included, some 800 hands, when in full operation.

H. L. Hewson and E. E. Hewson of Amherst, N.S., have organized the Hewson Woolen Co., with a capital of \$1,100,000. The new company will erect a new four storey building 154x55, and will equip it with modern machinery. The new plant will be in operation early next year.

The Premier Steel Mills of Indianapolis are being removed to Collingwood, Ont., sixty-five car loads of machinery, consisting of iron rolling mills, blooming mills, Bessemer and open-hearth plants and gas plants having already been shipped. The machinery will be set up at Collingwood, and operated under subsidies from the Canadian Government.

The Toronto Hardware Mfg. Co., will erect a new foundry at a cost of \$20,000.

STURTEVANT

BLOWERS

of every conceivable form for every conceivable purpose. Built for endurance.



— ALSO —

- Exhausters
- Steam Fans
- Electric Fans
- Engines
- Electric Motors
- Generating Sets
- Forges
- Exhaust Heads.
- Steam Traps
- Heating
- Ventilating and
- Drying Apparatus
- Mechanical Draft

134

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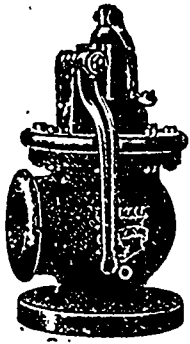
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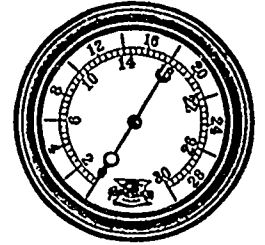
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POWER DEVELOPMENT AT NIAGARA FALLS.

By A. A. Bowman, Toronto.

Among the many resources of our Canadian heritage is its abundant natural power. Not confined to any one province or district, Canada possesses water power extending from the Atlantic to the Pacific, from Labrador to the Niagara Peninsula, of a value and importance which can hardly be overestimated.

The utilization of electricity for the transmission of this natural power is rapidly becoming one of the most important factors of our national development; and the ever-increasing knowledge of hydraulics and electrical science, and skill in their application to this work, is rapidly solving the problem of diverting natural power into useful channels.

Foremost in its importance to the manufacturing district of Southern Ontario will be the Canadian power development at Niagara Falls. Niagara power as utilized to-day is developed principally at the plant of the Niagara Falls Power Co., on the American side of the river, and at a number of factories, lighting and pumping stations, on both sides of the river, all of which take water from the river at points above the Falls, through feeder canals of varying length, and discharge it over the bank or through tunnels into the river below. As none of these smaller plants utilize the full head of the water, and all are of the standard type of design and operation, we may pass directly to the magnificent power station of the Niagara Falls Power Co., one of the simplest in fundamental design, and at the same time one of the most efficient in equipment, and manage-

ment in operation. It is somewhat difficult to realize to what a wide extent the comfort, safety and commercial well being of the inhabitants of the Niagara district depend on the constant flow of current generated by these mighty wheels. When one realizes that over half a million people get their light from this source, use it to operate street car systems running over three hundred and fifty miles of track, and to a very great extent depend upon it to furnish energy for industries representing an invested capital of over \$100,000,000, this becomes more apparent. As many of the manufacturing processes require continuous supply of power, an interruption of the power service of even short duration would cause much damage through derangement of these processes, involving loss of product, and in some cases damage to plant. As the vital source of

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Large as is the consumption of these bars for power transmission shafting, its use in machine manufacture is much greater. **Machine Shafts and Rods, Valve Stems, Pump and Piston Rods, Engine and Elevator Guides, Screw Rods and Bicycle Hub Stock**, are a few of its many uses.

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all this industrial activity, the steady and continuous operation of this plant becomes of paramount importance, demanding engineering ability of the highest order. The present plant of the Niagara Falls Power Co. consists of ten units, each consisting of a turbine and electric generator producing 5,000 h.p., the total output being thus 50,000 h.p. In addition to these are the transformer and converter plants for operating the local and long distance distributing systems. The 10 turbines are placed at the bottom of the wheel pit, the wheels revolving on a vertical axis. The shafts from these turbines extend upwards to the floor of the power house where they are directly connected to the alternate current generators.

Leading outward from the foot of the wheel pit is a tunnel which leads directly to the point of exit at the surface of the river below the Falls. To follow the course of the water in its journey down we might trace it as it comes down the river, above the Falls.

A short canal leads the water from the river directly to the power house. After passing through inlet racks, placed between the canal and the power house to prevent stones, pieces of wood, and other obstructive matter from getting into the wheels, the water passes through the controlling valves, and thence through the feeder tubes to the turbines. After passing through the turbines and causing them to revolve, the water emerges from the wheel pit, and rushes onward until it finally enters the river below the Falls, almost directly under the International Bridge.

This stream has considerable velocity and forms a cross current in the river, the effect of which is seen more clearly in the winter as it materially aids in the formation of the famous ice bridge which extends across the river.

Perhaps the most important part of the whole plant, and certainly one of the most interesting to see are the switch boards. They are the nerve centres, from which the current is distributed, controlled, and directed into its proper channels as it comes from the generators. Here stands the electrician in charge and his assistants. On the switch boards are placed the many instruments for measuring the current. By their aid the

electrician in charge can instantly tell the voltage and output of the generators, and govern their operation. I am indebted to an article in Cassier's Magazine, by P. P. Barton, for some of the above information.

The plant of the Canadian Niagara Power Co. now in course of construction on the Canadian side of the river will in all probability have many features in common with its American neighbor. The engineering difficulties to be overcome are largely of the same nature, the Canadian company will benefit by the experience of the American plant. Water will be taken from the river at a point about one half mile above the Horseshoe Fall. Here the coffer dam has been built. This coffer dam is practically a solid pier made of cribwork, built out into the current. It is about 12 feet wide on top and has an average depth of 19 feet. The coffer dam extends outward from the shore in a slanting direction until it reaches a point 150 feet from high water mark. From this point it is built down the river, parallel to the shore for about 800 feet. From here it is carried inward to the shore at the same angle at which it was built outward farther up. The construction of this coffer dam was one of the most interesting pieces of work on the whole plant. Huge frames, each about 12 feet square and full depth were built of squared timber, floated out to position and anchored in place with stones with which they were afterwards filled up. After each frame was placed, careful soundings of the river were taken, and the bottom of the next frame made to correspond. The coffer dam was thus built step by step, each frame being strongly joined to the one preceding. When it is remembered that this work was carried out day after day last spring when the logs were wet and slippery with frozen spray, in very cold and stormy weather, and that the scene of operations was a point on the river bank about one-half mile above the Falls where the whole force of the current sweeps against the shore, some of the dangers of construction can be appreciated.

Preliminary work was carried on from a scow anchored out in the river by a steel rope attached to the shore. It is a

matter for congratulation that this dangerous work was successfully completed without loss of life. After the completion of the frame work, the coffer dam was sheathed on the inside face with two layers of sheathing, tarred felt being placed between the layers. After the coffer dam had become tight, the water was pumped out and excavation work begun. This work is now being carried on.

The coffer dam was constructed by Messrs. Barrie & Macmordie, contractors, and great credit is due to these gentlemen for the fine piece of work they turned out, and for the manner in which they surmounted the many difficulties encountered. This firm have also just completed a sewerage system for Niagara Falls, Rand drills having been used to excavate the rock.

Work is now being rapidly carried forward on the wheel pit by Messrs. Dawson & Reilly, contractors, of St. Catharines, Ont. When completed the wheel pit will be 270 feet long, 20 feet wide, and 16 1/2 feet deep. From the surface of the rock, the sides of the wheel pit will be built up with cement and finished with solid masonry. The cement work is now being carried on, and some of the cast iron steps on which the steel beams supporting the generators will rest, are now in place. Granite for the masonry work is being obtained from Messrs. Quinlan & Robertson, Cookston, near Belleville, Ont. The wheel pit has now been excavated to a depth of over 70 feet, nearly half the total depth. Messrs. Dawson & Reilly have a large force of men at work, and the sinking of the wheel pit attracts many interested spectators. The centre of the pit is blasted out, the debris being removed by the aid of a winding engine, and emptied into the river. Holes are drilled by rock drills run by compressed air, a fuse is placed in each hole and fired by an electric battery. The sides and ends of the wheel pit are cut to the desired dimensions by means of channelling machines, four to six of these machines being in constant use. This machine consists essentially of a small vertical engine mounted on a carriage which travels backwards and forwards. To the engine shaft is fixed by means of a reciprocating motion, a steel cutter which

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is moved up and down vertically against the rock. This cutter works much in the same manner as a morticing machine, being gradually fed downward as the cut proceeds. The carriage is mounted on rails and travels backwards and forwards under the control of the operator.

Square recesses are now being cut in the sides of the wheel pit for the reception of the shaft bearings. These are cut by machines called gadders, which consist essentially of rock drills mounted on carriages. This machine makes a convenient arrangement for cutting holes of exact dimensions in rock.

The whole of the excavating plant is run by compressed air, supplied by two large steam driven compressors built and installed by the Canadian Rand Drill Co. These machines are of the duplex steam, cross compound air type and indicate 300 h.p. each. Entering a conduit leading from the open air to the compressor, the air is admitted at atmospheric pressure to the low pressure air cylinder through Corliss valves, actuated from the main shaft by eccentrics.

Here it is compressed to 30 pounds per

square inch, the temperature of the air being kept as low as possible by means of the circulating water with which the water jacket surrounding the cylinder is kept filled. The air is then discharged into the inter-cooler which is of the Rand water tube type, so well and favorably known to the Canadian engineering world on account of the wonderfully efficient results that have been obtained on machines installed by this firm in British Columbia, Cape Breton, and other parts of Canada. This inter-cooler practically consists of a large cylinder, made of steel plate, and filled with pipes in which cold water is circulated. An arrangement of internal plates forces the air to pass transversally across the pipes, thus removing a large proportion of the heat of compression. After passing through the inter-cooler, the air enters the high pressure cylinder, and is there compressed to 100 pounds per square inch. The compressors discharge the air into the air receiver, which takes up the air pulsations, thereby equalizing the pressure. From the air receiver the air passes into the pipe line from which it is taken off by the

different machines. The general dimensions of the compressors are, steam cylinders 18 inches in diameter, high pressure air cylinder 18 inches in diameter, low pressure air cylinder 28 inches in diameter, stroke 24 inches. The compressors run at a speed of 100 revolutions per minute, and each machine has a capacity of 1700 cubic feet of free air per minute. Both compressors were built in remarkably quick time, and were erected by Mr. W. W. Swallow one of the company's erecting engineers. They are giving the very best of satisfaction, having started with full load without a hitch of any kind. The whole plant is a splendid example of the high class machinery turned out by this firm, and is a credit to Mr. Saugster and his staff.

Five boilers from the Waterous Engine Works, Brantford, Ont., supply steam for the compressors, and the whole plant is in continuous operation.

A most interesting part of the construction work is the tunnel which will extend from the foot of the wheel pit, at a depth of 165 feet from the surface to the point of exit at the surface of the river below

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LONG DISTANCE PHONE.

the Falls and a few hundred feet distant from them. This tunnel when completed will be twenty-one feet at its greatest width, eighteen feet high, and will have a total length of about twenty-two hundred feet. This part of the work is being carried forward with great energy and success by Mr. A. C. Douglass the contractor. A shaft was first sunk to the required depth about midway between the wheel pit and the point of exit. Tunneling was then begun in both directions, and also at the face of the cliff inwards. The work has now been carried up to the wheel pit, and a junction between the other two portions will likely be made in about a month from date. Tunneling is being carried on in the usual manner, holes being drilled in the rock which is then blasted out, and the debris hoisted to the surface and emptied into the river. Rand drills are also being used in this work.

Perhaps a noteworthy feature of this whole work is the prominence of Canadians in the work of construction. Almost the whole of the construction plant is of Canadian manufacture, most of the employees are Canadian, and the entire engineering staff is Canadian, Mr. C. B. Smith, resident engineer, Messrs. Macarthy, MacPhail and Blanchard being McGill graduates, Mr. Sherwood, Royal Military College, Kingston, Ont., Mr. Scott, Queen's, and Mr. Rust being a Toronto graduate.

As pointed out, this plant will be very much similar to its American neighbor. 80,000 h.p. will be developed at present, with provision for 30,000 more later on. It is proposed to send the power developed to Toronto and Hamilton, but it is probable that a large proportion will be used in the Niagara District. Ten years ago a 30 mile line was operated at a voltage of 10,000 volts. To-day power can be transmitted from 100 to 200 miles with very good efficiency, both from a technical and financial standpoint. To-day the transmitted voltage has been increased from 10,000 to 60,000 volts, so that we can look forward to the mighty power of

Niagara being distributed broadcast. The question has been asked "What effect will this absorption of power from Niagara have on the Cataract from the scenic point of view?" Assuming that the Niagara Falls Power Co. plant will develop 100,000 h.p., the Canadian Niagara Power Co. 110,000 h.p., the proposed Ontario Power Co. 100,000 h.p. and totalling the whole power developed elsewhere at 15,000 h.p., we get a total of 325,000 h.p. The total power at Niagara Falls has been estimated at 4,000,000 h.p., so that the total given would only amount to about 8 per cent. of the total power available. From this it will be seen that the grandeur of Niagara will not readily be effected by the utilization of power for industrial purposes.

ELECTRIC ELEVATORS FOR PRIVATE RESIDENCES.

One of the most interesting exhibits at the recent Toronto Fair was that of the Otis Elevator Co., in the Main Building, in which was shown and explained, the mechanism of an electric passenger elevator for private residences.

This is an Otis specialty, and is now regarded as an essential feature of every fine residential establishment. These elevators are built to be operated by push buttons at the landing doors and in the car.

If it is desired to bring the car to a particular landing, it is only necessary to press the button connected to the door at that landing. This will bring the car to the landing, when the door may be opened, and while open the car cannot be removed from the landing. There is a system of automatic door-locking devices connected with the operating mechanism of the elevator. The car is provided with a series of buttons corresponding in number to the number of the floor landings. On entering the car and closing the door, it is only necessary to push the button corresponding to the number of the floor to which the passenger

desires to go, when the car will immediately proceed to and stop automatically at that landing. On reaching the desired landing, and then only, the entrance landing door may be opened from the car. The system is complete, simple, positive in operation and affords absolutely safe elevator service.

HYDE BROS. & CO.

Hyde Bros. & Co., Pittsburg, Pa., are at the present time putting in 2,500 h.p. of their patent water tube boilers for blast furnace purposes in Alabama and 12 boilers for utilizing the waste heat from heating and puddling furnaces at the works of the Baltimore Rolling Mill Co., Baltimore, Md.

They are also putting in 500 h.p. for the American Car & Foundry Co., at their Madison works, having recently placed 1,000 h.p. in their St. Louis works. The Detroit works of the Car Co., have had Hyde boilers in use for six years, as have also the Pullman Co., at their Pullman, Buffalo and Wilmington works. The Guelph Iron & Steel Co., are putting in Hyde boilers at their new works at London, Ont., after thoroughly investigating the merits of different types of boilers for waste heat purposes.

By utilizing this waste heat from furnaces, it is claimed that sufficient steam power to operate a rolling mill can be obtained for nothing.

MADE IN CANADA.—The Province of Prince Edward Island, always favorably inclined to free trade ideas and never progressive as to development of manufacturing industries, is turning over a new leaf. The Government of the Island have under consideration an important project which, if carried out and proves successful, will be of immense benefit to all classes of the people. A number of Canadian and United States capitalists have submitted a proposition to Hon. Mr. Peters, the premier, to establish large works at Charlottetown, the chief features of which

The A. R. Williams Machinery Co.,

TORONTO

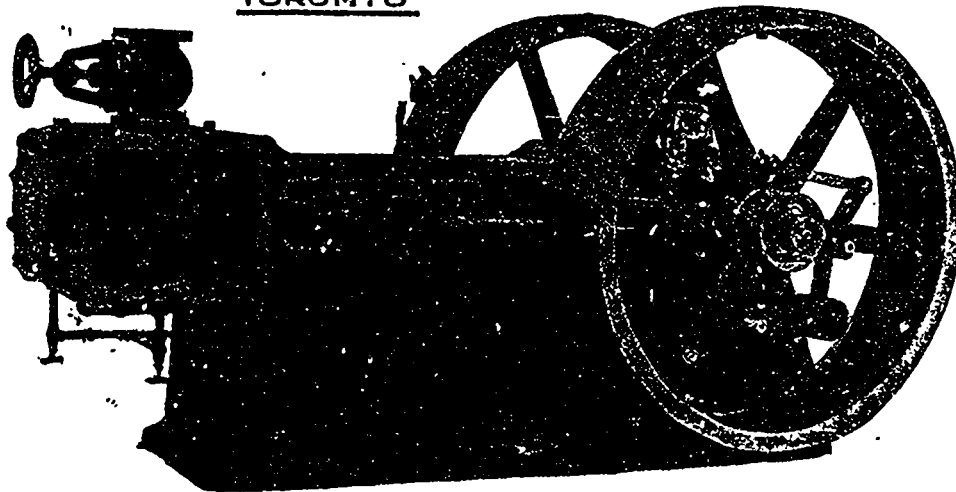
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will include pork packing, fish, flesh, fruit and vegetable canning, etc. The salient points of the proposition are.

The company agrees to establish cold storage warehouses in Charlottetown, Summerside and in one of the centres in King's County and maintain them for thirty years.

To erect an establishment in Charlottetown for the preserving and canning of fruit and vegetables and operate it for a period of thirty years.

To establish a pork packing and meat canning emporium in Charlottetown and operate it for a period of thirty years.

To establish cold storage in Nova Scotia and Newfoundland, these to be used as feeders to the big establishment in Charlottetown, which is to be the centre for the provinces.

To rent spaces for cold storage to all who desire such at rates not exceeding those paid in other provinces.

To spend \$250,000 on the Island within one year, and \$150,000 within six months. They also agree to expend in wages here

not less than \$10,000 annually for thirty years.

The Government agrees to guarantee an issue of the company's bonds at 5 per cent., payable in thirty years.

To exempt the company from taxation.

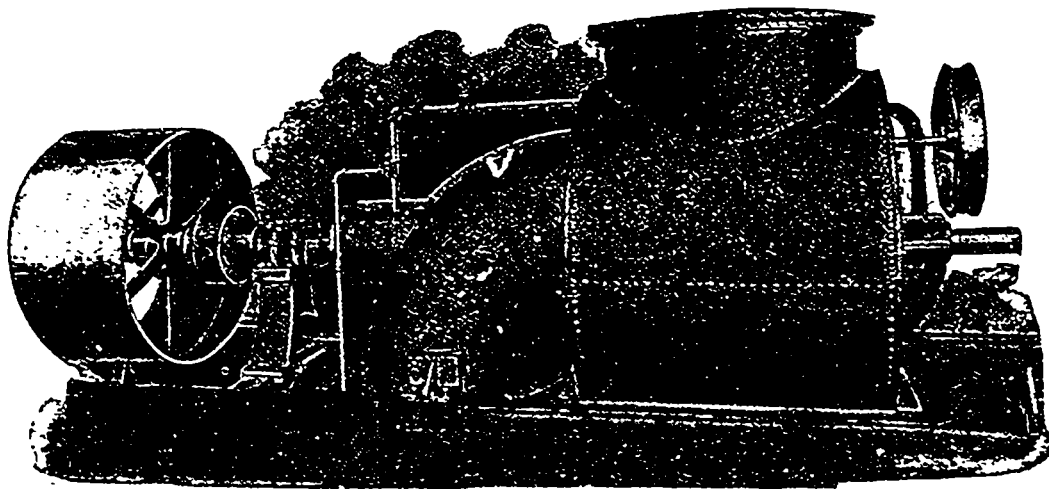
The Government stipulates that no monopoly will be given to this company to prevent other enterprises of a like nature being established here.

That any agreement now reached has to be fully ratified by the Provincial Legislature.

CORUNDUM IN ONTARIO.—Archibald Blue, Chief Census Commissioner, who has had a good deal to do with the policy adopted to encourage a development of the corundum deposits in Ontario, has just visited the region of Renfrew and Hastings Counties, where this mineral is being worked. He found one deposit which at less than the present price of the mineral ought to yield over \$12,000,000.

Mr. Blue believes that even larger money could be made out of these de-

posits if a process were discovered for extracting the aluminum that the formation contains. The corundum contains 53 per cent. aluminum, which would yield, if it could be separated, at least twice as much money as the corundum now brings for grinding purposes. In his judgment, the Ontario Government would be justified in offering a considerable reward—even thirty, forty, or fifty thousand dollars—for the discovery of a process by which the aluminum can be economically separated. We could then be able in this Province to control the corundum and aluminum markets of the world. The materials from which aluminum is now taken are not nearly so rich in the mineral as corundum. The Canadian Corundum Co. is itself endeavoring to ascertain a process by which this desirable end may be attained, but a Government reward would stimulate experiment, while the Province would itself reap therefrom a rich profit in the value the extensive corundum deposits on Crown lands would attain.



The above engraving represents a style of setting sometimes adopted in connection with our

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THE CANADA FOUNDRY CO.

The most conspicuous exhibit, perhaps, in Machinery Hall at the recent Toronto Industrial Fair was that of the Canada Foundry Co., which occupied a space extending along the entire side of the west end of the building.

Behind snow white columns was an elaborate display of the products of the company, containing an exhibit of water

only one of its kind in Canada. An automatic screw machine, making 3½ cap screws also attracted much attention.

The company had also an extensive display of ornamental iron work, including a large bronze tablet for the Canadian Bank of Commerce, and a section of iron dado work for the Montreal office of the London, Liverpool & Globe Insurance Co., this being part of a contract amounting to \$50,-

of the ornamental iron department. This class of work is being used to a very large extent by the prominent architects for interior decoration, being seen in the recent designs for grills, railings, stair-cases and so forth.

At night the exhibit was brilliantly illuminated by the latest type of enclosed arc lamps, manufactured by the Canadian General Electric Co.



and gas, cast-iron pipe, elbows, Ts, and special castings, hydrants, valves, valve-boxes, stop cock boxes, combination and single drinking fountains, and many other special manufactures of this company.

An interesting feature was a freight car truck, one of an order of one hundred, for the Canada Northern Railway; and another object of interest was a sample of the great forges, part of the equipment of the company's new forge shop at Toronto Junction. There were also samples of structural steel, and an automatic cold pressed nut machine in operation, this machine being it is said the

000 recently obtained by this company.

There were also shown several samples of their well-known wrought iron fences, and the entire exhibit was enclosed with the popular design No. 410.

A prominent feature of this portion of the exhibit was a heavy wrought iron gate made for Mr. John Penman, of Paris, Ont. The entire corner section of the exhibit was devoted to a display of wrought iron fire dogs, fenders and screens, which were all of modern design and remarkably strongly and well made.

Upon an easel in the corner was displayed a sample board of hammered leaf work made by the artistic blacksmiths

CONCENTRATION OF COPPER ORE IN BRITISH COLUMBIA.—The following extract from an editorial in the Evening World, of Rossland, B.C., may be of interest to persons engaged in the mining industries:

The press of the interior has devoted a good deal of space to a discussion of the Elmore process for the concentration of ores by oil and the probable results of its introduction in the low-grade camps of the Kootenays. The opinion seems to have been arrived at that if the Elmore process will do one-half that is claimed for it by its inventor, the problem of the profitable treatment of low-grade copper

ores has been solved and properties which are now lying idle will speedily become dividend payers; in fact, that it would cause such a revolution in British Columbia mining methods as cyaniding did in South Africa.

The process, which is very simple, may be described as follows:

The ore, having been reduced to a freely flowing pulp, passes directly from the mill into the open end of a horizontal rotating drum, inside of which is fixed a helix with cross blades or buckets, which lift up the pulp to a certain height and drop it again, at the same time propelling it forward to the opposite end of the drum, thus keeping the pulp in constant agitation for the few seconds which are occupied in its passage through the drum. With the pulp is also admitted a small quantity of a thick, sticky oil (the residue left in the stills in the refining of petroleum). This oil is, of course, subjected to the same agitation as the pulp, and is consequently tumbled about with it, and exercises the remarkable property of sticking to and buoying up the particles of mineral that are floating about or suspended in the pulp, but it does not stick to or have any effect whatever upon the particles of rock which are present in much greater number. The oil and pulp automatically discharge from the opposite end of the drum into a pointed box or spitzkasten, in which the tailings or rock at once settle down and flow off with the water at the bottom, while the oil, by reason of its buoyancy, floats to the top and carries up with it

practically all the values which the ore contained.

From the top of the pointed box, the oil with its load of mineral flows off continually to a specially constructed centrifugal machine, where the oil is extracted from the mineral and is at once ready for re-use. For close extraction, three mixing cylinders are sometimes used, the pulp passing from one to another, after floating off the oil and collected mineral, and receiving a fresh stream of oil in the next mixer. A second centrifugal machine is also found desirable below the first, to separate the last of the oil and water from the concentrates. The concentrates are left in the machine, practically free from oil.

The process was first tried in the laboratory, then on a small working scale, and then with a plant erected at the Gladsir mine, Wales, capable of treating about 50 tons of ore per week. After a lengthened trial of this plant, it was replaced by a much larger one, which treats 250 tons per week. The mine was formerly equipped with one of the most modern concentrating mills obtainable, operated under the supervision of able experts, but only 11.5 per cent. average value recovery could be obtained from the ore. With the Elmore process, over 80 per cent. of the metallic values were recovered and the whole of the original jig and Lubrig table plant was abandoned in favor of the new process.

SIMILKAMEEN COAL.—Paul Johnson, manager of the Greenwood smelter, has

concluded an investigation of Similkameen and Nicola coal fields, and is convinced that in Similkameen and Nicola can be found coal that for blacksmith and steam purposes is superior to either the Crow's Nest or Vancouver Island coal. He was particularly impressed with samples taken from the measures of the Nicola Valley Iron & Coal Co. This company has five seams ranging from five feet to eleven feet in width. It is apparently good bituminous coal, an average assay giving the following returns.

	Per cent.
Fixed carbon	58.41
Volatile carbonaceous matter	34.27
Moisture	2.18
Ash	5.14
Sulphur	none
Coke (firm and hard)	63.53

The Nicola coal fields are situated about equal distance from the Coast and the boundary. The distance to Greenwood by the V. V. & E. will be more than 140 miles, or less than one-half the distance from the Crow's Nest Pass. As soon as this road is built coke can be landed at the local smelters at a rate of from \$3 to \$4 a ton and coal from \$2 to \$3.

The Tulameen Coal Co., has also some promising coal measures. On their property are three seams, 6, 16 and 20 feet in thickness. An assay gives:

	Per cent.
Moisture	4.62
Volatile combustible	41.16
Fixed carbon	49.04
Ash	5.18
Coke	52.22

JAS. DOUGALL & SONS

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Bonnyside Fire Clay Works,
Bonnybridge, Scotland

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Silica and Fire Bricks for Steel and Iron Furnaces, Coke Ovens,
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Best Scotch Ganister for Steel Furnaces and Foundries.

STOPPERS, NOZZLES and LINERS for Steel Pouring Ladles.

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Direct shipments by quickest routes on lowest through rates to all Canadian points. Quotations promptly given on receipt of specifications.

WRITE FOR ILLUSTRATED CATALOGUE.

Sales Agent { **H. E. H. BUCKNER,**
TORONTO

THE COAL INDUSTRY AT SYDNEY.—Sydney No. 1, or Princess Colliery, will become a greater factor in the industrial world than ever before. This statement was made by a practical mining man a few days ago. Jacob's colliery, abandoned some 70 years ago by the G. M.A., will some day assume its originality, and every pound of coal in that latitude will be raised by Sydney No. 1. Princess colliery has not yet reached its limit, however these conditions have changed. With organized labor, a greater demand for coal with larger markets, the miner is a greater factor in the coal industry. At the present time the employe in a great measure is remunerated for his services according to prevailing market conditions. At this moment the Nova Scotia Steel & Coal Co. have advised their employees that an advance of ten per cent. will be granted when the daily output reaches eleven hundred tons. This means that if every miner in the colliery would average three and one-half tons a day the amount would be obtained and three hundred men would be the gainers. You will probably exclaim that such a number of men should have little difficulty in reaching the goal when it is considered that at the present time there are some miners who cut as high as five tons per day. But when you subtract forty per cent. from the total and leave the remainder in the race it will be seen the task is not so easy. The forty per cent represent the delinquent miners or those who prefer play to work. This year the records show a small increase in the output from Sydney No. 1, compared with last year. It would thus seem that the miners appreciate the position they occupy in regard to an increased output more than they have in the past, and are working in greater harmony with their manager.

THE LONDONDERRY IRON WORKS.—A syndicate composed chiefly of Montreal men has purchased the blast furnaces, mining lands, woods, lands and water-powers of the Londonderry Iron Co., situated at Acadia Mines, N.S., and the development of the property will immediately be proceeded with upon a large scale.

The syndicate of purchasers which has taken over this very important enterprise are Messrs. George E. Drummond, Thomas J. Drummond, James T. McCall, Lt. Col. Fred Henshaw, Edgar McDougall, all of Montreal, and Mr. Charles W. Brega, of Chicago. The area of the property is thirty thousand acres, and up to a few years ago was in active operation under the ownership of the Londonderry Iron Co.

This company went into liquidation and the plant, which employed some four or five hundred hands, was closed down. For the past three years the foundry portion of the enterprise has been leased by Messrs. Drummond, McColl & Co., and the manufacture of water pipe and other castings was carried on.

The newly organized syndicate will at once place the plant in first-class condition and the manufacture of foundry pig iron and castings will actively employ, mining operations included, some eight hundred hands, when in full operation.

Mr. T. J. Drummond will go to Acadia Mines to look after the new construction and ascertain just what rebuilding is necessary. There will be a very general overhauling of the plant which will be placed in first-class condition.

The capacity of the plant is about 35,000 tons of pig iron, and between 6,000 and 7,000 tons of castings per year.

The Messrs. Drummond and their associates have been looking for a desirable site for a foundry in Nova Scotia to take the place of the one which was leased from the Londonderry Co., and which was burned some months ago. Their search led them to Acadia Mines, and after looking over the property they came to the conclusion that the most practicable thing to do was to take over the entire property, and this has now been done.

The town of Acadia Mines saw its best days when the Londonderry Co. was in full operation, but when the company went into liquidation, the citizens were obliged to look elsewhere for a livelihood. When this new enterprise starts, however, it is expected that not only will a great many of them return to Canada from the United States, where they now reside, but many others will be attracted to the place also.

The Messrs. Drummond state that it is their intention to manufacture pig and castings for the Canadian trade, the market in the Maritime Provinces being an exceptionally good one and easily accessible from Acadia Mines. The new company will be incorporated at once.

PRODUCTION OF PIG IRON IN CANADA.—The American Iron and Steel Association has received direct from the manufacturers the statistics of the production of pig iron in Canada in the first six months of 1902. The figures show a slight increase as compared with the last half of 1901, but a very great increase as compared with the first half of that year.

In the first six months of 1902 the production of all kinds of pig iron in the whole of the Dominion amounted to 157,804 gross tons, as compared with 149,952 tons in the last half of 1901 and 95,024 tons in the first half of the year. The increase in the first half of 1902 over the last half of 1901 was 7,352 tons, or over 5 per cent., while the increase over the first half of 1901 was 62,780 tons, or over 66 per cent. Of the total production in the first half of 1902, 12,000 tons were Bessemer and low phosphorus and 57,209 tons were basic pig iron. The coke furnaces made 147,892 tons and the charcoal

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SHINGLES, CEILINGS,

SIDINGS, CORNICES

and every other Building Requisite in the very Highest Grade.

Send for our catalogue and read them up—we know that both quality and prices will be satisfactory. : : :

METALLIC ROOFING CO., LIMITED

WHOLESALE MANUFACTURERS

TORONTO

MONTREAL

WINNIPEG

furnaces 9,912 tons. Neither spioegeleisen nor ferromanganese has been made in Canada for several years.

The unsold iron held by Canadian pig iron manufacturers on June 30, 1902, none of which was intended for their own consumption, amounted to 37,721 gross tons, as compared with 59,472 tons on December 31, 1901, and 28,711 tons on June 30, 1901. Of the unsold iron on hand on June 30, 1902, less than 2,000 tons were made with charcoal, the remainder being coke iron.

On June 30, 1902, Canada had fourteen completed blast furnaces, of which eight were in blast and six were idle. Of this total nine were equipped to use coke for fuel, four to use charcoal, and one to use mixed charcoal and coke. In addition three coke and two charcoal furnaces were being built on June 30, 1902, but work upon two of the coke furnaces was temporarily suspended.

INDUSTRIAL PUBLICATIONS.

The Cassella Color Co., of New York, is sending out to its customers samples of its various coloring materials. These are arranged in handsome and convenient cases.

The Tanite Co., of Stroudsburg, Pa., is sending out matter descriptive of their emery wheels, together with numerous complimentary reports from users of their product.

The American Artizan's Manual of Business, just issued by Daniel Stern, of

Chicago, is a valuable publication of its kind, containing in its some 250 pages a vast amount of matter for the business man.

The monthly report of the Department of Trade and Commerce of Canada, for July, 1902, just issued, is made up of (1) statistical tables; (2) new tariffs; (3) tariff changes; (4) commercial agencies; (5) general commercial information.

The Burt Mfg. Co., Akron, Ohio, manufacturers of oil filters, have just issued a neat catalogue calling attention to their American oil filter and purifier. These filters are now in wide use in United States, Canada and other countries.

An ingenious card device, for displaying the colors of Dixon's Silica-Graphite paint in such manner as will permit of an exact idea of each color, is being issued by the Joseph Dixon Crucible Co., Jersey City, N.J. The color chart carries with it suggestions as to the class of construction that can be protected with this paint, also instructions as to best methods of applying protective paint. The new color chart can be secured by request to the Joseph Dixon Crucible Co., Jersey City, N.J.

The Canada General Electric Co. and the Canada Foundry Co. have adopted a handy method of supplying patrons with their catalogues. They have issued a neat black board binder, containing one catalogue and an invitation to those interested in any of the lines they manufacture to send in their names, indicating on a blank furnished for the purpose the lines

they are interested in. They will be placed on the mailing list, and future catalogues will be sent to them ready perforated for the binder.

The Montreal Business Men's League has issued a neat book descriptive of Montreal and its environments. It contains numerous illustrations and much valuable information concerning the city.

Captain John Swainson, who for many years was sailing master of the good journalistic ship the Marine Record, of Cleveland, Ohio, having disposed of his interest in that concern, has become the Cleveland manager of The Siren and Shipping, of New York. Every seafaring man on our great unsalted seas of the North is acquainted with Cap. Swainson, and all of them join with us in wishing him unlimited good fortune in his new venture.

The editor of the British and South African Export Gazette, "The Official Organ of the South African Mercantile Community," writes us that his journal is being removed into larger and more convenient premises at 38-35 Eastcheap street, London, E.C., England, to which address all communications should be hereafter directed. This is one of the most valuable South African journals that reaches this office.

The Aultman-Taylor Co., of Peoria, Ill., large manufacturers of farm machinery, are preparing to locate a branch plant in Ontario.

WHAT'S THE USE . . .

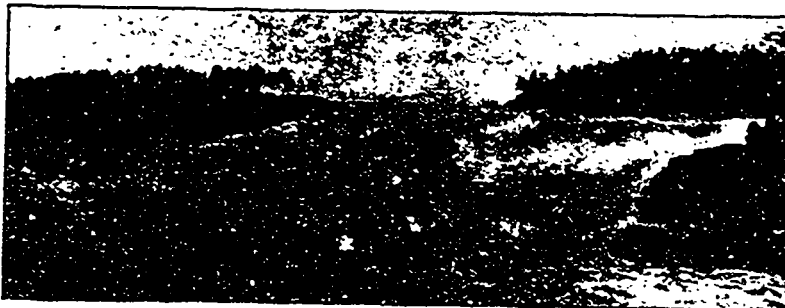
Of paying **HIGH PRICES** for **FAST CUTTING STEEL** if your machine will not stand the strain required to get results.

Our 20 and 26 inch. **ENGINE LATHES** have more power than any other, and we have the steel man beaten so far.

The R. McDougall Co., Limited, - Galt, Canada.

GREAT NORTHERN RAILWAY OF CANADA Offers Special Inducements to Manufacturers.

SPRUCE,
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BIRCH,
ELM
and
MAPLE.



IDEAL
PULP
and
SAWMILL
SITES.

100,000 Horse-Power Development.
J. G. SCOTT, General Manager, Quebec.

Shawinigan Falls, 140 feet High.

"More Picturesque than Niagara."
GUY TOMBS, General Freight and Pass. Agent, Quebec.

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MARKETS.

This Department of THE CANADIAN MANUFACTURER is devoted to the interests of the Hardware Trade.

THE CANADIAN MANUFACTURER is distributed to the Wholesale and Retail dealers in Hardware, to manufacturers of Agricultural Implements, of Iron and Wood-working Machinery, of Electrical Appliances, of Steam Engines and Boilers, to Engineers and Foundrymen, and to Dealers in Machinery and Steam Fitters' Supplies throughout Canada. There are more than 10,000 manufacturing concerns in Canada which use Steam as a Motive Power. We reach them all. Every recipient of this paper is a buyer of Hardware of one kind or another; and Advertisers will do well to bear this in mind.

Following are reports and observations relating to the markets of Canada and elsewhere, having reference to Hardware, Metals, Paints, Oils and such specialties as are usually handled by jobbers and dealers in such goods. Following these items will be found current market quotations on such goods, and the trade are requested to suggest to the publishers any improvements by which it is believed the quotations may be rendered as correct and valuable as possible.

TORONTO, October 3, 1902.

The general trade condition in Toronto and throughout the province is quite encouraging. During the past month a considerable increase in business along many lines was made, as compared with the previous month, and buyers are now coming into the markets for nearly all lines of metal products.

Some of the manufacturers are experiencing considerable difficulty in securing fuel, the coke shipments having been restricted owing to the anthracite strike. Most of the manufacturers have a fair supply of soft coal for steaming purposes, and about the only effect of the coal strike to Canadian industries is that of increasing the prices of soft coal and coke. However many concerns are not affected in this way as they had made contracts for their fuel supply early in the year and before the anthracite strike was declared.

The following Toronto prices are quoted:

Bar Iron—Common, \$1.95 to \$2.05 per 100 pounds.

Black Sheets—8 to 16 gauge, \$2.40; 26 gauge, \$2.50; 28 gauge, \$3.15 per 100 pounds.

Brass—Sheet and rod, discount 15 per cent.

Canada Plates—All dull, \$2.90 to \$3 per box; half-polished, \$3 to \$3.10; and all bright, \$3.75 to \$3.85.

Galvanized Iron—No. 28, Queen's Head, \$4.40; Appollo, 10½ ounces, \$4.40 and Comet, \$4.25, with 25c extra in less than case lots.

Tinplates—\$4.25 for coke; \$4.75 to \$5.25 for charcoal.

Tool Steel—Black Diamond, 8c, Jessops, 13c a pound.

Steel—Sleighshoe, \$2.20, tire, \$2.30, spring, \$3; reeled machinery, \$2.85, and toe calk, \$2.90.

Iron Pipe—Black pipe, ½, \$2.40 per 100 feet; ¾, \$2.65; 1, \$3; 1½, \$3.70; 1 inch, \$5.25; 1¼, \$7.40; 1½, \$8.90; 2 inches, \$12.40; galvanized, ½, \$4; ¾, \$5.05; 1 inch, \$7.25; 1¼, \$10.10; 1½, \$12.15; 2 inches, \$16.70.

Galvanized Wire—Nos. 6, 7 and 8 gauge, \$3.45; No. 9, \$2.80; No. 10, \$3.55; No. 11, \$3.65; No. 12, \$2.95; No. 13, \$3.05; No. 14, \$4.05; No. 15, \$4.55; No. 16, \$4.80; No. 17, \$5.20; No. 18, \$5.45.

Barbed Wire—\$2.77½ to \$3 per 100 pounds.

Coil Chain—No. 6, 12½c.; No. 5, 10½c.;

No. 4, 10c.; No. 3, 9½c.; ¼-in., 7½c. per lb.; 5-16, \$5.05; 3-5, \$4.40; 7-16, \$4.20; ½, \$4; 9-16, \$3.95; ¼, \$3.70; ¾, \$3.65; ⅞, \$3.65; 1, \$3.65. In carload lots an allowance of 10c. is made.

Sheet Zinc—In cask lots \$5.50; in less, \$5.75.

Smooth Steel Wire—Bright iron and annealed on a base of \$2.60 per 100 lbs., f.o.b., Montreal, Toronto, Halifax, London, Hamilton and St. John. Net extras per 100 lbs. are as follows: Coppered

wire, 60c.; tinned wire \$2; oiling, 10c.; spring wire, \$1.25; best steel wire, 75c.; bright, soft drawn, 15c.; special hay-baling wire, 30c.

Brass and Copper Wire—Discount 62½ per cent.

Fence Staples—Bright staples sell for \$2.90 per 100 lbs. keg, and galvanized at \$3.25, with an extra of 25c. for 25 and 50 lb. packages.

Bolts and Nuts—Carriage bolts, common, \$1 list 50 per cent.; carriage bolts, full square, \$2.40 list, 55 and 10 per cent.; carriage bolts, Norway iron, \$3 list, 55 and 10 per cent.; machine bolts, all sizes, 50 and 10 per cent., coach screws, 66½ and 10 per cent.

Cement—Canadian Portland, \$2.40 to \$3; Canadian hydraulic cements, \$1.35 and upwards.

Cut Nails—\$2.37½ to \$2.45.

Rope—Pure Manila, 15c.; sisal, 12½c.; British Manila, 13c.; lath yarn, 11½c. to 12c.

Rivets and Burrs—Iron rivets, 60 and 10 per cent.; iron burrs, 55 per cent.; copper burrs, 30 and 10 per cent.; copper rivets and burrs, 45.

Smooth Steel Wire—Base price, \$2.60 per 100 lbs; fine steel wire 25 per cent.

Spades and Shovels—40 and 5 per cent.

Wire Nails—Base price, \$2.50 to \$2.55.

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TAR PRODUCTS. Refined Tar, Benzole, Solvent Naptha.

PITCH. Carbolic Acid (Crude and Crystal), Picric and Crocylic Acids.
CREOSOTE. Green Oil, Pyridine.

NAPHTHALINE (CRUDE, PRESSED, CRYSTAL, SUBLIMED, MARBLES.) **CYANIDES.** PRUSSIAN OF POTASH AND SODA, PRUSSIAN BLUE.

AMMONIA (SULPHATE, NITRATE, LIQUID, MURIATE, ANHYDROUS, CARBONATE.)

Chemicals. Sulphate of Copper. Chlorates of Potash and Soda. Calcium Carbide. Acetate of Soda. Wood Naptha. Acetone, Bichromates.
CHEMICAL MANURES.

ALEX. GARTSHORE, President. J. G. ALLAN, Sec.-Treas. JAR. THOMSON, Vice-Pres. and Gen. Mngr.

GARTSHORE-THOMSON-PIPE & FOUNDRY CO.
Limited



For Water, Gas, Culverts and Sewers

Special Castings and all kinds of

3 in. to 60 in. diameter.
FLEXIBLE AND FLANGE PIPE.

WATER WORKS SUPPLIES

HAMILTON, ONT.

Screws—Flat head, bright, 87½ and 10 per cent. off the list; round head, bright, 82½ and 10 per cent.; round head, bronze, 75 and 10 per cent.; flat head, bronze, 70 per cent.; round head, bronze, 65 per cent.

Glass—Star, box 50 feet, under 26 inches. \$2.10; 26 to 40 in., \$2.40; box, 100 feet, under 26 in., \$4.45; 25 to 40 in., \$4.65; 41 to 50 in., \$5.10; 51 to 60 in., \$5.35; 61 to 70 in., \$5.75; 71 to 80 in., \$6.25; 81 to 85 in., \$7; 86 to 90 in., \$7.75. Double diamond—Box 100 feet, under 26 in., \$6.25; 26 to 40 in., \$6.75; 41 to 50 in., \$7.50; 51 to 60 in., \$8.50; 61 to 70 in., \$9.75; 71 to 80 in., \$11; 81 to 85 in., \$12.50; 86 to 90 in., \$15; 91 to 95 in., \$17.50; 96 to 100 in., \$19.50; 101 to 105 in., \$24; 106 to 110 in., \$27.50. Terms, 4 months, or 3 per cent. off cash 30 days. Discount from pane price list, 33½ per cent.

Green Wire Cloth—\$1.37½ per 100 square feet.

Harvest Tools—60 per cent. to 60, 10 and 5.

Horse Nails—"C" brand, oval, 40, 10 and 7½ per cent.; "M" brand, 50, 10 and 5 per cent. off; countersunk, 60 per cent.

Horseshoes—No. 2 iron shoes, light, medium and heavy, \$3.45 f.o.b.; snowshoes, \$3.70.

BUFFALO PIG IRON MARKET.—Office of Rogers, Brown & Co., Buffalo, N.Y., October 1, 1902.

The condition of the local iron market seems to be a little easier owing to the

imported, irons which most foundries have been forced to purchase, delivery of which is now being made. We are in receipt this week, however, of enquiries for domestic irons for delivery during the first half of next year which aggregate quite a large tonnage; and in some instances buyers seem to want to secure irons which they know to be satisfactory for delivery throughout 1903.

It appears more evident that the choice domestic brands which are popular in this district are largely bought up until at least July 1, 1903.

Interest among foundrymen seems more keen in regard to coke than over deliveries of iron, now that they can secure reasonably prompt deliveries on imported brands. It is almost impossible to obtain sufficient fuel, and enquiries for coke to supplement present contracts develop the fact that there is little to be obtained, and that little is held at prices which seem high when compared with old contracts, but which really are conservative when the demand is taken into account.

We quote below on the cash basis, f.o.b. cars Buffalo:

- No. 1. Strong foundry coke iron, Lake Superior ore..... \$25.75
- No. 2. Strong foundry coke iron, Lake Superior ore..... \$25.25

BRITISH PIG IRON MARKETS.—Messrs. William Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of September 17, 1902, quote as follows:

Since writing you last the market con-

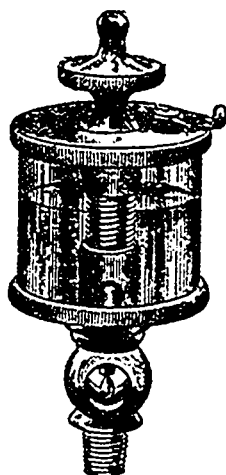
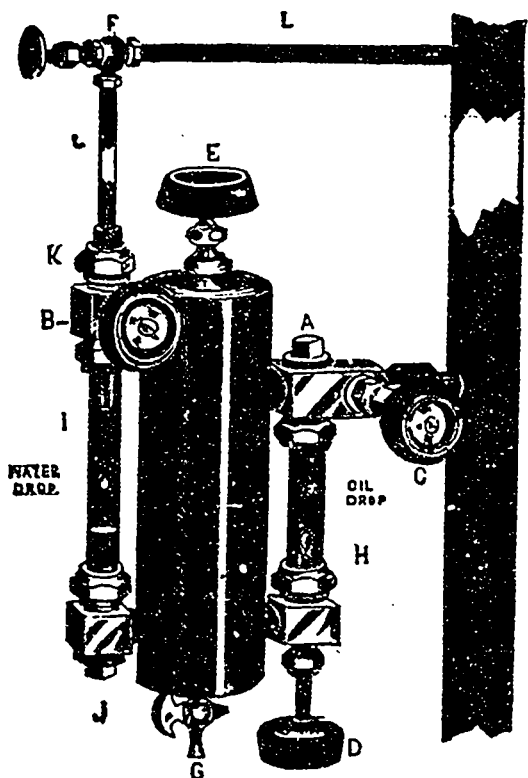
tinues strong owing to the support received from the States by large orders for all classes of iron.

To-day's prices are:—No. 1 Gartsherrie, 66/6 per ton, f.o.b. Glasgow. No. 3 Gartsherrie, 59/9 per ton, f.o.b. Glasgow. Nos. 1, 2 3 Cumberland Hematite, 69/- per ton, f.o.b. Liverpool. Special analysis, 73/6 per ton f.o.b. Liverpool. Refined D. T. N. Hematite in small pigs, 87/-, per ton, f.o.b. Liverpool.

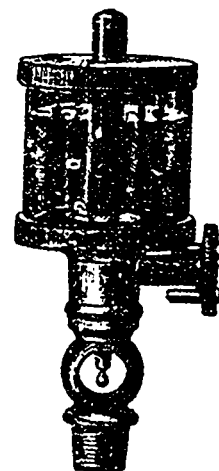
CANADIAN MINING INSTITUTE.—The annual convention of the Canadian Mining Institute was held at Nelson, B.C., the second week in September, with the following members present: Messrs. Edmund B. Kirby, Bernard Macdonald, W. Thompson, A. Sharp, Rossland; J. McEvoy, J. H. Tonkin, Fernie; A. C. Garde, Sanden; G. W. Chaplain, St. Catharines, Ont.; E. E. D. Wilson, Kingston, Ont.; H. C. Black, A. H. Gracey, R. Headley, H. Harris, N. Carmichael, H. E. Croasdaile, E. R. Woakes, S. S. Fowler, G. R. Driscoll and Leslie Hill, Nelson, B.C.

ONTARIO'S MINERAL PRODUCTION.—During the past six months there has been an extraordinary increase in the production of metalliferous mines and of metal products in Ontario. The figures for the first half of 1902, just issued show that the product was valued at \$2,902,722, as compared with \$1,438,538 in the first half of 1901. The increases are chiefly in nickel, copper and iron. The nickel product increased \$891,256; copper,

Sight Feed LUBRICATORS



And



Engine Glass Oilers

OF EVERY DESCRIPTION.

Hamilton Brass Mfg. Co. Limited

HAMILTON, ONT.

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\$164,771; iron ore, \$223,680; and pig iron, \$180,436. The increases were largely the result of the operations of the Clergue syndicate.

CANADIAN FLOUR FOR SOUTH AFRICA.
—Heavy shipments of Canadian flour to South Africa will soon be made from Montreal. The first steamer of the new service, the Ontarian, which sails on October 10, will carry 1,500 tons, and a month later the steamer Melville will carry double that quantity. The greater proportion of the flour is to fill orders.

COPPER.—In London spot copper opened easy yesterday at £52 3s. 9d., futures at £52 6s. 3d., and after sales of 200 tons spot and 200 tons of futures, closed quiet at £52 2s. 6d. for spot, and £52 5s. for futures, making price as compared with Friday 6s. 3d. lower on spot and 6s. 3d. lower on futures.

The New York market presents no new features, consuming demand continues dull, aside from what may or may not be considered supporting orders for electrolytic copper at about 11.50 cents speculative interest is entirely lacking, while but little if any pressure to sell the metal on the part of large producing interests is apparent, it is a well known fact that consumption is considerably below the highwater mark of the first half of the year, that at least two large producers of lake and one of electrolytic copper have made but very moderate sales during the past 90 days and from one of such interests at least a change in such policy may be expected at any moment. According to the statistics of the New York Metal Exchange, United States stocks on September 1 were 110,780 tons, the increase during August being 5,821 tons. It is interesting to note the constantly increasing factor of imports which were of sufficient volume during August to reduce our net exports to about 4,500 tons, while September figures promise to show less than 4,000 tons during that month.

Consuming buyers report that they are offered electrolytic at 11.65 to 11.75 delivered. Casting at 11.60 to 11.75 delivered and lake a 11.80.

NEW COAL FIELDS.—Coal has been found at Baddeck, C.B., which is as hard as anthracite and burns with a little gas. It is reported that steps are being taken looking to the development of these areas.

CANADIAN GRAIN SHIPMENTS.—The Canada Atlantic steamer Ottawa has begun loading grain at Port Arthur for Depot Harbor. Her capacity is about 110,000 bushels. Some Canadian grain has already been brought this season from Fort William and Port Arthur to Buffalo and a good deal has been brought into Eastern Canada for milling purposes, but this will be the first of the new crop moved altogether through Canadian channels and intended for export.

PAINTS, OILS, LEADS AND GLASS.—Turpentine has advanced 2c. at 70c. Other lines are steady and trade continues active.

“SCIOTO” FIRE BRICKS

are the best. WHY NOT USE THEM?

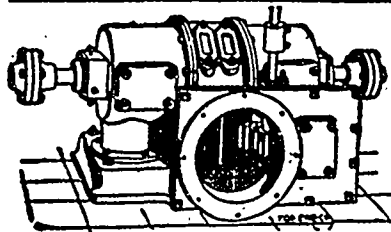
More extensively imported into Canada than any others made in the United States. One million now sold for Spring delivery to Ontario. Special inducements. Write to-day.

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THE SCIOTO FIRE BRICK COMPANY, - Sciotoville, Ohio, U.S.A.

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Canadian Representative: **STANYON ENGINEERING CO.,** 402 McKinnon Bldg., Toronto, Ont.



Horizontal Type.

Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings.
Catalogue and Gear List mailed on application.

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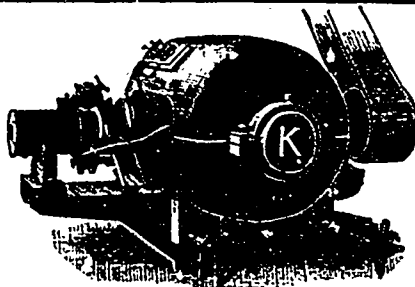
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HORIZONTAL AND VERTICAL.
BUILT IN 44 SIZES.

We guarantee a higher percentage of power from water used than any other wheel on the market.

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J. C. WILSON & CO., - - GLENORA, ONT.



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THE KAY ELECTRIC DYNAMO & MOTOR COMPANY, Limited

219-221 Queen St. East,
Manufacturers of — TORONTO, ONT.

MULTI-POLAR MOTORS.

BI-POLE MOTORS

ALTERNATING CURRENT MOTORS.

INDUCTION MOTORS.

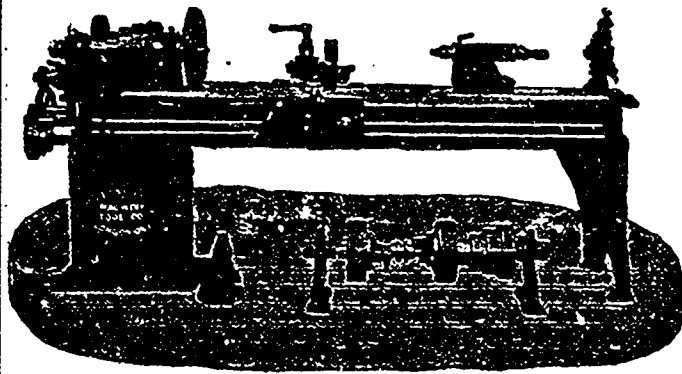
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DYNAMOS for Electro-plating and Electrotyping.

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ELECTRIC ORGAN BLOWERS.

The London Machine Tool Co., LONDON, ONT.



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Aniline Colors, *Manufacturers of*
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A Few Extracts from Letters from British Consuls, etc.

"I have to thank you very heartily for the copy of your Directory for 1901. I have always found it most valuable in supplying reliable information in answer to inquiries."—*H.B.M.'s Consul at Asuncion, Paraguay, Aug. 20th, 1901.*

"I am directed to thank you for the book and to express the opinion of this Consul that the work is one which cannot fail to be very useful to the commercial community."—*The Secretary of the Chamber of Commerce of Georgetown, Demerara, Aug. 12th, 1901.*

"I consider your Directory a most useful publication. Consuls are inundated with inquiries, which a reference to your work would have answered at once, and manufacturers would effect a large economy in wasted clerical work, postage and advertising, by purchasing the Directory."—*H.B.M.'s Consul at Amoy.*

"As a work of reference I consider it to be most useful. By keeping it up-to-date you are improving it in the best possible manner."—*H.B.M.'s Consul at Para.*

"I have to thank you for the two volumes of your work, which are very acceptable, as containing much useful information."—*H.B.M.'s Consul at Callao.*

"I beg to thank you for the copy of your Merchants Directory, which is a most useful work, and one to which I am constantly referring business people who send inquiries to this Consulate for the names and addresses of houses connected with different trades."—*H.B.M.'s Consul at Cadix.*

"I have the last copy of the Directory—a most useful work, but which I think is not consulted by exporters as much as it deserves to be, as I am constantly receiving letters asking for information which could be obtained from its pages."—*H.B.M.'s Vice-Consul at Paysandu.*

"I beg to inform you that I shall be very pleased to offer you every assistance in my power to facilitate your very interesting work for the benefit of commerce and industry."—*H.B.M.'s Consul at Jaffa.*

"I have duly received your valuable and useful Directory of Merchants, Manufacturers and Shippers for 1899, and beg to express my best thanks for same."—*British Vice-Consul, Spezia (Italy)*

"I am constantly receiving letters of enquiry for information that in most cases could be obtained in your Directory."—*British Consulate, Uruguay.*
"The only book consulted is Kelly's Directory."—*From British Consular Return, Riga.*

"Many of these inquiries would have been rendered superfluous by a reference to Kelly's Directory."—*Report from British Consul, Genoa.*

"The Directory has been of the greatest service to me in my former Consular posts, and will, I believe, be doubly useful here."—*B. C. Chicago*

"We beg to express our appreciation of the thorough and exhaustive character of the Directory, which covers exactly the fields we desire to reach."—*Messrs. H. M. Anthony Co., New York.*

"The copy of Kelly's Directory has already been of great use to me."—*B. V. C. Thorsham.*

"It is a Directory which is very often consulted by the Merchants of our town."—*B. V. C. Dedegatch, Turkey.*

"Your Directory was useful to me and the merchants in general."—*British Consular Agent, Tetuan.*

Linseed oil producers in Canada report that the percentage of oil obtained from the seed is smaller than usual. The effect has been to impart a rather better tone to home market, and it is now thought by the wholesale trade that the anticipated reduction will possibly be averted.

Meanwhile the market in the United States continues weak and unsettled, and raw oil sold in Chicago last week all the way from 50 to 60c. a gallon. Buyers there are taking small quantities only. They are reported to be waiting for new crop and settled markets, and are expecting to get their supply 40c. or less.

The foreign seed market in the United States has become stagnant. Crushers are well supplied with domestic, and with the prospects of a very good crop in the North-West, there is little chance of any radical change in the situation this season.

Recent advices from Kustendje, Roumania, say that the crop in that country promises to be a very fine one, being expected to yield 27,000 tons. Kustendje is a new factor in flaxseed, and the seed from there is shipped before American flax begins to move.

OILS AND PUTTY.—Turpentine, 70c. per gallon, linseed oil, raw 75c, boiled 78c; Newfoundland pure prime cod, 32c; castor oil, 8 to 10c; putty, in bulk, bbls., \$1.90; in bladders, per 100 lbs., in barrels, \$2.25; bladders, in boxes, \$2.40; tins, \$2.25 to \$2.65.

GLASS.—First break, per 50 feet, \$2.10; second break, per 50 feet, \$2.20; per 100 feet, third break, \$4.70; fourth break, \$4.95; fifth break, \$5.20; sixth break, \$5.70; seventh break, \$6.20.

LEADS AND PAINTS.—White lead, Government standard, \$5 to \$5.25; exterior, \$4.75; No. 1 grade, \$4.65; No. 2 grade, \$4.50; red lead, pure in casks, \$4.50; in kegs, \$4.75; No. 1 in casks, \$4.25; in kegs, \$4.50; pure mixed paints, \$1.20 gal.

THE CAPE TOWN EXHIBITION.—Mr. J. G. Jardine, Canadian commercial agent at Cape Town, has sent a communication to the Dominion Government relating to the Colonial Industrial Exhibition to be held in Cape Town, commencing in November, 1903. He says: The time fixed for the holding of this exhibition is certainly opportune for Canadian manufacturers desirous of doing business in this country, giving them ample time to prepare a suitable commercial exhibit, which ought to embrace samples of the forest wealth of Canada, and industries, all description of Canadian goods, dairy and food products, apples, agricultural implements, furniture, boots and shoes, leather trunks and valises, cotton and woolen textures, locomotives and traction engines, carriages, stoves and heating apparatus, tin and enamelled ware, axes and mechanics' tools, and musical instruments, including organs.

A very full account of this exhibition was published in THE CANADIAN MANUFACTURER of July 4, the same having been sent to us by A. P. Baker, Esq., the

manager; and again in our issue of August 15 further information was given, derived from the same source.

IMPORTS INTO THE TRANSVAAL.—The value of the imports into the Transvaal during the five months ending May last was £3,478,165, as compared with £860,206 in the corresponding period of last year. The customs revenue in the first five months of the present year amounted to £431,668, against £128,410 in the corresponding period of 1901.

CANADA IN HARDWARE COMBINE.—Mr. C. D. Gates, president and general manager of the Turner, Day & Woolworth Handle Co., Louisville, Ky., is with New York capitalists, promoting a \$25,000,000 trust to take in all the axe factories, handle factories, and grindstone factories in the United States and Canada, the plants to be operated under one management.

OLD RUBBER.—In New York this material is quoted as follows:

Old rubber boots and shoes, \$7.25; pneumatic bicycle tires, \$5.37½; solid rubber wagon and carriage tires, \$6.75; white trimmed rubber, \$9; heavy black rubber, \$4.25; steam, fire and air brake hose, \$2; garden hose, \$1.25; matting, \$1.05; inner bicycle tubes, trimmed free of cloth and metal, \$25; red rubber, free of red packing, \$7.

A NEW CANADIAN STEAMSHIP CO.—The Canadian Lake and Ocean Navigation Co., recently organized in Toronto, has bought five large steamships from an English company, in which Mr. Wm. Petersen, the well-known shipping man, is interested. Three of the five steamers are to be put on the Upper Lakes, and engage in this falls grain-carrying trade if possible. They have a grain-carrying capacity of about 110,000 bushels each, and the engines and other equipment are of sufficient strength to admit of the boats being lengthened some 90 feet, which may be done after one or two seasons' operations. The other two are

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ocean steamships, of capacity of 3,800 gross tonnage. The organizers of the company believe in the feasibility of the project, and expect a profitable business. The feeling which has largely actuated the movement is that Canada should be a much more important factor in the transportation of her own grain than she has been. The present capital stock is \$950,000. The Board of Directors consists of A. E. Ames, Z. A. Lash, Col. H. M. Pellatt, Frederic Nicholls, J. H. Plummer, E. R. Wood and Wm. Petersen. Mr. Ames is president of the company, and Mr. Plummer and Col. Pellatt, vice-presidents, while Mr. Petersen, who intends moving to Canada, will probably be general manager.

OLD METALS.—Old metal prices in New York are as follows:

No. 1 yard wrought scrap, \$19.50; light iron, \$11, wrought pipes and tubes, \$14; old horse shoes, \$20; wrought iron and steel turnings, \$14; cast iron borings, \$8; heavy steel scrap, four feet long and under, \$18; burnt iron, \$10.50; boiler iron, ½ inch thick and over, \$18; steel rails, tees for re-rolling, \$22; steel rails, tees and girders, scrap, \$19; iron T rails, standard sections, \$21; No. 1 machinery cast scrap iron, \$19; stove plate, \$18; No. 1 wrought railroad scrap iron, \$22.50; old car wheels, \$18.50; heavy cut copper, \$10.25; copper wire, \$10; light copper, \$9.25; heavy machine composition, \$10.25; heavy brass, \$7; light brass, \$6.50; No. 1 yellow brass turnings, \$7; No. 1 composition turnings, \$9, heavy lead, \$3.85, tea lead, \$3.75; zinc scrap, \$3.75; No. 1 pewter, \$20; block pin pipe, \$25; aluminum scrap, \$20 to \$24; zinc dross, \$3.15.

SPELTER.—The London market closed yesterday at £19 making price as compared with yesterday unchanged.

The New York-spelter market shows no signs of weakening. It is reported that offers of 5.25 for any delivery this year have been declined in St. Louis.

CANADIAN EXHIBITS FOR JAPAN.—Mr. W. M. Henderson, Dominion Exhibition Commissioner, was in Toronto a few days ago making preliminary arrangements for the Dominion exhibit for the exhibition at Osaka, Japan, which will open the first of March next, and will remain open during the summer. The Canadian exhibit will consist largely of food products, the available space for manufactured goods being quite limited. The commissioner has the co-operation of the Canadian Manufacturers' Association, which is lending its assistance to make the Canadian exhibit as representative as possible.

NEW MAP OF CANADA.—The latest and most complete map of the Dominion of Canada is now being distributed by the Department of the Interior. It is engraved on copper, and printed on stone in eight colors, and is being distributed to the principal schools and colleges in Canada, Boards of Trade, Y.M.C.A.'s, Provincial Governments and elsewhere. Copies are also being sent to

such foreign Governments as exchange with Canada. Heretofore there has been no complete map of Canada in existence, and Geographer James White and his staff have been engaged for nearly three years in the preparation of the new one, which has only been out of the hands of the printers for a few days.

SCARCITY OF COKE.—The scarcity of coke is still the most prominent feature in the iron situation. It is reported from Pittsburg that a meeting of the railroad and blast furnace interests was held with a view to devising means for overcoming the coke shortage. As a result of the meeting the railroad officials are said to have agreed to give coke the right of way over other freight, and this, it is hoped, will soon relieve the situation. However, at the end of last week a dozen blast furnaces in the valley were reported to be banked or running short. According to a Pittsburg report, the extreme scarcity of Bessemer pig iron had led to talk of importing a large block of foreign; but it is thought that it is hardly likely this will be done,

as it might have the effect of depressing the market. Bessemer iron for prompt delivery has sold as high as \$22 at the furnace, and is offered for 1903 delivery at about \$21. In the east and south the continuance of the coal strike is further curtailing production, and were it not for the readiness with which imported material can be obtained, melters in this section would be in a bad way. Not only is it impossible to get deliveries long overdue, but they can find no domestic iron in the open market, or if they do find little lots, are compelled to pay extravagant prices for it.

THE FARMERS' ASSOCIATION.—There was a very fair attendance of the farmers of Ontario at a meeting held in Toronto, September 9, at which was organized the Farmers' Association.

The objects of the organization are best explained by the following resolution, moved by Mr. L. E. Annis, Scarboro', seconded by Mr. J. Stratford, Brantford, Ont., and passed.—“That, while deeming it inadvisable to establish a political party, we believe it is for the welfare of

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the country that there should be an organization ready to bring its influence to bear to secure and promote the interests of the farmer in matters of legislation and otherwise, we now proceed to establish such an organization."

The following resolution was moved by Mr. F. Hunt, Middlemarch, Ont., seconded by Mr. D. D. Rogers, ex-M.P., Kingston, Ont., was discussed at length and finally dropped, the meeting deciding that for the present organization was the paramount question: "That this meeting enters its protest against any increase in the tariff, and declares that a tariff for revenue only is best calculated to advance the general interests of Canada."

Mr. Hunt, speaking to the tariff resolution, said that in the old days when the Barons wanted to add to their wealth they armed their retainers, went out and took it by force. People were being robbed to-day, but in a different manner. The Barons loaded the newspapers, loaded the politicians, and once in a while, as had been noticed lately, loaded up a member of the Government. They went down to Ottawa to get Parliament to pass laws to rob the people. There had been every indication lately that the Barons—the manufacturers—who were growing rich under the present tariff, were marshalling their forces to have it raised in order that they might collect more money from the farmers and mechanics. The farmers had no protection; their market was Great Britain, and there they had to meet the competition of the world. It was certain that one of the greatest raids ever made

on Parliament would be made next session, and the farmers should be ready to check it.

CANADIAN-AUSTRALIAN CABLE.—By Christmas people in Great Britain will be able to send their holiday greetings to their kith and kin at the Antipodes—to the Australian and New Zealand colonies, and vice versa," is the important announcement made by Mr. James Kent, manager of the C.P.R. telegraphs. Mr. R. E. Peake, the electrician of the Canadian-Australian cable, will proceed at once to the coast to superintend the landing of the cable at Bamfield, B.C., on Vancouver Island. This section of over 3,000 nautical miles from Fanning Island will then be completed. The cable steamer *Colonia* left London on August 5, via the Suez Canal, with the balance of the unladen sections, and it is hoped to have the Canadian end landed at Bamfield by the time the *Colonia* arrives. The connection from Brisbane, via Suva, has been completed and is now in operation. The cable steamer *Anglia*, laid the section from Brisbane to Norfolk Island, from which point the deep sea cable was stretched in the ocean bed to New Zealand, thence to Suva, Fiji. The *Colonia* brings about 4,000 miles of cable and at once commences paying out to Fanning Island, where the other end will be brought by the *Anglia*. The total length of the cable is 8,000 nautical miles, allowing 10 per cent. for slack.

All the receiving and sending instruments have arrived. The messages will be received on the instrument invented by

Lord Kelvin, which is the most sensitive in the world. The duplex system of Dr. A. Muirhead, by which two messages, one from each end pass through the wire at once, will be employed on the southern section at least. Two repairing ships will be maintained constantly in commission, as there is fear of damage by earthquakes on landships in the vicinity of Fiji. One stationed at the Canadian end and the other near Fiji. The Canadian Pacific telegraphs will handle the business from the Atlantic to the Pacific.

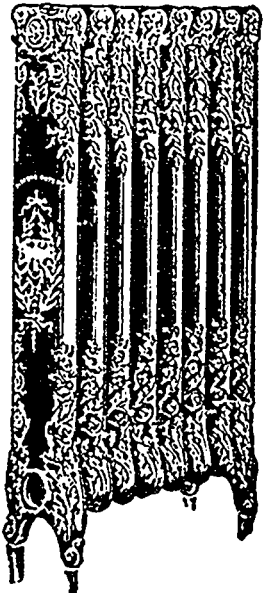
A CENTURY OF COPPER.—The following is from Treadwell's regarding copper.

The Nineteenth Century was an age of iron because it was an age of steam. The Twentieth Century is likely to be an age of copper because it will be a century of electrical development.

Long before the close of the century—great progress will be made in the first decade of it—railroads of all kinds will use electric instead of steam motors, the storage battery will be perfected so as to permit its universal employment in highway traffic, the waterfalls of the world will be harnessed to the world's factories, and electricity will be the universal motive power.

The amount of copper required to accomplish this will be almost beyond computation. No other metal can take its place, either as an electrical conductor or as a universal alloy.

The world will get its copper, as it now gets its iron, where it can get it cheapest, but there is iron everywhere, while copper is found only in few places in the world.



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AUSTRALIAN MARKETS.—A report from Mr. J. S. Larke to the Department of Trade and Commerce, dated August 30, states that Canadian trade with New Zealand shows a slight improvement in both imports and exports for 1901. The trade of New South Wales for the same year shows an increase over the previous year of nearly £30,000. Mr. Larke furnishes evidence of the splendid business now being done by Canadian manufacturers. He says. "In many instances the demand of the home market has prevented catering for exports. A few months ago a Canadian firm wrote me that it desired to obtain business from Australia. Arrangements were made to this end, and a first order was sent. It was not very large, but the last mail brought the information that the firm was sorry, but that it was too busy to execute the order. At no time apparently have the factories of Canada been so pressed to their capacity as at the present time. Australian agents who have recently returned from Canada have not succeeded in making many arrangements for business, and some of them were altogether unsuccessful. In some cases price and quality stood in the way of securing Australian trade. In a few cases bad methods of business and bad packing of goods interfered with success." Mr. Larke again emphasizes the fact that Canadian manufacturers are

slow in replying to letters of inquiry, and pay too little attention to the marketing of goods. It is necessary not only to have goods that will suit the market and transport them in good condition and at the cheapest rates, but also to have suitable and effective means of selling them. If there is one thing made clear by past experience it is that Canadians must do their own business.

SUGAR AND WHISKEY.—The formation of the Federal Sugar Refining Co., by Mr. Claus A. Spreckels, of New York, with a capital of \$6,000,000, is watched in Montreal with the greatest interest. Since it was announced that the Canada Company was going into the distilling business, the commercial world has been waiting to see what action the distillers would take. The distillers are an aggressive combination, and no one thought for an instant that they would calmly consent to the entrance of a rival into their peculiar line of industrial activity. Therefore, when it was announced that a new company, with six million dollars capital, and a new and economical process of refining, was being organized under the name of the Federal Sugar Refining Co., it was looked upon either as an answer to the distilling programme of the Canada Sugar Refining Co., or a most remarkable coincidence. Mr. W. W. Watson, secretary of the

Canada Sugar Refining Co., according to The Globe, states that there is no truth whatever in the report that young Mr. Spreckels is negotiating for the purchase of that company. At the same time some of the sugar men are of the opinion that the new sugar company is being organized for the purpose of absorbing all the refineries of Canada. They say that six million dollars is a large enough capitalization for this purpose, that it is too large for a single refining company, which would seek its dividends in the comparatively limited Canadian market, in competition with the existing refining companies. The distillers are not the men to countenance the slightest invasion of their preserve. Since the formation of their combine it has been attempted a dozen times. But the distillers have been on the alert, and any enterprises which were not stifled in the beginning were closed up before the stills could be put into operation. The latest example of this was at Beaubarnois, where a distillery that was all ready for work a year ago has never been put into operation. The result of the method of the distillers is that the only concerns operating to-day are those which originally went into the combine. The successful competition of the Canada Sugar Refining Co. in the production of alcohol would apparently be welcomed by the commercial men of the Dominion, and

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the company would get plenty of support from the consumers if it succeeded in lowering prices. The Manufacturers' Association apparently thinks the distillers have too much protection. The opinion of the association was expressed in a resolution passed at the recent annual meeting of the body in Halifax, N.S., as follows: "Resolved, that it is desirable that the Government of Canada investigate the position of alcohol presently existing, and in relation to its use in the arts and manufactures, with a view of ameliorating the effect of monopoly in its production; the application, if necessary, of the combine section of the tariff law and the reduction of customs duty. That legislation be enacted making alcohol free for the arts and manufactures, under judicious regulations, and to the end that Canadians may participate, and that Canada may become a factor in the world's industry in the manufacture of chemicals and pharmaceutical preparations wherein alcohol is the base or an important constituent." The present excise law is entirely in favor of the members of the combine. In fact, it is the law and the capital at the disposal of the combine which have enabled it to be the success it is. The law requires that spirits must be kept for two years before being put on the market for drinking purposes. This prevents a new distilling company from entering upon the profitable feature of the liquor business until two years after the operation of distilling has been actually begun. The combine, with the assistance of the law, has therefore kept the market to itself and controlled the output of the market to its own advantage, and, in the opinion of the Manufacturers' Association, to the disadvantage of the country. The Canada Sugar Refining Co., by making spirits of

its waste products, its molasses, syrups, and even of its low-grade sugars, would be easily able to go into the distilling business in competition with the trust.

CANADA AT THE ST. LOUIS EXPOSITION.—The Dominion will not only have a special pavilion of its own at the St. Louis Exposition, but also will be represented in the principal departments. The exhibits from this country will be representative of agriculture, horticulture, mines and minerals, forestry, live stock and manufactures. Canada's pavilion will be a rendezvous for Canadian visitors, and will be tastefully decorated with trophies made up of fruits, cereals and grasses.

Hon. Sydney Fisher attended the allotment of sites for the special buildings erected at the St. Louis exposition, which took place with considerable ceremony from September 30 to October 2. The Minister is unable to be present, but Mr. William Hutchison, Commissioner of Exhibitions, attended on behalf of Canada. The formal dedication of the grounds and buildings at St. Louis will take place on April 30, 1903, and the Exposition will be opened a month later.

INSTRUCTIONS FOR EXPORTERS.—The Customs Department at Ottawa has issued for the instruction of exporters to Canada a summary of the customs, laws and regulations of Canada in regard to the shipment and dutiable value of imported goods and the certifying of invoices. These will be distributed in the United States, whence the trouble from non-compliance with the regulations chiefly arises. Mr. McDougald says that goods from Europe are usually packed and marked according to requirements, but in the majority of instances

American exporters are very careless in this respect. They usually neglect to number the different packages in a case, so that they may be identified from the invoice without opening them, and the result is no end of worry to the examining officers, who often have to open every package to determine its contents. The Canadian regulations in respect of marking are similar to those of the United States, but as their large internal trade does not require any such precautions, American exporters get into this habit of shipping goods to foreign countries also without special marking.

CANADIAN TOBACCO.—The Department of Agriculture will make a strong effort to introduce Canadian tobacco on the European market. Early this year Blaise Dugas, a well-known grower, of Quebec, was appointed to select and pack seven cases of the tobacco produced in the province, to be sent to Antwerp for submission to the merchants there. Mr. Dugas will visit Antwerp and will learn not only how Quebec tobacco suits the European taste, but also in what manner it can be improved. He will be absent six weeks and will report to the Government upon his return.

LAKE SUPERIOR IRON ORE.—Advices from Duluth say that shipments of iron ore from Minnesota this year up to September 1, show the enormous gain of 3,011,549 gross tons over shipments to the same date last year. The record for this state is likely to be upwards of 14,000,000 tons for this season, as compared with 10,769,376 tons in 1891. The total forwarded to September 1 is 9,843,048 gross tons, as compared with 6,832,499 gross tons on the same date a year ago.

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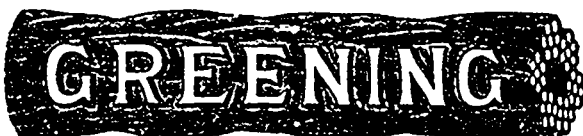
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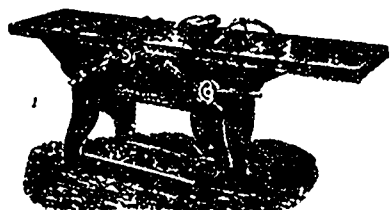
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Wallace, J., & Son, Hamilton, Ont.

Air Compressors
American Steam Pump Co., Battle Creek, Mich.
Canadian Rand Drill Co., Sherbrooke, Que.
Cooper, James, Mfg. Co., Montreal.
Jonckes Machine Co., Sherbrooke, Que.

Aluminum
Syracuse Smelting Works, Montreal.

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

Antimony
Syracuse Smelting Works, Montreal.

Axles
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Babbit Metal
Syracuse Smelting Works, Montreal.
Tallman, J. N., & Sons, Hamilton, Ont.

Beams
Bourne-Fuller Co., Cleveland, Ohio.

Bar Iron and Steel
Rico Lewis & Son, Toronto.

Bolting and Supplies
Bristol Co., Waterbury, Conn.
Flomng, W. A., & Co., Montreal.
McLaren, D. K., Montreal.

Bolt Taps
Butterfield & Co., Rock Island, Que.

Brass Founders
Hamilton Brass Mfg. Co., Hamilton, Ont.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Tallman, J. N., & Sons, Hamilton, Ont.

Canoes
Peterborough Canoe Co., Peterborough, Ont.

Cast Iron Pipe
Canada Foundry Co., Toronto.
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
Rico Lewis & Son, Toronto.
Montreal Pipe Foundry Co., Montreal.

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

Charcoal Pig Iron
Canada Iron Furnace Co., Montreal.
Deseronto Iron Co., Deseronto, Ont.

Chemicals
Bellhouse, Dillon & Co., Montreal.
Benson, W. T., & Co., Montreal.
Blagden, Vaughn & Co., London, Eng.
Brunner, Mond & Co., Northwich, Eng.
Keller, John J., & Co., New York City.
Klipstein, A. & Co., New York City.
McArthur, Cornelle & Co., Montreal.
Schoellkopf, Hartford & Hanna Co., Buffalo, N.Y.
Winn & Holland, Montreal.
Wright & Dalrym, Hamilton, Ont.

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Archbold, Dr. Geo., Prescott, Ont.
Hasson, Tagge & Dean, Detroit, Mich.
Neuf, J. M., Toronto.

Clothboard
Patent Cloth Board Co., Parry Sound, Ont.

Coal and Coke
Milnes, James H., & Co., Toronto.

Compressors
Canadian Rand Drill Co., Sherbrooke, Que.
Cooper, James, Mfg. Co., Montreal.

Consulting Engineers
Parko, Roderick J., Toronto.
Stanyon Engineering Co., Toronto.

Conveying Machinery
Dodge Mfg. Co., Toronto.
Perrin, William R., & Co., Toronto.
Williams & Wilson, Montreal.

Copper Materials
Greening, B., Wire Company, Hamilton, Ont.
Wire & Cable Co., Montreal.

Detective Agencies
Noble's Detective Agency, Toronto.

Drills
Bertram, John, & Sons Co., Dundas, Ont.
Canadian Rand Drill Co., Sherbrooke, Que.
Cooper, James, Mfg. Co., Montreal.
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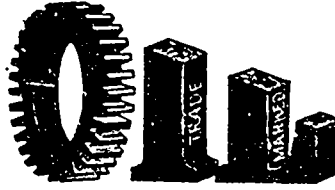
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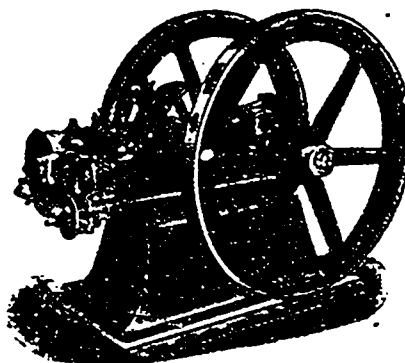
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McEachron Heating & Ventilating Co., Galt, Ont.

Electrical Supplies
Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Geo Electrical Engineering Co., Toronto.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo & Motor Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.

Elevators
Canadian Otis Elevator Co., Toronto.
Williams & Wilson, Montreal.

Emory
Forman, John, Montreal.

Engines and Boilers
Buffalo Forge Co., Buffalo, N.Y.
Cowan & Co., Galt, Ont.
Goldie & McCullough Co., Galt, Ont.
Hyde Bros. & Co., Pittsburg, Pa.
Kingston Foundry Co., Kingston, Ont.
Robb Engineering Co., Amherst, N.S.
Selby & Youlden, Kingston, Ont.
Stanyon Engineering Co., Toronto.

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

Financial
Bradstreet's, New York City.
Neff & Postlethwaite, Toronto.
Ratcliffe's Adv. Agency, London, Eng.
South American Trade Journal, London, Eng.

Fire Brick
Buckner, R. E. H., Toronto.
Dougall, James, & Sons, Bonnybridge, Scot.
Hamilton Facing Mill Co., Hamilton, Ont.
Hyde, F., & Co., Montreal.
Scioto Fire Brick Co., Sciotoville, Ohio.
Stanyon Engineering Co., Toronto.
Stowe-Fuller Co., Cleveland, Ohio.

Founders
Buffalo Forge Co., Buffalo, N.Y.
Canada Foundry Co., Toronto.
Cowan & Co., Galt, Ont.
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
Karch, H. W., Hespeler, Ont.
Kingston Foundry, Kingston, Ont.
Reider Plating & Mfg. Co., Thorold, Ont.
Selby & Youlden, Kingston, Ont.
Tallman, J. N., & Sons, Hamilton, Ont.

Foundry Facing
Hamilton Facing Mill Co., Hamilton, Ont.

Galvanizing
Ontario Wind Engine & Pump Co., Toronto.

Gas and Gasoline Engines
Dominion Motor & Machine Co., Toronto.
Goldie & McCullough Co., Galt, Ont.
Northey Co., Toronto.

Generators
Canadian General Electric Co., Toronto.
Forman, John, Montreal.
Geo Electrical Engineering Co., Toronto.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo & Motor Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Government Notices
Commissioner of Crown Lands of Ontario.
Factory Inspectors.
Mineral Lands of Ontario.
Minister of Agriculture.

Hardware
Butterfield & Co., Rock Island, Que.
Gartshore, John J., Toronto.
Rico Lewis & Son, Toronto.

Heating and Ventilating
Dominion Radiator Co., Toronto.
McEachron Heating & Ventilating Co., Galt, Ont.
Sturtevant, B. F., Co., Boston, Mass.

Hoisting Machinery
Kingston Foundry Co., Kingston, Ont.
Selby & Youlden, Kingston, Ont.

Hydraulic Machinery
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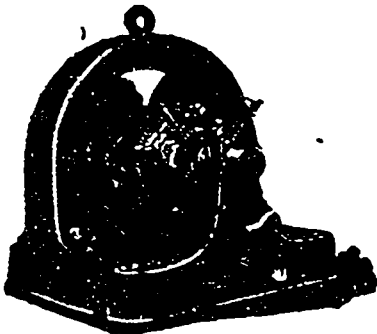
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Iron and Steel Specialties

Bourne-Fuller Co., Cleveland, Ohio.
Brown & Co., Paris, Ont.
Dodge Mfg. Co., Toronto.
Karch, H. W., Hespeler, Ont.
Laurie Engine Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Rice Lewis & Son, Toronto.

Lamps and Shades

Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.

Lathes

Bertram, John, & Sons Co., Dundas, Ont.
London Machine Tool Co., London, Ont.
McDougall, R., Co., Galt, Ont.
Williams, A. R., & Co., Toronto.

Lubricating Oils

Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

Machinists' Supplies

Butterfield & Co., Rock Island, Que.
Goldie & McCullough Co., Galt, Ont.

Malleable Iron Castings

Frost, Wm. H., Smith's Falls, Ont.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Ontario Malleable Iron Co., Oshawa, Ont.
Walkerville Malleable Iron Co., Ltd., Walkerville, Ont.

Mill Machinery and Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Cowan & Co., Galt, Ont.
Fleming, W. A., & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCullough Co., Galt, Ont.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hay, Peter, Galt, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Karch, H. W., Hespeler, Ont.
Laurie Engine Co., Montreal.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Rice Lewis & Son, Toronto.
Spence, R., & Co., Hamilton, Ont.
Wilson, J. C., & Co., Glenora, Ont.

Mill Soaps

Dominion Dyewood & Chemical Co., Toronto.

Mineral Lands

Commissioner of Crown Lands, Toronto.

Motors and Dynamos

Canadian General Electric Co., Toronto, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Geo. Electrical Engineering Co., Toronto.
Jones & Moore Electric Co., Toronto.
Kay Electric Dynamo and Motor Co., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.

Office Furniture and Supplies

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

Morton Co., Toronto.

Nones, J. A., & Co., London, Eng.

Oils and Lubricants

Dixon, Joe, Crucible Co., Jersey City, N.J.
Fleming, W. A., & Co., Montreal.
Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

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Burt Mfg. Co., Akron, Ohio.

Paints and Coloring Material

Bellhouse, Dillon & Co., Montreal.
Cassella Color Co., New York City.
Keller, John J., & Co., New York City.
Kilstein, A., & Co., New York City.
McArthur, Cornelio & Co., Montreal.
Schoellkopf, Hartford & Hanna Co., Buffalo, N.Y.
Wright & Dallyn, Hamilton, Ont.
Zanzibar Paint Co., Toronto.

Paper Manufacturers

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

Patents

Budden, Hanbury A., Montreal.
Case, Egerton R., Toronto.
Fetherstonhaugh & Co., Toronto.

Pig Iron

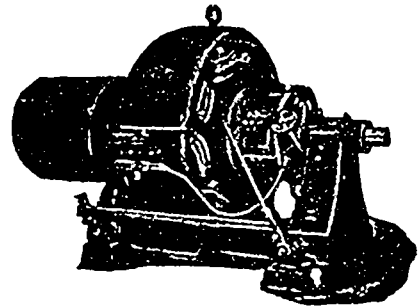
Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Deseronto Iron Co., Deseronto, Ont.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Pipe Threading Machines

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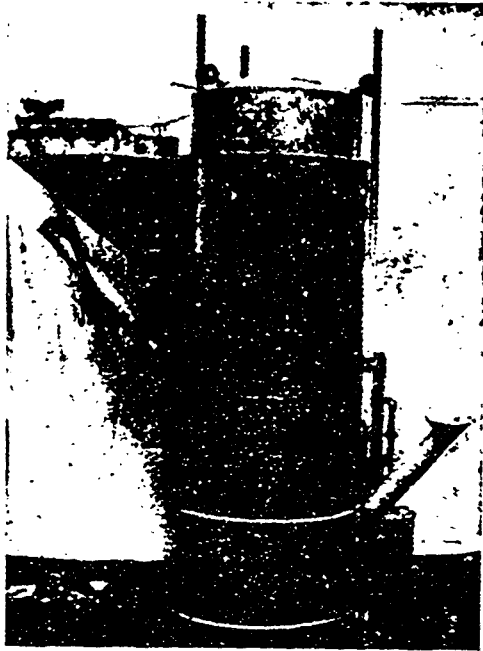
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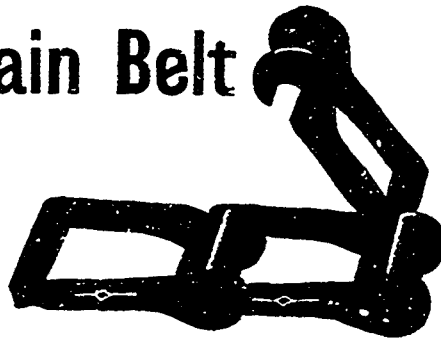
- Plaster**
Albert Mfg. Co., Hillsborough, N.B.
- Plates**
Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Rice Lewis & Son, Toronto.
- Pneumatic Tools**
Cooper, James, Mfg. Co., Montreal.
Jencks Machine Co., Sherbrooke, Que.
- Portland Cements**
Canadian Portland Cement Co., Deseronto, Ont.
Hyde, F., & Co., Montreal.
Owen Sound Portland Cement Co., Owen Sound, Ont.
Rathbun Co., Toronto.
St. Lawrence Portland Cement Co., Montreal.
- Power Plants—Equipments**
American Steam Gauge & Valve Mfg. Co., Boston, Mass.
Buffalo Forge Co., Buffalo, N.Y.
Canada General Electric Co., Toronto.
Cooper, James, Mfg. Co., Montreal.
Electrical Construction Co., London, Ont.
Geo. Electrical Engineering Co., Toronto.
Goldie & McCullough, Galt, Ont.
Jencks Machine Co., Sherbrooke, Que.
Jones & Moore Electric Co., Toronto.
Fay Electric Dynamo & Motor Co., Toronto.
Northey Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Stanyon Engineering Co., Toronto.
Sturtevant, B. F., Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
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Dodge Mfg. Co., Toronto.
Goldie & McCullough Co., Galt, Ont.
Wilson, J. C., & Co., Glenora, Ont.
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- Purifiers**
Cowan & Co., Galt, Ont.
Goldie & McCullough Co., Galt, Ont.
- Railroads**
Big Four Route.
Great Northern Railway of Canada, Quebec.
- Railway Supplies**
Canada Switch & Spring Co., Montreal.
Garthshore, John J., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugene F., Electrical Works, Montreal.
- Roofing**
Eastern Granite Roofing Co., New York City.
Metallic Roofing Co., Toronto.
- Rubber Goods**
Gooding, Wm., London, Eng.
Gutta Percha & Rubber Mfg. Co., Toronto.
- Shear Knives**
Hay, Peter, Galt, Ont.
- Silica Brick**
Buckner, R. E. H., Toronto.
Dougall, James, & Sons, Donnybridge, Scot.
- Steam Gauges**
American Steam Gauge & Valve Mfg. Co., Boston, Mass.
American Steam Pump Co., Battle Creek, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Northey Co., Toronto.
Williams, A. R., Machinery Co., Toronto.
- Steam Pumps**
American Steam Pump Co., Battle Creek, Mich.
Goldie & McCullough Co., Galt, Ont.
Northey Co., Toronto.
Williams, A. R., Machinery Co., Toronto.
- Steam Separators**
Darling Bros., Montreal.
- Steam Valves**
American Steam Pump Co., Battle Creek, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Kerr Engine Co., Walkerville, Ont.
Williams, A. R., Machinery Co., Toronto.
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Drummond, McCall & Co., Montreal and Toronto.
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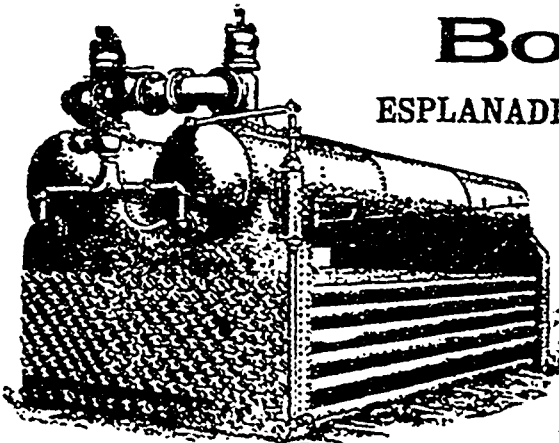
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Stocks and Dies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Rice Lewis & Son, Toronto.

Textile Manufacturers

Canadian Colored Cotton Mills Co., Montreal.
Cantilo, James, A. Montreal.
Dominion Oil Cloth Co., Montreal.
Hamilton Cotton Co., Hamilton, Ont.
Morris, D., Sons & Co., Montreal.
New Toronto Wool Stock Co., New Toronto, Ont.
Parker, A. S., New Toronto, Ont.
Reiche & Co., Bradford, Eng.
Smith Wool Stock, Toronto.
Storey, W. H., & Sons, Acton, Ont.

Trucks

Slingsby, H. C., Montreal.

Turbines

Jencks Machine Co., Sherbrooke, Que.
Wilson, J. C., & Co., G. L. nora, Ont.

Valves

American Steam Gauge & Valve Mfg. Co., Boston, Mass.

American Steam Pump Co., Battle Creek, Mich.

Canada Foundry Co., Toronto.

Hamilton Brass Mfg. Co., Hamilton, Ont.

Kerr Engine Co., Walkerville, Ont.

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

Wagons and Carriages

Hore, F. W., & Son, Hamilton, Ont.

Weaving Machinery

Carruthers, Robt., Lowell, Mass.

Karch, H. W., Hespeler, Ont.

Mason Machine Works, Taunton, Mass.

Riley, C. E., & Co., Boston, Mass.

Wire and Wire Rope

Greening, R. Wire Co., Hamilton, Ont.

Wire & Cable Co., Montreal.

Wood-Working Machinery

Carrier, Laine & Co., Levis, Que.

Clark & Demill, Galt, Ont.

Cowan & Co., Galt, Ont.

Karch, H. W., Hespeler, Ont.

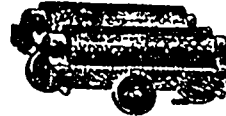
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McEachren Heating & Ventilating Co., Galt, Ont.

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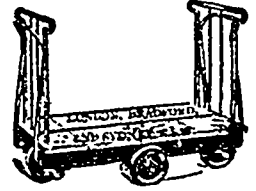


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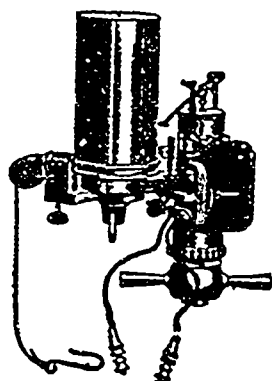
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AMERICAN STEAM GAUGE AND VALVE MFG. COMPANY

BOSTON, MASS., U.S.A.

MANUFACTURERS OF

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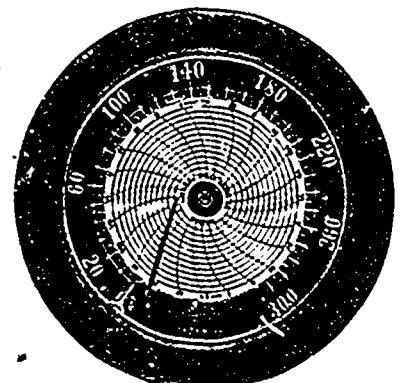
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