

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/  
Couverture de couleur
- Covers damaged/  
Couverture endommagée
- Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée
- Cover title missing/  
Le titre de couverture manque
- Coloured maps/  
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur
- Bound with other material/  
Relié avec d'autres documents
- Tight binding may cause shadows or distortion along interior margin/  
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- Coloured pages/  
Pages de couleur
- Pages damaged/  
Pages endommagées
- Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées
- Pages detached/  
Pages détachées
- Showthrough/  
Transparence
- Quality of print varies/  
Qualité inégale de l'impression
- Continuous pagination/  
Pagination continue
- Includes index(es)/  
Comprend un (des) index

Title on header taken from: /  
Le titre de l'en-tête provient:

- Title page of issue/  
Page de titre de la livraison
- Caption of issue/  
Titre de départ de la livraison
- Masthead/  
Générique (périodiques) de la livraison

- Additional comments: /  
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

**Pages Missing**

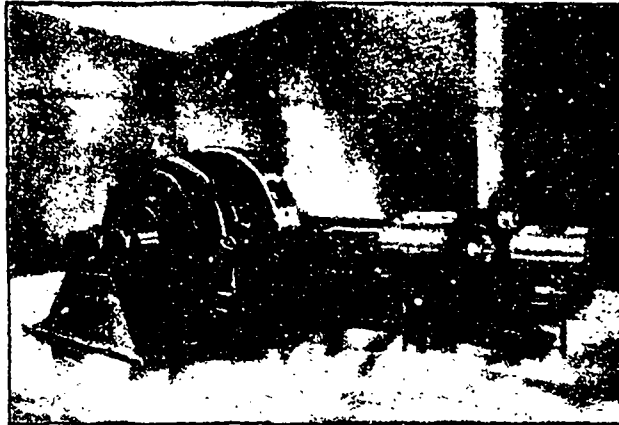
# IDEAL HIGH SPEED ENGINES

PERFECTION IN HIGH SPEED ENGINE DESIGN, NOISELESS RUNNING,

PERFECT  
LUBRICATION

ACCESSIBILITY

ECONOMY



ASK FOR  
BULLETIN No. 6

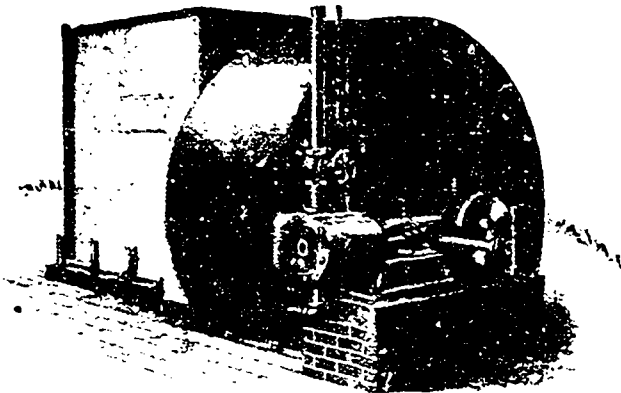
QUOTATIONS  
CHEERFULLY  
GIVEN

**THE GOLDIE & McCULLOCH CO., LIMITED**  
GALT ———— ONTARIO ———— CANADA

WE MAKE Wheelock Engines, Corliss Engines, Ideal Engines, Rollers, 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. Write for Catalogue.

Western Branch: 248 McDermott Ave., Winnipeg, Man.

Quebec Agents: ROSS & GREIG, Montreal, Que.



## Steam Fans and Heaters

Our Heating and Drying system will interest you—write us.

## Brick Dryers

These are of the latest improved type.

## Moist Air Kilns

Both forced and natural draft. No checking, warping, or case-hardening.

Fans  
Cupola Fans  
Blowers  
Exhausters

Lumber Trucks  
Transfer Cars  
Brick Cars  
Brick Transfers

# Dominion Heating & Ventilating Co., Limited

HESPELER, CANADA.

Successors to McEachron Heating and Ventilating Co.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

## THE ALGOMA STEEL CO., Limited

SAULT STE. MARIE, ONT.

is now booking orders for

# STEEL RAILS

For delivery during the Season of 1906.

Parties intending purchasing will find it to their interests to let us have their specifications at an early date so as to ensure desired deliveries.

**DRUMMOND, McCALL & CO.,**

General Sales Agents.

OFFICE:

Canada Life Building, MONTREAL.

## CANADA IRON FURNACE CO., Limited

Montreal, Radnor and Three Rivers

Manufacturers of the well-known

**"C.I.F." Three Rivers  
Charcoal  
Pig Iron**

Suitable for Car Wheels, Cylinders and Fine Castings, where the utmost strength is required.

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN OR AMERICAN CHARCOAL IRON.

Offices: Canada Life Insurance Building, MONTREAL.

# SHEETS

BLUE ANNEALED

COLD ROLLED

GALVANIZED

## IN STOCK

FOR IMMEDIATE SHIPMENT

PRICES NOT PROHIBITIVE

MONTHLY STOCK LIST FREE

THE  
BOURNE-FULLER CO.  
IRON, STEEL,  
PIG IRON,  
COKE.  
Cleveland, Ohio.

Pittsburg Office.

1126 Frick Bldg.

# Nova Scotia Steel and Coal Co., Limited

MANUFACTURERS OF

## BRIGHT COMPRESSED STEEL SHAFTING

From  $\frac{3}{8}$  to 5 Inches in Diameter. Guaranteed Straight and True to within  $\frac{1}{500}$  of an Inch.

Spring, Reeled Machinery, Tire, Toe Caulk, Sleigh Shoe, Angles, Special Sections and all Merchant Bar Steel. Sheet Steel up to 48 inches wide.

RAILWAY AND ELECTRIC RAILWAY CAR AXLES, FISH  
PLATES, SPIKES AND TRACK BOLTS

Tee Rails, 12, 18, 24 and 28 lbs. per yard.

**HEAVY FORGINGS A SPECIALTY**

"SCOTIA" PIG IRON FOR FOUNDRY USE.

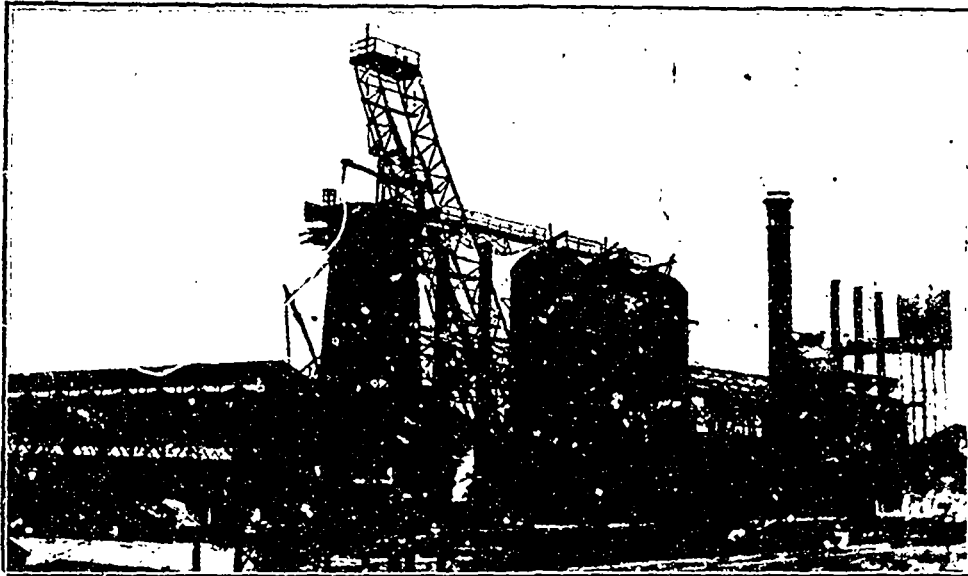
WORKS—TRENTON, N.S., and SYDNEY MINES, N.S.

HEAD OFFICE—NEW GLASGOW, NOVA SCOTIA

# THE HAMILTON STEEL and IRON CO., Limited

HAMILTON, - - CANADA

**FIG  
IRON**



**BASIC  
MALLEABLE  
FOUNDRY**

The above cut represents our Blast Furnace No. 2 under construction as at May 18, 1907.  
In distance Furnace No. 1 in Operation.

This furnace will be completed and in operation in July, increasing our daily output of Fig Iron to 500 tons.  
We are now contracting for 3rd and 4th quarter deliveries.  
Your orders are solicited.

# FORGINGS

**Of Every Description.**

**LIGHT AND HEAVY.      ROUGH OR FINISHED.**



When next in need of forgings, write us. **WE ARE SPECIALISTS.**

**The CANADA FORGE CO., Limited** WEL LAND  
Ontario, Canad,

# NORTHERN ALUMINUM CO., Limited

Shawinigan Falls, P.Q.

Business Office Pittsburgh, Pa.

## ALUMINUM

INGOTS - SHEETS - TUBING, ETC.

*Aluminum Stamped, Cast, Spun Articles of any Description to Order.*

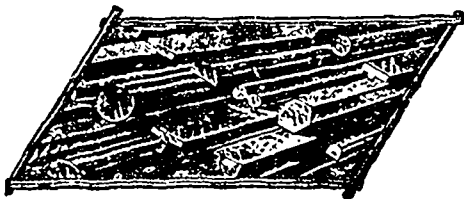
**ALUMINUM WIRE and CABLES for ELECTRICAL CONDUCTORS**

**Cold Die-Rolled  
Steel and Iron**

**For Shafting, Piston Rods, Screw  
Steel and Roller Bearing Parts**

**Rounds, Squares  
Flats and Hexagons**

ASK FOR PRICES



True to Size and Highly Polished.

**Union Drawn Steel Co., Limited**

Office and Works, Hamilton, Canada

## EXPANDED

The highest type of modern fireproof construction is  
Concrete reinforced with EXPANDED METAL.

**FLOORS -- ROOFS -- WALLS**

Write for Catalogue and Prices.

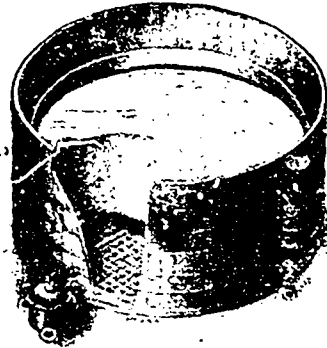
**EXPANDED METAL AND  
FIREPROOFING CO., LIMITED**

100 King Street West, TORONTO.

## METAL

**Pittsburgh Filter Mfg. Co.**

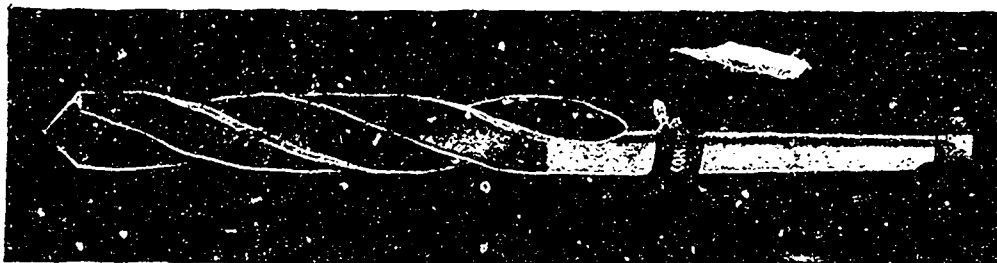
PITTSBURGH,  
PA.



**FILTERS**

**Softeners**

City or  
Industrial



**Beardshaw's  
"Conqueror"  
HIGH SPEED STEEL  
AND  
HIGH SPEED DRILLS**

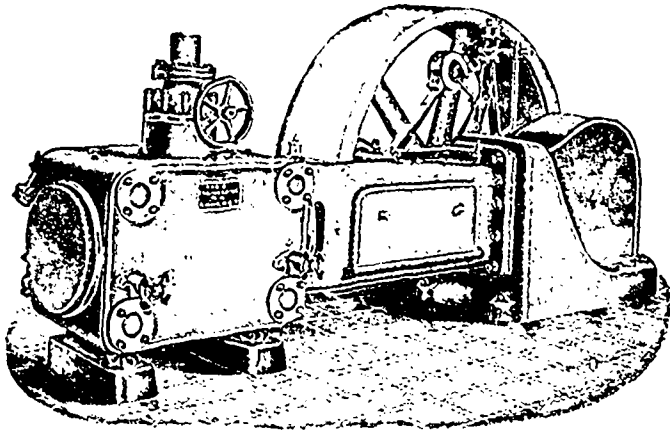
GIVE BEST RESULTS of any on the market.

**ALEXANDER GIBB, 13 St. John St.**

**MONTREAL**

Responsible Agent  
Wanted in the West.

# Robb Power Plants



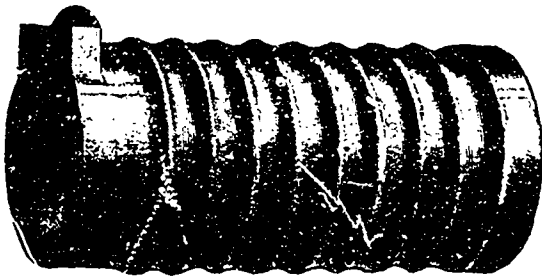
We design and contract for steam power plants and maintain an experienced and thoroughly practical engineering staff that is at the service of our customers.

- Corliss Engines
- High Speed Vertical Engines
- Medium Speed Horizontal Engines
- Robb-Mumford Boilers
- Return Tubular Boilers
- Water Tube Boilers

## ROBB ENGINEERING CO., Limited, AMHERST, N.S.

DISTRICT OFFICES } 320 Ossington Avenue, Toronto; Wm. McKay, Manager.  
 Bell Telephone Building, Montreal; Watson Jack, Manager.  
 365 Carlton Street, Winnipeg; J. F. Porter, Manager.

# MORISON Suspension Furnaces

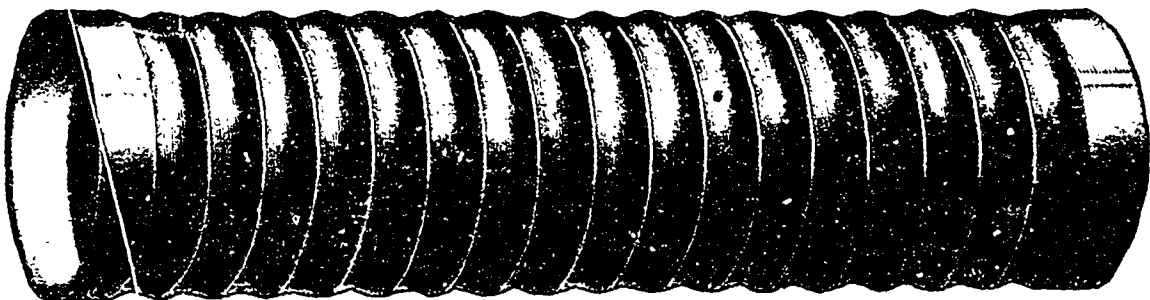


For Land and Marine Boilers

With Plain Ends or Flanged to any required shape.

Uniform Thickness, Easily Cleaned, Unexcelled for Strength, Unsurpassed for Steaming Capacity.

*The universally satisfactory record of "THE MORISON" proclaims it the best furnace made.*



MANUFACTURED BY

**THE CONTINENTAL IRON WORKS,** WEST AND CALYER STS., BOROUGH OF BROOKLYN, New York  
 Near 10th and 23rd Street Ferries.  
 Sole Canadian Agent—MR. GEORGE HOLLAND, M. C. Soc. C. E., P. O. Box 529, MONTREAL

## UTILIZING A JEFFREY RUBBER BELT CONVEYER

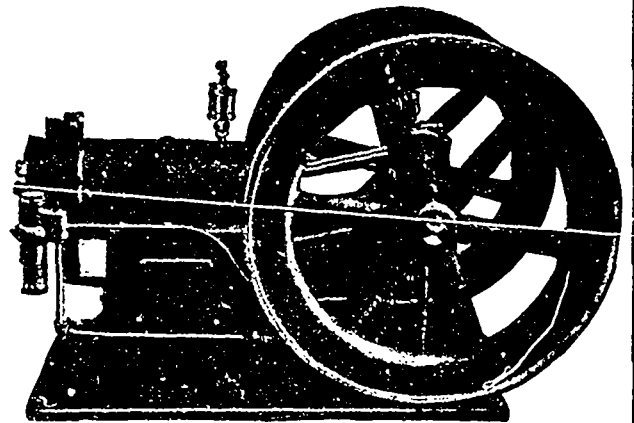


AS A PICKING TABLE IN SOUTH AFRICA  
Elevating Conveying Catalog No. 80 Mailed Free.

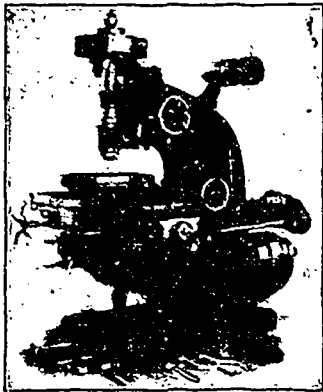
**The Jeffrey Man'g. Company,**  
COLUMBUS, OHIO, U.S.A.

New York Chicago Boston Pittsburgh Denver

# Easy to Operate



## Becker-Brainard



We make  
a Complete  
Line of

## Milling Machines and Milling Cutters

And can show you the proper equipment for any work

**BECKER-BRAINARD MILLING MACHINE CO.,**  
HYDE PARK, MASS., U.S.A.

Branch Offices:

The Bourse, Philadelphia, Pa.; Williamson Bldg., Cleveland, O.

Agents:

A. R. WILLIAMS MACHINERY CO., Toronto and Montreal, Can.  
SELIG SONNENTHAL & CO., London, Eng. 337

## SIMPLICITY and EFFICIENCY

Only one-third the usual number of  
parts used in construction.

Perfect balance while running.

We do not guarantee our engines to  
do "a little more than their rating,"  
but we do guarantee them to work up  
to their full rating.

THE  
**Canadian McVicker Engine Co.**  
Limited  
GALT ONTARIO



# We Can Cure Your Packing Troubles

We Carry in Stock Packings of Every Description  
and for Every Service.



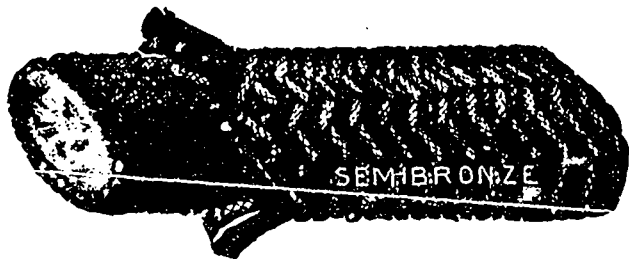
**FAIRBANKS'**  
CELEBRATED SHEET RUBBER PACKING  
IDEAL PISTON PACKING  
MOBILENE PACKING

FOR GASOLINE ENGINES.

SEMIBRONZE HYDRAULIC

**FOR ALL PRESSURES**  
**IS INTERCOMPRESSIBLE**  
**IS ALWAYS SOFT AND PLIABLE**

Let us send you a sample to prove its merits.



**The Canadian Fairbanks Co.,**  
LIMITED

Montreal Toronto Winnipeg Vancouver

**Will Not Fluff or Score the Rod.**

## THE CHEAPEST POWER KNOWN NATIONAL GAS ENGINES PINTSCH SUCTION GAS PLANTS

### PLANTS

- No Smoke
- No Pressure
- No Danger
- No Leakage
- No Gas Holder
- No Noise
- No Boiler
- No Chimney

Engines in sizes from 2 to 500 B.H.P.

Suction Gas Plants in sizes from 10 to 1,000 B.H.P. in single generators.



### ENGINES

- Simplest
- Most Durable
- Perfect Regulation
- Small Gas Consumption
- Easy Starting
- No Noise
- Low Cost
- Loose Liners
- Vertical Ball Governors

Total Power already installed, over 200,000 B.H.P.

Send for Catalogue and Prices.

**THE ECONOMIC POWER, LIGHT & HEAT SUPPLY CO., Limited - 40 YORK ST., TORONTO**  
**N. J. HOLDEN CO., Limited, Montreal, Agents for Province of Quebec.**



**SADLER & HAWORTH**  
 TANNERS & MANUFACTURERS OF  
**OAK LEATHER BELTING**  
 AND LACE LEATHER  
**HYDRAULIC & MECHANICAL LEATHERS.**  
 DEALERS IN GENERAL MILL SUPPLIES  
**MONTREAL.** **TORONTO.**  
 Corner William & Seigneurs Sts. 9 Jordan St.

**HOWDEN'S**  
 Double Acting  
 High Speed  
 Enclosed Engines  
 with forced lubrication for  
**ELECTRIC LIGHTING, TRACTION, TRANSMISSION of POWER, Etc.**

**JAMES HOWDEN & CO., Scotland St. Glasgow**  
 Prices and full particulars from **E. DOWIE** Sole Agent for Canada  
 223 Commissioners St., Montreal

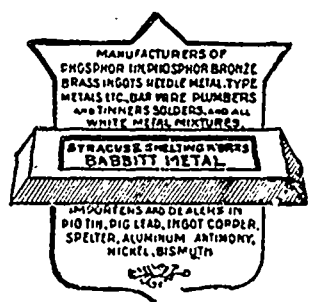
It is no trouble to us to help you out of your Babbitt Metal difficulties.

We have expert metal men in our works who know metals and machinery, and atmospheric conditions to a nicety; what's more our special method of mixing is what gives

**MANGANESE**  
**ANTI-FRICTION METAL**  
 its superior wearing qualities.

**Syracuse**  
**Smelting Works**

**Montreal**  
**New York**



MANUFACTURERS OF  
 PHOSPHOR INDIUM BRONZE  
 BRASS INGOTS MIDDLE METAL TYPE  
 METALS ETC. BAR WIRE PLUMBERS  
 AND TINNERS SOLDERS AND ALL  
 WHITE METAL MIXTURES

**SYRACUSE SMELTING WORKS**  
**BABBITT METAL**

INGOTTERS AND DEALERS IN  
 DIG TIN, DIG LEAD, INGOT COPPER,  
 SPECTER, ALUMINUM, ANTIMONY,  
 NICKEL, BISMUTH

# Standard Bearings

LIMITED

Niagara Falls, Ont.

Engineers, Toolmakers,  
High - Class Machinists

MANUFACTURERS OF

Anti-Friction, Roller, Babbitted, Gun  
Metal and other Bearings.

Toronto Office, 94 Canada Life Building, Toronto

President, - - Wm. Bowman

Managing-Director, - J. Dove-Smith

Secretary-Treasurer, - J. Frank Adams

Bearings designed for any special purpose, Auto-  
mobile axles, gears, etc.

Estimates given for High-Grade Machine Work.

# Morris Machine Works

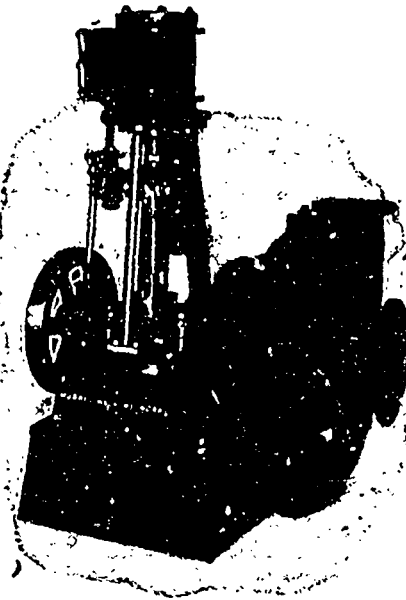
BALDWINVILLE, N.Y.

MANUFACTURERS OF

Centrifugal  
Pumping  
Machinery and  
Steam Engines

SPECIAL PUMPING  
OUTFITS TO SUIT  
SPECIAL  
REQUIREMENTS

Estimates Furnished  
upon Application



H. W. PETRIE, Agent  
Toronto, Canada

NEW YORK OFFICE: 39-41 CORTLANDT ST.  
HENION & HUBBELL, Agents, 61-63 North Jefferson St., CHICAGO, ILL.

# THE PETER HAY KNIFE CO., Limited

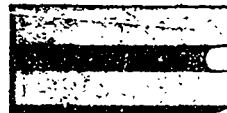


GALT, ONT.

Manufacturers of

# MACHINE KNIVES

For WOOD-WORKING;  
PAPER CUTTING and LEATHER SPLITTING  
MACHINES,



Quality Warranted.

Send for Price List.

SHEAR BLADES,

BARK and RAG KNIVES,

Etc., Etc., Etc.

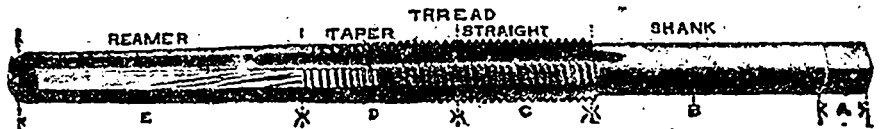


WE MANUFACTURE

STAY BOLT TAPS, all diameters and lengths up to 94 inches.  
SPINDLE STAY BOLT TAPS and TAPS for Screw  
Machines, and TAPS for all uses.

Regular and Full Mounted Reece and Derby Plates, Bicycle  
and Machinists' Plates, etc., etc.

BUTTERFIELD & CO.,  
Rock Island, Que.



When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

## ELECTRIC LAMP TESTING

Do you furnish your own lamps?

Are you constantly renewing them?

Or increasing your light bill by burning them after they have become dim, in order to save cost of renewals?

WHY NOT DETERMINE IF YOUR LAMPS ARE EFFICIENT AND FULFILLING SPECIFICATIONS BY HAVING THEM TESTED?

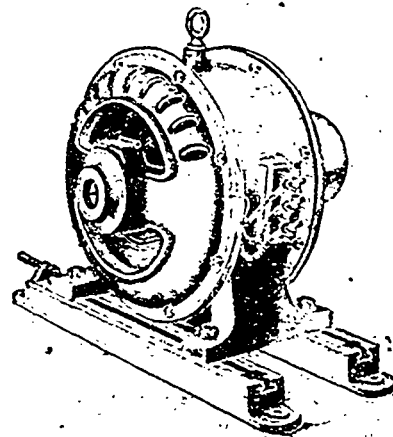
**Electrical Inspection Bureau and Testing Laboratory**  
40 HOSPITAL STREET, MONTREAL.

**Motors, Dynamos,  
Fixtures, Shades,  
Heating Apparatus,  
Transformers,  
Telephones, Etc.**

**John Forman**

248-250 Craig St. W.,  
MONTREAL

**Toronto and Hamilton  
Electric Co.**



**ALTERNATING CURRENT MOTORS  
and DYNAMOS for all Circuits.**

REPAIRS PROMPTLY EXECUTED.

99-103 McNab N. - HAMILTON, Ont.

## Suction Gas Producer Plants FOR MANUFACTURERS

**Cheaper than Water, Simpler than Steam**

Let us quote you on units from 10 to 10,000 horse power

**CANADA FOUNDRY COMPANY, Limited**

Head Office and Works: **Toronto, Ont.**

District Offices:— Montreal Halifax Winnipeg Ottawa Vancouver Rossland

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# Eugene F. Phillips Electrical Works, Limited

GENERAL OFFICES AND  
FACTORY, MONTREAL

CANADA

TORONTO BRANCH,  
67 ADELAIDE ST. EAST

## Bare and Insulated Electric Wire

Electric Light Line Wire, Incandescent and Flexible Cords.

## Railway Feeder and Trolley Wire

Americanite, Magnet, Office and Annunciator Wires, Cables for Aerial and Underground Uses.

Long Distance Phone 1103.

### The Electrical Construction Co. of London, LIMITED

32-40 Dundas Street, London, Can.

PERFECTION TYPE

### DYNAMOS AND MOTORS

Multipolar or Bipolar, Direct Connected or Belted.

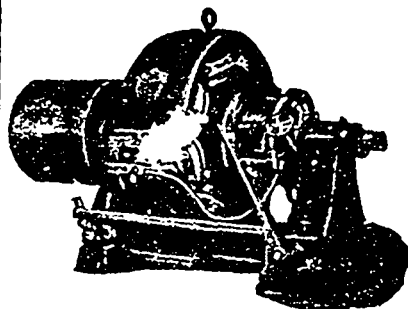
Over 1500 of our machines in use.  
We contract for complete installations, including wiring of factories.

We repair machines of any make.  
Descriptive matter and estimates furnished on application

Branches at VANCOUVER. WINNIPEG. TORONTO.  
MONTREAL. HALIFAX

### The JONES & MOORE Electric Co., Ltd.

ELECTRICAL CONTRACTORS.

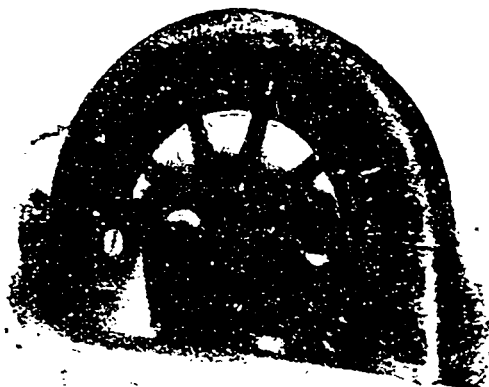


Dynamos, Telephones,  
Slow Speed Motors,  
Motors, Supplies,  
Direct Connected  
Dynamos.

We manufacture Direct  
Current Machinery in all  
sizes and for any purpose.

96 Adelaide West,  
TORONTO.

# CROCKER-WHEELER COMPANY



### ALTERNATING CURRENT GENERATORS.

Outputs—Belt Type, 25 K.V.A. up.

Engine Type, 75 K.V.A. up.

Canadian Representatives

## THE PACKARD ELECTRIC CO., Limited

MONTREAL.

ST. CATHARINES.

WINNIPEG.

**PROFESSIONAL DIRECTORY**

Patent Attorneys, Mechanical and Electrical Engineers, Hydraulic and Constructing Engineers, Chemical and Mining Experts, Contractors and Builders, Architects, Auditors, Accountants, Etc.



**CHARLES H. MITCHELL, C.E.**

Member Canadian Society Civil Engineers.  
Member American Society Civil Engineers.  
Assoc. American Inst. Electrical Engineers  
**Hydro-Electric Engineer**  
Rooms 1004-5 Traders Bank Bldg.,  
Telephone Main 1396 Toronto

**K. L. AITKEN**

**Consulting Electrical Engineer**  
1003 Traders Bank Bldg.  
TORONTO  
Long Distance Phones (Main 1482  
North 3119  
North 1933

**T. A. MORRISON & CO.**

202 St. James Street MONTREAL  
Contractors' Plant, New and Second-hand.  
Steel Jaw Stone Crushers, all sizes.  
Sturtevant Hott Jaw and Rotary Fine Crushers.  
Balanced and Centrifugal Rolls, Emory Mills,  
Steam Road Rollers, Boilers and Engines,  
Rock Drills, Concrete Stone,  
Bridge and Building Limestone, Bricks, etc., etc.

**G. J. FENSOM, B. A. Sc.**

**Consulting Engineer**  
ABERDEEN CHAMBERS, - TORONTO  
Phones (Office, - - M. 1823  
Residence, N. 2967  
Machinery Designed, Supervised, Inspected and  
Contracted for. Tests, Reports, Electric Light  
Plants, Power Plants, Pumping Plants.

**PATENTS  
PROMPTLY SECURED**

We solicit the business of Manufacturers,  
Engineers and others who realize the advisability  
of having their Patent business transacted  
by Experts. Preliminary advice free. Charges  
moderate. Our Inventor's Adviser sent upon re-  
quest. Marlon & Marlon, Reg'd., New York Life  
Bldg., Montreal; and Washington, D.C., U.S.A.

**RODERICK J. PARKE**

A.M. AMER. INST. E.E.  
A.M. CAN. SOC. C.E.  
**CONSULTING ENGINEER**  
James Building, TORONTO  
Long Distance Telephone.

**TO MANUFACTURERS:** - Advice and speci-  
fications covering Industrial Applications of Elec-  
tricity—Lighting—Power Transmission—  
Factory Power Distribution—Steam  
Plants.  
**TESTS—REPORTS—VALUATIONS.**

**CHARLES BRANDEIS**

A. M. CAN. SOC. C.E.  
MEM. AMER. ELKTRIO-CHEMICAL SOC., ETC.  
**CONSULTING ENGINEER**  
Estimates, Plans and Supervision of Hydraulic  
and Steam-Electric Light, Power and Railroad  
Plants, Specifications, Reports, Complete Factory  
Installations, Electric Equipment of Mines and  
Electro-Chemical Plants.  
Long Distance Telephone Main 3216  
62-63 Guardian Building, MONTREAL

**ROBERT W. HUNT & CO.**

**Bureau of Inspection, Tests and Consultation.**  
68 Broadway, New York; 1121 The Rookery,  
CHICAGO; Monongahela Bank Bldg., PITTSBURGH;  
Nortfolk House, Cannon St., E.C. LONDON.  
Inspection of Rails and Fastenings, Cars, Loco-  
motives, Pipe, etc.; Bridges, Buildings and other  
Structures. Chemical and Physical Laboratories.  
Reports and estimates on properties and processes.

**PATENTS**

**TRADE MARKS, Etc.**  
**HANBURY A. BUDDEN**  
NEW YORK LIFE BUILDING,  
MONTREAL.

Established 1873. Telephone Main 1889.  
**THOMAS HEYS & SON**

CHARLES H. HEYS, Manager.  
**CHEMICAL and MINING EXPERTS.**  
Analyses of all commercial products, etc. Plans  
and reports on mines and mining locations.  
124 Yonge Street, TORONTO, ONT.

**Trussed Concrete Steel Company**

Manufacturers Reinforcing Steel  
Concrete Engineers  
23 JORDAN ST., TORONTO  
GUSTAVE KAHN, Canadian Manager.

**W. H. STOREY & SON, Limited, Acton, Ont.**

Manufacturers of... **FINE GLOVES and MITTS**  
In every variety and style. Moccasins

**ANY COLOR OF CRAYON**

that you want can be obtained from us.  
We are specialists for Cotton, Woolen  
and Worsted Manufacturers. No trou-  
ble to send samples.  
LOWELL CRAYON CO., - Lowell, Mass.  
Original Manufacturers.

**A. C. NEFF & CO.,  
CHARTERED ACCOUNTANTS**

20 Wellington St. East, TORONTO  
Phone Main 1380.  
Audits and Investigations a Specialty.

MAIN 4834 Expert in Time Saving Devices

**HENRI VIAU**  
**Business Methodizer**  
(Accountant)

Room 14  
"La Presse" Building  
MONTREAL  
Office Systems Installed

The manufacturers of Canada  
have learned the value of expert  
advice. They turn to this page  
for the names of the leading  
technical experts in Canada.  
Your card should be here.

**Sprinkler Leakage Insurance**

is indemnity paid for losses sus-  
tained by the accidental dis-  
charge of water from installed  
Sprinkler Systems.  
Are you insured against  
Sprinkler Leakage Damages?

The  
**Canadian Casualty  
and Boiler  
Insurance Company**

**TORONTO**  
Insures Sprinklers, Boilers, Elevators and  
Personal and Property Risks.  
A. G. C. DINNICK, Managing Director.  
Head Offices:  
22-24 ADELAIDE ST. E. and 55 VICTORIA ST.  
Phone Main 4091

**REINFORCED  
CONCRETE CONSTRUCTIONS**

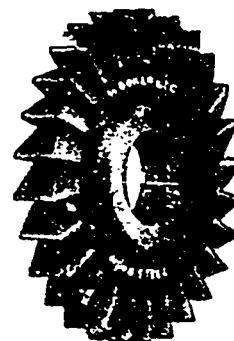
For FIRE-PROOF WAREHOUSES,  
FACTORIES, POWER PLANTS,  
BRIDGES, FLUMES, PENSTOCKS,  
RETAINING WALLS, ETC. . . . .

NO INSURANCE REQUIRED. ECONOMICAL AND PERMA-  
NENT MODE OF CONSTRUCTION.

**A. & E. LOIGNON,** Designing and Contracting  
Engineers  
17 Place d'Armes Hill, MONTREAL

**High "NOVO" Speed**

Milling  
Cutters  
Twist  
Drills  
Reamers  
Drill Rods



Round,  
Square,  
and  
Flat Bar.  
Cutter Blank.  
Sq. Cutter  
for  
Tool Holder

**WILLIAM  
ABBOTT**

334  
St. James S  
Montreal

INDIVIDUAL CARS

The Monongahela River Consolidated Coal & Coke Company.

Youghiogheny Thin Vein Gas Coal,  
Connellsville Coke

Would you appreciate having your coal shipped during the coming year according to your contract, regardless of car shortage? If so write

F. J. DURDAN, Sales Agent, Prudential Bldg., Buffalo, N.Y.

**ELK FIRE BRICK CO.**  
ST. MARY'S, PA.

Best Fire Brick for Any Purpose.

There are none "just as good."

**DUNBAR FIRE BRICK CO.**

Manufacturers of High Grade FIRE CLAY and SILICA BRICK for Heating and Malleable Iron Furnaces, Glass Works, Cement Works—also Bee Hive and By-Product Coke Ovens, Brick and shapes of all kinds.

Pittsburgh Office: 1504 Arrott Building.

Office and Works: Dunbar, Pa.

Are you one of those who say to our canvasser, "Oh, I don't need a Mercantile Agency—I know my customers better than you do." Perhaps so, but just to satisfy yourself, bring a list of recent losses to our office. We will show you the reports we had when you shipped those goods on the say-so of some haphazard authority. We won't urge you to subscribe then—you will save us the trouble.

**R. G. DUN & CO.**

**FIRE BRICK**

"Every Quality."

"For Every Purpose."

**The TORONTO POTTERY CO., Limited**

FACTORIES IN OHIO

TORONTO, CANADA

**"Beech Creek" FIRE BRICK**

STRICTLY HIGH GRADE

MADE ONLY BY

**PENNSYLVANIA FIRE BRICK CO.,**

BEECH CREEK, PA., U.S.A.

Special Mixtures for use in Rolling Mills, Malleable Iron Works, Steel Works, Blast Furnaces, Glass Tanks, Cement Kilns, Locomotive Blocks, and all High Grade Uses.

*Difficult Shapes a Specialty.*

Send for Catalogue and Prices.

**BRANDS: BEECH CREEK, BEECH CREEK ROOF, BEECH CREEK BUNG.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# NICKEL

THE CANADIAN COPPER COMPANY.

# NICKEL FOR NICKEL STEEL

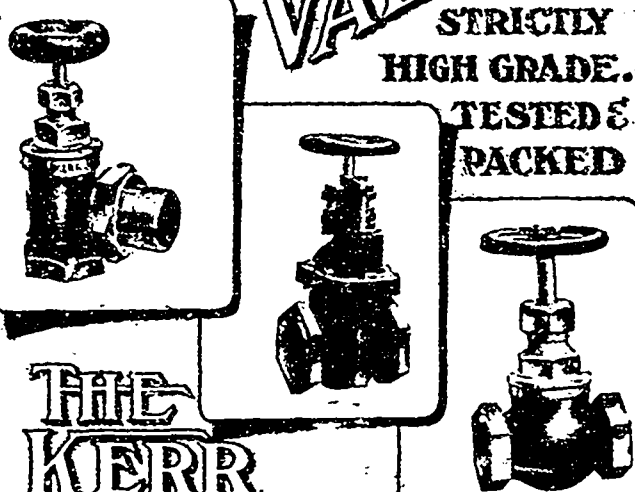
THE ORFORD COPPER COMPANY.

**WRITE US FOR PARTICULARS AND PRICES.**

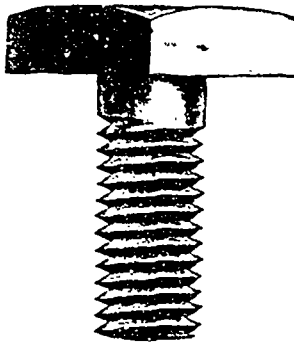
General Offices: 43 Exchange Place, NEW YORK.

**KERR'S GLOBE AND GATE VALVES**

STRICTLY HIGH GRADE. TESTED & PACKED



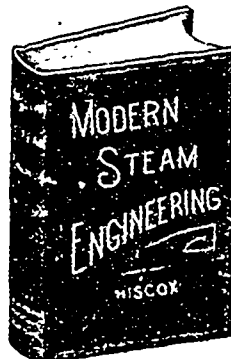
**THE KERR ENGINE CO. LIMITED**  
VALVE AND HYDRANT MANUFACTURERS  
WALKERVILLE, ONT.



**PLANER SET and CAP SCREWS**

The John Morrow Screw, Limited  
1011 - ONT.

**Knowledge is Power. Be Up-to-date**



Technical Books are a source of definite information.

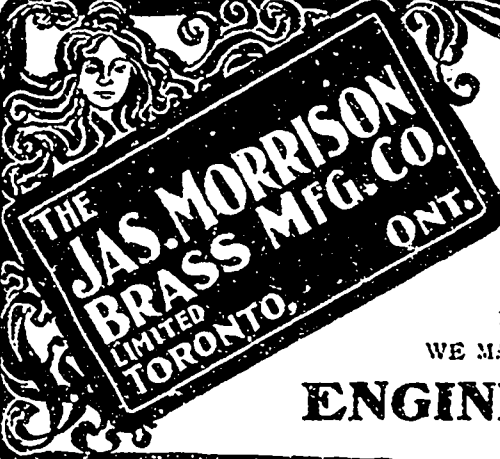





**MODERN STEAM ENGINEERING**  
In Theory and Practice  
by GARDNER D. HISCOX, is one of the latest.

**PRICE \$3.00**

Fully illustrated by 405 specially made Engravings and Diagrams.

Any other Technical Book published may be had.

**CANADIAN MANUFACTURER PUB. CO.**  
Toronto, Canada

Steam Gauges, Revolution Counters, Recording Pressure Gauges

Pressure Regulating Valves.

Oil Cups and Lubricators, Oiling Devices.

Brass and Iron Valves

**WE MANUFACTURE A FULL LINE OF ENGINEERS' SUPPLIES and STEAM SPECIALTIES**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER



A  
**WATER CURTAIN**

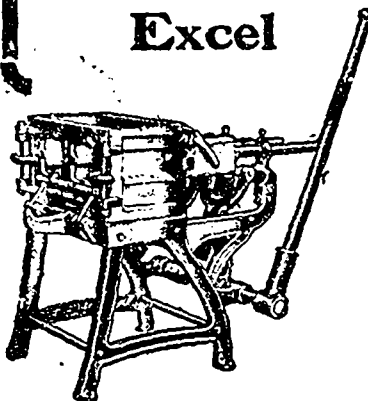
ON THE OUTSIDE OF  
**YOUR BUILDING**

Not only protects it from the  
**FIRE** in a neighboring building  
but **REDUCES YOUR**  
**INSURANCE** rate from  
**40% to 70%**

WRITE US TO-DAY FOR FULL PARTICULARS

**W. J. McGUIRE, Limited**  
TORONTO and MONTREAL

**Why  
IDEAL  
Machines  
Excel**



The "Down-face" principle of the Ideal Concrete Block Machine permits the only practical use of rich facing material with coarse material in back of block. This principle is protected by a basic patent. No other machine using it can be legally made, sold or used.

**IDEAL**  
(Interchangeable)  
**Concrete Machines**

Various Sizes

Safe to buy because it is the original and only protected "down-face" machine. Attachments and accessories will always be obtainable. Profitable to own, because it produces blocks, not only at lowest cost, but of a uniform excellence of quality that commands highest price. Ideal Concrete Blocks are available anywhere and everywhere at splendid profits.



Ideal Block showing natural stone effect. Same machine produces endless variety of designs.

Wonderfully rapid and economical to operate, because of its extreme simplicity. Not a wheel, cog, chain or spring in its construction.

Magnificent illustrated catalogue of the entire Ideal line, a practical encyclopedia of cement block manufacture, sent free on application.

Ideal Concrete Machinery Co., Limited  
Dept. A I  
London Ontario

Block, Brick and Sill Machines. Mixers, Ornamental Moulds, Etc.  
Mussen's Limited—Sole agents for Canada, Montreal, Quebec, Toronto, Winnipeg and Vancouver.

**THE B. GREENING WIRE CO. LTD.**  
**PERFORATED METALS.**

Hamilton, Ont.

Montreal, Que.

**Perforated Sheet Metals**

IN

Brass, Copper, Steel, Etc.

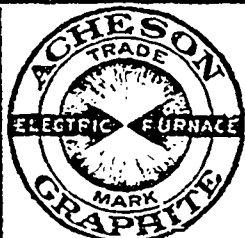
All Sizes of Perforations and Thickness of Metals for

Miners' Use,

Grain-Cleaning Machinery,

Bee Keepers,

Malt Kilo Floors, Etc.



**ACHESON=GRAPHITE—The Purest in the World**

Manufactured in the Electric Furnace. Write us for full information regarding the use of this material in lubricating compounds, pipe joint compounds, as foundry facings, for electrotyping purposes, etc.

**ACHESON-GRAPHITE ELECTRODES. Best for Furnace Work**

Works at NIAGARA FALLS, ONT.

NIAGARA FALLS, N. Y.

INTERNATIONAL-ACHESON-GRAPHITE CO.,

Niagara Falls, N. Y., U. S. A.

James Thomson, J. G. Allan, James A. Thomson, Alex. L. Gartshore,  
Pres. and Man. Dir. Vice-Pres. Secretary. Treasurer.

**The GARTSHORE-THOMSON PIPE & FOUNDRY CO.**

LIMITED

**CAST IRON PIPE**

3 in. to 60 in. diameter.

For Water, Gas, Culverts and Sewers Special Castings and all kinds of Flexible and Flange Pipe  
WATER WORKS SUPPLIES HAMILTON, ONT.

**BANK OF HAMILTON**

J. TURNBULL, General Manager

HEAD OFFICE, - HAMILTON, ONT.

Capital.	Reserve.	Total Assets.
\$2,500,000	\$2,500,000	\$32,000,000

96 Branches Throughout the Dominion of Canada.

Collections made in all parts of Canada on most favorable terms.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

**BUY A Samson Locomotive**  
 AND HAVE A  
**Little Switch Engine**

Will move the  
 heaviest cars  
 up any grade  
 with ease.

OF YOUR  
 OWN



Will pay for itself in  
 a few weeks.

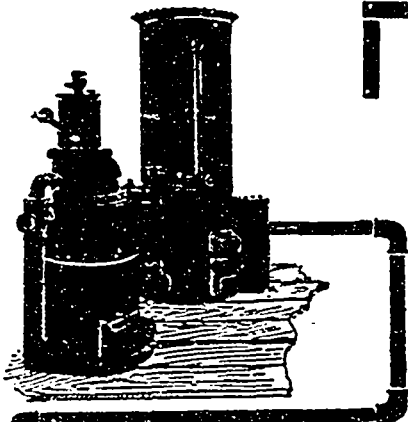
IN STOCK, PRICE \$8.00

The largest stock in Canada of Cotton  
 Belting, Sprocket Chain, Elevator Buckets, Steel  
 Conveyor, etc., is at your disposal. PROMPT SHIPMENTS  
 A SPECIALTY.

**WM. & J. G. GREEY,**

2 Church Street, - - Toronto

Manufacturers Flour, Oatmeal, Cereal Machinery, Paint and Ink Machinery, Grain Choppers, Grinding, Blending,  
 and Mixing Machinery, Chilled Iron Rolls and Rolling Mills, Trucks, Power Transmission and Elevat-  
 ing Appliances.



**CHEAPEST  
 POWER  
 PRODUCER GAS**

Relative Cost--Gas vs. Steam Power

Ordinary Steam Plant Burns 5 lbs. Coal Per H.P. Hour.  
 Producer Gas Plant Burns 1/4 lb. Coal Per H.P. Hour.

**100 H.P. STEAM PLANT**

$$\frac{\text{H.P. Hrs. Days lbs.}}{100 \times 10 \times 300 \times 5} = 750 \text{ Tons}$$

Cost at \$4.00 = \$3,000

**100 H.P. GAS PLANT**

$$\frac{\text{H.P. Hrs. Days lbs.}}{100 \times 10 \times 300 \times \frac{1}{4}} = 112 \text{ Tons}$$

Cost at \$5.00 = \$560

SAVING on Fuel } \$2,440  
 alone, annually }

**The Producer Gas Co.**

11 Front St. E., TORONTO.

Specialists in Large Gas Engines and Plants.

**WRITE US.**



ESTABLISHED IN 1880.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

**The Canadian Manufacturer Publishing Co., Limited.**

408 McKinnon Building, Toronto.  
Also London, Eng., and Philadelphia, Pa.

J. J. CASSIDY, } - Editors.  
F. S. KEITH, }  
D. O. MCKINNON, - Business Manager.  
A. B. FARMER, - - Subscription Representative.

Cable address: "CANAMAN." Western Union Telegraphic Code used.

**SUBSCRIPTIONS:**

Canada \$1.00, United States \$1.50 per year. All other Countries in Postal Union six shillings sterling, including postage.

Index to Advertisers .....Page 49

**THE TORONTO EXHIBITION.**

As sure as the sun rises and sets on the twenty-sixth day of August next, the Canadian National Exhibition, of Toronto, will be opened with the oclat, pomp and circumstance that have characterized such occasions for lo! these many years. There will be no mistake about it, for Dr. Orr, the manager, says so, and what he says goes. A very marked and observable difference from all previous affairs being that it will be bigger, more comprehensive, more complete, more everything else that will add to the occasion than ever before, including a new Grand Stand, replacing the one destroyed by fire some months ago, and other new and most modern buildings, including the exhibition buildings of the railroad companies, the new Agricultural Building, and others. In fact, those who remember the Toronto Fair Grounds only as they saw it last year, will be surprised and delighted at the improvements and accommodations that will be presented, excellent as they then were. Sir Wilfrid Laurier has most truly said that Canada, as far as material and national greatness goes, is the leader of this twentieth century of the Christian Era; and it may with equal truth be said that the Canadian National Exhibition of 1907 will be the greatest industrial show that ever the sun shone on.

A most pronounced and interesting feature of the show will be the displays of manufactures produced, largely, in Canadian factories and work shops, including displays of machinery in motion, showing processes of production. Previous exhibits of this character have been unique and interesting, but Dr. Orr informs us that spaces have been assigned, and arrangements already made for such displays at the forthcoming Fair very much greater in

extent than ever before. We would therefore suggest that manufacturers who purpose making such exhibits, but have not yet secured their spaces, should lose no time in doing so.

Dr. Orr informs us that in addition to the displays of Canadian exhibitors, arrangements have already been made for our American friends, many of whom will be present. For many years attractive features of the Fair have been the exhibits from the United States. The exhibitors are always most heartily welcomed, and "American Day" is always one of pleasurable excitement and big crowds of visitors.

**IMMIGRATION VS. EMIGRATION.**

An editorial in the Toronto Globe is as follows:

The immigration returns give continuous proof that the twentieth century belongs to Canada. For the nine months ending with March last the Dominion made a record of 126,667 arrivals, an increase of 37,859 or a little more than 30 per cent. over the total for the corresponding period in 1895-96. The arrivals from ocean ports totalled 90,008, a gain of 56 per cent., and from the United States 34,657, a gain of 12 per cent. During the month of March the total number reported was 28,630. As this is close on one thousand per day it shows unmistakably that Canada's capacity and opportunities are now known to the world and that the response of the home-seekers of other nations is assured.

While the influx of population is in itself a most gratifying development, providing traffic for our great highways and lightening by the accretion of numbers, the individual burdens of citizenship, it is much more gratifying as an indication of our prosperous condition, and as an assurance of our future success and stability. Population flows as naturally as water from where conditions of life are onerous to where they are easy and favorable. That there is an overflow from the United States shows that the republic has reached the condition toward which we are eagerly striving, and the surplus must seek homes elsewhere. The crowding over from Europe is naturally larger, and while some of the arrivals may not be familiar with the standards of citizenship established in the Dominion, there is no danger as yet of our capacity for assimilation being exceeded. The British immigrants are certain to be good citizens and the progenitors of good citizens, and we need have no fear of the admixture from the continent so long as we are prepared to open to them conditions of life that will make them firm and faithful in their new allegiance.

A press telegram from London bearing date November 20 last, published in The Globe the next day, was as follows:

The unemployed poor of the city to-day made another remarkable demonstration for the purpose of showing their dissatisfaction with the attitude assumed by the government toward their demands for relief. Thousands of men who have been unable to secure work, formed in procession, and marched through the streets to Hyde Park, where a meeting was held. The demonstration was arranged by the Central Workers' Committee.

The great majority of the men who took part in the demonstration were able-bodied workmen, whose looks told what they are; men anxious for any chance to earn an honest living, but really unable to obtain employment. They were poorly clad, and suffered from the bitter wind. The remainder of the procession was made up of a motely collection of human wrecks, men incapable of working for their own support.

The procession started shortly after 1 o'clock. The line of march took the throng past many of the richest clubs in the city, the shopping center, and fashionable residences of the West End. The brightness of the day caused many persons of all classes to collect in the streets, as the procession passed, and this gave the parade the appearance of a gigantic demonstration.

At Hyde Park, speakers from the ranks of the marchers, made violent speeches. The resolutions offered protested that the men desire work, and are not asking for charity. They further declared: "This assembly declares unending war on the capitalist system and its upholders, which condemns honest and willing workers to idleness and starvation."

Only one slight disturbance occurred to mar the otherwise peaceful demonstration. This took place after the marchers reached Hyde Park. Some of the men unfurled a banner, on which were displayed the words: "We Refuse to Starve... Curse Their Charity. We Demand Work."

A number of men standing near the spot took up the phrase, chanting "Curse their charity, give us work," and started a disturbance. The police broke up the group and arrested the leader.

Considerable significance is attached to to-day's demonstration, following as it does two preceding processions, where women marched through the streets to make a demand upon Premier Balfour to grant relief to the unemployed poor. There are many indications, of which the demonstration to-day is only one, that unless the government gives immediate attention to the subject of affording relief for the poor, there will be riots on the part of the unemployed in London during the coming winter.

The making public in Canada at that time of the social conditions prevailing in Great Britain awakened the deepest sympathy. Queen Alexandra herself — the beloved queen of the British Empire, with her woman's heart, in response to the demands for the relief of her distressed people, originated a fund, which was generously and spontaneously responded to in Canada, and *The Globe*, in a front page double column article, telling of the sore need of the Queen's Fund, said:

There are probably here and there Canadians to whom the conditions in the old motherland are not realizable, and who wonder why it should be necessary for Queen Alexandra to issue an appeal for aid for England's unemployed, and for Olga Nethersole to organize a benefit for them in this far outpost of the Empire, as she does to-day at the Princess Theatre. We are too apt to forget in this land of general comfort and of little prodigality that Great Britain, while, in the aggregate, the richest country in the world, is still a land of privilege and social caste, where, as Mr. Chamberlain pointed out in happier days, there are many who toil not, neither do they spin, yet who are arrayed as Solomon never was. At the bottom of the social fabric there are others whose lives are but one long tragedy from the cradle to the grave. The Rev. T. Given Wilson, vicar of Plaistow, in West Ham, the great working-class district of London, for which *Globe* readers did something last winter, describes some of his experiences among the poor. He says:

"One authority sets the number of starving poor within the southern portion of our borough of West Ham at 36,000, and the 'insufficiently fed' at 72,000. We have no means of either confirming or qualifying those figures. To us it is quite sufficient to know that terrible hunger and privation are rampant in our streets and at our doors.

"Within one short afternoon we came in contact with a laborer, with a family of seven, setting out to the workhouse, having lost everything; an old navy man of 69,

who had tramped and tramped all day after work, without food, until we found him at 3.30; a man and wife giving up their two-roomed house and scuttling into a small single room, while they buy their bread by pawning the extra goods; 'the wife of a man who has earned nothing for five weeks pleading with tears for milk for the baby, while there is not even bread for the older ones'; a deserted wife who is paralyzed, imploring sewing that she can do from her bed wherewith to support herself and her child; a man out of work, most respectable and clean, who has sold nearly everything for bread for the three young children, and comes to plead that we propitiate the landlord, who threatens to turn them into the street, a similar case, only verified by a larger number of hungry children and still less of furniture left. A mother who calls at our hospital to nurse her baby falls in a dead faint, it being the fourth day since she tasted food, her husband being out of work.

"So it goes on, until the parochial visiting is a heart-rending duty. But that is just a sufficient glimpse into the darkness here; and, indeed, subject to local conditions and degree, in many other places. What is the nation going to do?"

Many Canadians would, no doubt, like to contribute something to Queen Alexandra's fund for the unemployed, who yet do not know what machinery to set in motion for the sending of their contributions. There are large-hearted men at the head of our Canadian banks. Is it too much to ask that they at their numerous branch offices, and the Mayors of cities and towns should receive subscriptions and forward them in bulk, thus providing simple machinery for the collection of the Alexandra Fund in the Dominion? We believe thousands of dollars would come rolling in if this were done, and we know what a lot of good was done last winter by the few thousand dollars sent to London by *Globe* subscribers. As we read the sad stories of the vicar of Plaistow, we can only repeat his question, "What is the nation going to do about it?" Canadians cannot remedy social injustice in Great Britain. They can and should help to keep its victims from feeling the pangs of hunger and cold.

As *The Globe* shows, and as we all know, the exodus of the poorer classes of Great Britain is being greatly accelerated. Ever since the Irish famine, soon after the abrogation of the Corn Laws, the abandonment of protection, and the entering upon of the miserable free trade policy that Mill and Cobden had brought upon Britain, under which the rich had become richer and the poor made poorer, the emigration of the working classes had been going on, the people being scattered to all parts of the world; and now, largely through the efforts of the Canadian Government, the tide has been turned hitherward. We quite agree with *The Globe* that Canada is being benefitted by the inflow, but our object now is to show that the exodus is from a free trade country, the only free trade country on earth, to a freer country where protection prevails, and why the exodus prevails. *The Globe* speaks truly when it says that population flows as naturally as water from where conditions of life are onerous (as in Great Britain under free trade), to where they are easy and favorable, (as in Canada under protection). No doubt the British immigrants into Canada will be good citizens, as they would have been at home in Great Britain, were the conditions as favorable there as they are here. But they are not. *The Globe* forgets that in Canada under protection we have a land of general

comfort, while in Great Britain, under free trade, it is a land of privilege and social caste, the poor are made paupers by those who toil not, nor spin, but who are arrayed as Solomon never was. The poor, who are at the bottom of the social fabric, are forced to live lives which are but one long tragedy from the cradle to the grave. The Globe wants Canada to adopt free trade, but can it offer the people of Canada, under free trade, any more favorable conditions than those prevailing in Great Britain, from which the people are fleeing for their lives? Does The Globe imagine for a moment that it argues for the best interest of Canada? In theory free trade may be as beautiful as the stars in the spacious firmament, but the beauty is too intangible for mortals who do not want to be paupers.

#### THE VICAR OF PLAISTOW.

In a recent appeal by the Toronto Globe to the people of Canada for contributions to the fund being raised by Queen Alexandra to relieve the distress of the out-of-work poor of London, it quotes what the Vicar of Plaistow says about the sufferings of the great working element of that great city. "One authority" the Vicar says, "sets the number of the starving poor within the southern portion of one borough of West Ham at 36,000, the insufficiently fed at 72,000." The Vicar of Plaistow is good authority, or The Globe would not have quoted him; and what he says about the conditions in his parish indicates the true conditions throughout Great Britain. The Globe quotes what Mr. Chamberlain says about the "happier days" in Great Britain, but neglects to tell when those days were. It was before the advent of free trade, at a time when a more exhaustive system of protection prevailed than the world ever knew, before or since; and free trade came, not because the laboring and producing classes there demanded it, but because the privileged classes would so have it—the classes which, as The Globe points out, toiled not, yet were arrayed as Solomon never was. An aristocracy of privilege who never cared for the welfare of those at the bottom of the social fabric, "whose lives are but one long tragedy of misery and suffering from the cradle to the grave," as The Globe describes it.

Under protection in Great Britain—from the time of the union—the country grew strong and prospered. Under this protection the privileged classes also grew strong and prospered, and Britain was able to defy the world. When these privileged classes felt themselves sufficiently entrenched, and believed it to be to their interest to do so, regardless of the necessities of the lower classes—those whose brawn and muscle had made Britain what it was, they kicked the ladder of protection away and adopted free trade. The idea was that Britain should be the manufacturer for the world, and that all other countries should be the producers of raw material, and food stuffs for them; and they fondly believed, or said, that every other country which practised protection, would soon abandon it and adopt free trade also. The Globe knows that from that day to this no important nation except Great Britain has ever adopted

free trade; and it also knows that, different from what it was even a hundred years ago, Great Britain is not, relatively, as great and prosperous as it then was.

The great evidence of the prosperity of a nation includes the satisfaction of the masses of the people with the social conditions which prevail there; and such conditions can never be satisfactory unless the people have employment and remuneration that will keep them from want and suffering. As the Vicar of Plaistow shows, these conditions do not prevail in Great Britain, and, as the Globe shows, the working people are fleeing from there as if from a deadly plague. Canada is considerably interested in that portion of the emigration from Great Britain that is flowing into this country, and The Globe, analysing the figures issued by the Dominion Immigration Department for the last fiscal year, shows the number of British immigrants and the sections of the kingdom from which they come, England and Wales, Scotland and Ireland. "It goes without saying," says the Globe, "that there must be reasons for this influx," and a reporter was sent out to enquire. "One of the chief factors," he reported, "if not the chief, in the rush to Canada, is, of course, the scarcity of employment in the Old Country, but one has to talk with some of the unfortunates, and hear their testimony to realize how bad the state of the British labor market really is.

Ask the men why they came, and the answer is, "I was out of work." Before one has pursued his inquiries very far the refrain is repeated so often that it becomes depressing, and one is made to feel with a tenseness never before experienced, the tragedy which lies beneath the surface. "I left Fulham," said a hardy young carpenter, "because trade was so bad that the people there were just about eating each other up." "I had been out of work for a year," explained a Yorkshire factory worker, "and I have a missus and five children to keep." There were representatives of nearly every trade, the majority of whom had the same experiences to relate—"driven from home through want of work." One poor fellow who described himself as a laborer had brought with him a wife and six children, and he was without a cent. This is the evidence of the conditions prevailing in Britain to-day, as published in the Toronto Globe.

We read The Globe from day to day in an endeavor to learn, if possible, reasons for the distressing conditions that prevail in Great Britain, and why so many thousands of Britishers are emigrating from that country. We know that for years past a most remarkable season of prosperity prevails not only in Canada, but throughout the world. In the United States, to greater extent, probably, than in Canada, this season of unbounded prosperity prevails to a greater extent at this time than ever before. The Globe may offer platitudinous reasons for it, but it is refraining most studiously from explaining the reasons for the distress in Great Britain.

The Globe is a believer in free trade, and desires to see Canada adopt it as far and as fast as possible. Great Britain adopted free trade in 1846, abandoning a protective policy that she had lived under and held to for hundreds of years. And the distress of her people, and the

loss of her population is due to that cause. Yet *The Globe* speaks truly when it says, "Population flows as naturally as water from where conditions of life are onerous to where they are favorable." Under free trade in Great Britain the conditions are certainly very onerous—in Canada and the United States the conditions are certainly favorable, hence the emigration.

#### FREE TRADE, AS IT IS IN GREAT BRITAIN.

In the earlier half of the nineteenth century the British Government, which had, up to that time enforced a tariff system more stringent than any other country has ever done—more stringent than any country has ever done since. Protection, as we now call it, was carried to such an extent that it was a crime punishable by fine, confiscation and imprisonment for any manufacturer or merchant to export machinery for the manufacture of textile fabrics, pig iron and many other articles. Under that policy Great Britain became the greatest manufacturing country in the world; and at the same time she had become the largest owner of sea-going vessels, and the white sails of her fleets were seen predominantly on every sea and in every port.

The winds and seas were Britain's wide domain,  
And not a sail but by permission spread.

This condition having been established, every industry in the country was sacrificed to the interests of the manufacturers and the ship owners. Then it was that Cobdenism had its birth. The lands, under such wretched laws, as yet prevail, were mostly in the ownership and control of the nobility. During the days of protection the land supplied the foodstuffs for the people, and agriculture flourished. But agricultural interests had to be sacrificed to give homeward cargoes to ships that had carried British manufactures to the ends of creation—to people who could produce grain cheaper than it could be produced in Britain, and from that time agriculture declined. Mr. Cobden's theory was that Great Britain could and would produce every manufactured article that any people on earth might desire cheaper than they themselves could, and that Providence had decreed that they must be the laboring asses to produce the raw materials for British manufacturers. As long as British ships and sailors and cannon could prevent it, the trade was Britain's, and many wars and much bloodshed and sacrifice of human lives resulted from the efforts of Britain to maintain her supremacy. Such was Cobdenism. Since the beginning of Cobdenism many nations have thrown off the yoke that enthralled them, have adopted methods similar to those that made so rich and powerful, and are now able to defy and challenge her commercial supremacy; 'and there is no important nation on earth but has adopted tariff protection in some form, and forces Britain to pay tariff tribute to them.

Having adopted free trade, Britain desires all other nations to do so too; and to that end Cobdenism is ever active in endeavoring to kill protection wherever it may exist. The free trade theory from an asthetic standpoint possesses some pleasing, but delusive features,

and while there are statesmen in other countries who believe they are competent to think and decide for themselves, and who have no admiration whatever for Cobdenism, there are British Cobdenites who labor and strive in season and out of season and at all times to convince the rest of the world that free trade is the panacea for all national ills.

To further illustrate this insatiable desire of the Cobdenites of Great Britain to perpetuate their theory and to bring other countries under British commercial sway, we republish an article on the subject from a recent issue of the *Bulletin of the American Iron and Steel Association*, which says:

During the Presidential campaign of 1880 we wrote and published the following proofs that the Cobden Club, and even the British Government itself were directly interfering with the tariff legislation of this country.

The weekly edition of the *London Times*, dated July 16, 1880, says, in an editorial article: "It is to the new world that the Cobden Club is chiefly looking as the most likely sphere for its vigorous foreign policy. It has done what it can in Europe and it is now turning its eyes westward and bracing itself for the struggle which is to come. It cannot rest while the United States are unsubdued, so it will go on plying them with arguments and statistics, with books and pamphlets and speeches, until reason has at length done its work and has dislodged protection from the great stronghold in which it has entrenched itself."

And again in the same article it says:—"We wish the Cobden Club the best success in the arduous encounter which lies before it. We hope Mr. Augustus Mongredien's excellent volumes and the other publications of the Club will, between them, carry the United States by storm and thrust reason into all minds, whether willing or unwilling to admit it. But we dare not venture to be prophetic. We have heard too many prophesies, and have waited long and vainly for their accomplishment. That free trade will come some day in the United States it is perfectly safe to assert; 'but how and when, and other minutiae of the kind, must be left to the Cobden Club and to its twelve Cabinet Ministers in their unofficial capacity to decide."

The *Times* for June 28, 1880, further informs us that on the list of members of the Cobden Club are 200 members of Parliament, and the Secretary, Mr. Potter, stated at the recent banquet that "of the fourteen Cabinet Ministers twelve were members of the Club." The action of the Club in interfering with our elections this year is therefore practically the act of the British Government itself, and it should arouse the deepest indignation of the American people. This country is not ready to become the vassal of English manufacturers, who want our tariff reduced for their benefit and not for ours.

In this matter the British Cobdenites are Bourbons who learn nothing and forget nothing, but they hold fast with British bull-dog tenacity; 'and it is a mistaken idea to suppose that they do not continue to promulgate their ideas to-day, not only in the United States, but in Canada and all other countries. The *Toronto Globe* is never at a loss for a text when denouncing protection and abusing Canadian manufacturers when it can conveniently reach out for volumes by Mongredien, Cobden, John Bright and a host of other British free trade writers.



According to Hansard, there was a discussion in the Dominion House of Commons on March 27 and only a few days ago, growing out of the then approaching visit of Sir Wilfrid Laurier to London. In that discussion Sir Wilfrid said:

It suits us in this country to be tinged with protection more than I would like to have. I am sorry to have to make that admission. It does not suit the British people to be tinged in the same way. Their tariff is very different from our tariff. Our tariff is based largely upon customs duties and excise duties. This is the only method we have in this country of raising the revenue. The British tariff is founded upon an entirely different basis. We would not accept the idea that the British public should force upon us their own fiscal views, and no more would they tolerate the idea that we should force upon them our fiscal views, and therefore the only way in which the British Empire can be maintained upon the present foundation is by allowing to every nation composing it the measure of liberty that it has, and also the free choice of the fiscal policy which it is to maintain. For my part, I may say frankly that if I had my own views—if I were asked what would be the ideal condition within the British Empire—the policy that would tend to build the British Empire upon an even stronger basis than it has at present, if that were possible, it would be to have a universal system of free trade between all the parts that compose the British Empire. This would be my view but such a system is not possible at the present time. We could not carry that into effect in this country, nor could it be carried out in Great Britain, and therefore all that we can do is to show the way, to point to the goal, and let time develop it later on.

Sir Wilfrid Laurier, astute politician as he is, is willing to bide his time in the matter of free trade. In his speech from which we quote, his allusion was to free trade within the British Empire, but upon other occasions, as we have frequently shown, his desire was to have free trade as it is in England. What is there about free trade as it is in Great Britain to make it desirable to adopt it in Canada? Of course there are certain classes in that country who desire it, but such classes do not exist in Canada; and it is fair to enquire if the masses in Canada—those who make their living by the sweat of their brow—would be willing to find themselves in similar conditions to what the masses in Britain now are. Sir Wilfrid is a great lover of the British masses, for does he not allow British goods to be imported into Canada at much lower rates of duty than are charged against the goods of other countries? Does he not pay good Canadian money for the importation of every British man, woman and child now flocking to our shores? Does he not pay bountiful bounties to British shops that want to trade with us? Does he not bear all the burdens of ocean transportation for bringing British mails to Canada? Surely Canada in these and other respects treat Britain as though she were a poor relation; and Britain, great and prosperous nation that she is, accepts Canada's charities and contributions and is content to take as long as Canada is willing to give. What is there about free trade as they have it in Britain that commends it to Canadians? Why should Canada be impoverished and made poor that Britain may be increased in riches? Why are the masses of Britain, of free trade Britain, leaving her shores

in droves, seeking homes in Canada? Why does Sir Wilfrid Laurier want to give Canada such free trade and its results as afflict Great Britain? Look at Ireland—close up under the wing of free trade Britain, the most beautiful patch of fertile green earth that exists, the population is constantly decreasing, there are few manufacturing or other important industries, and the people, those who have not emigrated, are paupers, as so many thousands of Britishers are. Canadians are not in love with free trade' as they have it in Great Britain.

#### SAFE INVESTMENTS IN CANADA.

A press dispatch from London says:—Sir Wilfrid Laurier in an interview announced a preference for the use of British capital in Canada. There was an abundant opportunity for safe investment in Canada. "But your people seem timid and hesitant," Sir Wilfrid said. He would suggest no form of investment more than another, but said he regarded the Canadian Northern as one of the safest forms of investment, in Canada or out of it. After giving detailed particulars, he referred to the G.T.P. as another favorable investment, remarking that the Dominion Government contemplated coming to England for a loan to complete the road. This new line would not interfere with the Canadian Northern. He anticipated a good harvest. The mining enterprises offered opportunities for investment, under certain circumstances. Unfortunately, in Canada, as elsewhere, there had been "fakirs." He would like to warn British capitalists to exercise the utmost care. He advised them to send out an engineer. He also referred appreciatively to the prompt and energetic measures taken by the Ontario Legislature in the Cobalt region.

Sir Wilfrid did scant justice to Canada in his interview, if he is correctly reported. There are innumerable opportunities in Canada to-day for the safe and profitable investment of British or any other sort of capital. The value of goods imported for consumption in Canada in 1906 was \$290,360,807, of which \$175,862,071 came from the United States and only \$69,194,588 from Great Britain. Within the last few years probably \$500,000,000 of American capital has found profitable investment in manufacturing industries alone, while the British millions invested in similar industries here may be counted on the fingers of one hand. Sir Wilfrid suggests investments in railroads. Railroads in Canada are certainly a good investment for any man or syndicate who controls large capital, but the country requires immeasurable quantities of other things, the production of which would demand the use of large capital in the aggregate also. There is a woeful need of railroad equipment, locomotives, freight cars, passenger coaches, rails, etc, and local concerns find it impossible to meet the full demand; why do not British capitalists invest their wealth in manufacturing establishments in Canada and enjoy the harvest? Thousands of miles of railroads are now being built in Canada, and along which every few miles new towns and settlements are springing up like magic. The people in these new towns all have requirements, and a strong, imperative demand exists for every imaginable thing and article that human beings use. Who is to supply these demands? Is British capital invested to any great extent in manufacturing industries to supply them? Why did not Sir

Wilfrid tell his British friends that the field is large, that the harvest is ripe and the laborers are few. He should have done so. In 1906 British manufacturers contributed to the extent of only \$69,000,000 worth of goods, notwithstanding the tariff preference, while, in the face of a tariff 50 per cent. higher, their American competitors sent us to the value of \$175,000,000, which enormous trade is increasing constantly. Manufacturing industries in Canada would be at a low ebb indeed were it not for the American capital that is pouring in, but where is the British capital?

#### EDITORIAL NOTES.

United States Consul Shank, writing from Winnipeg in regard to the importation of American cotton goods into Manitoba, says:

The markets for cotton fabrics in Canada are largely controlled by half a dozen Canadian mills. It is estimated that 90 per cent. of the Western trade is supplied by these concerns. The other 10 per cent. is supplied almost wholly by English mills. Practically nothing is imported from the United States, on account of the high tariff on cotton goods, which ranges from 20 to 35 per cent. The British preferential tariff ranges from 12½ to 25 per cent. Goods costing less than 7 cents per yard can not be profitably imported, even under the British preferential tariff, and only a few fancy lines are imported into this country.

The customs returns for the month of February show a continued large increase in the customs revenue and in the volume of imports and exports, as compared with last year. For the eight months of the present fiscal year the customs duties have increased by \$4,627,029, as compared with the first eight months of 1905-6. For February alone the increase was \$800,349, the total for the month being \$4,295,297. The imports for the eight months increased by \$36,402,844, and the exports increased by \$2,555,013. It will be noted that the imports are growing at a very much more rapid rate than the exports. The Dominion treasury was enriched by duties received from imports to the extent of \$4,627,029. In the eight months we imported goods to the value of \$36,402,844, in payment for which we exported to the value of \$2,555,013, leaving a balance of \$33,847,831 to pay which the country will be drawn of its gold to that extent. The laws of trade are inexorable. Under adequate tariff protection this large excess of buying over selling would have remained in the pockets of the Canadian people.

This view of Canada's preferential treatment of the mother country is clearly enough understood in Britain by those who give the situation intelligent consideration. The Westminster Gazette, for example, says Canada "has found benefit in the lowering of the tariff walls, for in her case that is what the preference comes to." The real effect of the preference could not have been more aptly defined. The reduction of the duties on British imports means a reduction of the prices of American goods competing with those from Great Britain, and it does not matter to the Canadian consumer whether the lessening of the cost of what he eats or wears takes the

form of lowered customs duties or of lowered invoice prices.—Toronto Globe.

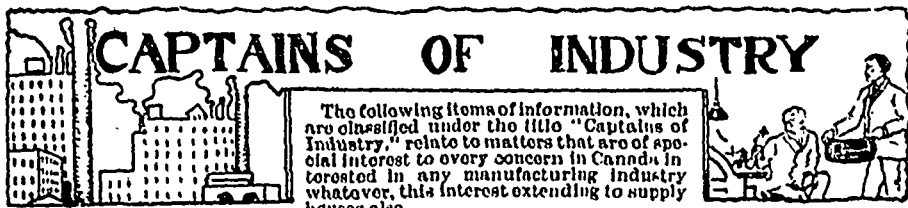
It is a problem not yet demonstrated that Canada has found benefit from the tariff preference. It has resulted no doubt in helping to feed British labor in certain industries, but it has not been effective in lessening the immigration of hundreds and thousands of British laborers to Canada and other protectionist countries. Of course every dollar's worth of British products imported into Canada that might have been made in Canada deprives Canadian labor of occupation and subsistence to that extent. It may be a fact that imports of British goods lessens the cost of living in Canada, but laborers deprived of occupation usually do not possess much wealth with which to buy even the necessaries of life. The thousands of pauperized laborers now flowing into Canada from free trade Britain would remain at home if they could find there even the humblest occupation with which to support life. Protection brings them to Canada.

British publicists are too clear in economic thought to fancy that they can help the colonies with higher prices for wheat without making it dear to themselves. That notion is one of the manifold manifestations of the protection delusion, and while it is seriously entertained in all the colonies it cannot find any acceptance in Britain.—Toronto Globe.

This so called "delusion" is not intended so much to help the colonies as to benefit Great Britain. If Great Britain accepts the proposition and imposes a tax on imported grain, it will not be upon colonial grain but upon the product of foreign countries, and this because of the preferential favors shown to British manufacturers in colonial markets.

If it is possible to suppress a word in the English language Colonel Denison, of the Toronto police court, intends to stamp out the public use of the word "scab" as descriptive of a man who will not go out on strike. When the local cabmen decided to refuse to work, a number of drivers remained with the livery men. A few days ago several of these were engaged for a funeral. On their way to the cemetery Sanford Blake undertook to inform Robert Hearst, one of the non-striking drivers, that he was a "scab." In the police court Blake admitted that he used the word, though he denied qualifying it with any adjectives. "The word is intended to be insulting," said Colonel Denison, "and several years ago I put on fines for the use of it, which made it very unpopular." He explained that he attempted to crush out the use of the word several years ago. He began by giving offenders \$2 each, and continued to raise the amount. He expressed the intention of making men pay \$50 for the luxury of describing non-strikers as "scabs." The fines expanded till they became \$30 and costs, and the use of the word ceased. "As this man may have forgotten that warning I shall make his fine \$10 and costs or 20 days," concluded Colonel Denison.





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



The Page-Hersey Iron & Tube Co., Guelph, Ont., will erect an addition to their plant.

The flour mills of N. Dietrich & Son, Godfrich, Ont., were destroyed by fire recently. Loss about \$15,000.

The Maple Leaf Electrical Mfg. Co. have commenced operations in Galt, Ont., in the building known as the old organ factory.

The saw mill of Henry McIntyre, Sleeman, near Rainy River, Ont., was destroyed by fire. Loss \$6,000.

The Canadian Locomotive Works, Kingston, Ont., will extend their plant at a cost of about \$300,000.

The Folding Box Co., Owen Sound, Ont., have been incorporated with a capital of \$40,000, to manufacture folding boxes, etc. The provisional directors include N. Ross, M. Kennedy, and J. E. Keenan, Owen Sound, Ont.

Pittsburg & Erie Coal Co., Toronto, have been incorporated with a capital of \$20,000, to carry on a wharfing and warehousing business. The provisional directors include E. G. Goodwin, J. L. Patient and D. W. Saunders, Toronto.

The Orange Hall and a large building, formerly an hotel, Shannonville, near Belleville, Ont., was destroyed by fire a short time ago. Loss about \$1,500.

Part of the town of Haileybury, Ont., was destroyed by fire recently. Loss about \$50,000.

The premises of the Barber Asphalt Co., Toronto, were destroyed by fire. Loss about \$15,000.

The Bell Telephone Co. have decided to install an entire new plant in Chatham, Ont. They have leased a new central office, which will be modernly equipped. It is also their intention to put in an underground system, thus doing away with the poles.

The Pacific Coal Mines, Toronto, have been incorporated with a capital of \$6,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. S. Lovell, W. Bain and R. Gowans, Toronto.

The Nipissing Transportation & Trading Co. Sturgeon Falls, Ont., have been incorporated with a capital of \$100,000, to manufacture boats, vessels, ships, tools, machinery, engines, boilers, etc. The provisional directors include G. Gordon, H. E. McKee, and C. A. Britton, Sturgeon Falls, Ont.

Messrs. McMurtry & Co., Bowmanville, Ont., have been incorporated with a capital of \$50,000, to manufacture goods, wares and merchandise. The provisional directors include J. McMurtry, W. F. Allen, and J. S. McCrae, Bowmanville, Ont.

Extensive additions are to be made to the plant of the Collingwood Shipbuilding Co., Collingwood, Ont. A dry dock, 650 feet in length, is to be built, and new berths are to be provided for steamers of the 600 foot class, W. E. Shantz and H. Quelsdorf, Berlin,

Ont., will erect a furniture factory, 80x50 feet, two stories.

One thousand acres of land will be required for the large smelter which Mackenzie & Mann will build in Ashbridge's Marsh, Toronto.

The premises of the Canada Iron & Foundry Co., Hamilton, Ont., were slightly damaged by fire recently.

It has been decided that the new Grand Trunk Railway car ferry recently launched at the yards of the Canadian Shipbuilding Co., Toronto, will run from Cobourg. The arrangement covers a period of 25 years.

A large addition is being erected to the Guelph Carpet Mills, Guelph, Ont.

The Fowler Canning Co., Hamilton, Ont., are doubling their capacity at a cost of about \$75,000.

The Sterling Gas Co., Port Colborne, Ont., have been incorporated with a capital of \$40,000, to manufacture oil gas, etc. The provisional directors include C. E. Steele, Port Colborne, Ont., M. A. Reeb, and H. Reeb, Buffalo, N.Y.

The Martin Larder Gold Mines, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. E. Riley, R. R. Perry, and J. W. Bain, Toronto.

The Lake Superior Iron & Steel Co., Sault Ste. Marie, Ont., have been incorporated with a capital of \$1,000,000, to manufacture iron, steel, nickel, charcoal, coke, etc. The provisional directors include C. W. Thompson, E. P. Seon, and H. T. Hunter, Toronto.

The Ontario Copper Co., Toronto, have been incorporated with a capital of \$3,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. M. Ewing, A. G. Ross and W. S. Edwards, Toronto.

The Grand Trunk Railway Co. will erect new freight offices and additions to the freight sheds at Brantford, Ont.

The factory of the Malone-Manning Wood Fibre Co., Owen Sound, Ont., which was destroyed by fire a short time ago will be rebuilt.

C. K. Milne, Hamilton, Ont., has patented a new art or process of treating and preserving iron patterns from rust.

The paint department of the Peter Hamilton Co., Peterboro, Ont., was destroyed by fire May 25.

The Niagara Lumber Co., Niagara Falls, Ont., have been incorporated with a capital of \$40,000, to manufacture lumber, etc. The provisional directors include F. W. Griffiths, F. E. Franz, and W. B. Powell, Niagara Falls, Ont.

East Bay Larder Lake Gold Mines, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include H. L. Burns, T. A. Silverthorn and F. H. Potts, Toronto.

The Smith-Entremont Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture combs, celluloid novelties, waterproof collars and cuffs, etc. The provisional directors include J. H. Smith, L. A. D'Entremont, and O. G. Smith, Toronto.

The City Engineer, Windsor, Ont., is calling for tenders for the construction of 115,000 feet of cement walks to be laid this season.

The Gundy, Clapperton Co., Toronto, will erect a cut glass manufacturing plant.

The Dominion Transport Co., Toronto, will erect a double decker steel and concrete stable costing \$40,000.

The Queen City Oil Co., Toronto, will extend their oil works at a cost of about \$15,000.

The Construction & Paving Co., Toronto, will erect a two story asphalt paving factory at a cost of about \$12,000.

The Rush Larder Lake Mining Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. B. Harrington, Buffalo, N.Y., W. M. Williams, Joplin, Mo., and A. R. Morton, Toronto.

The Newbury Canning & Preserving Co., Newbury, Ont., have been incorporated with a capital of \$30,000, to carry on a canning and preserving business. The provisional directors include J. L. Heatherington, P. B. Robertson and C. Rush, Newbury, Ont.

The Chesley Furniture Co., Chesley, Ont., have been incorporated with a capital of \$40,000, to manufacture furniture, railway fixtures, mats, rugs, carpets, machinery, etc. The provisional directors include W. G. Durst, J. Hauser, W. Krug, Chesley, Ont.

H. E. Bond & Co., Toronto, have secured a permit to erect a five story warehouse at the corner of Wellington and Simcoe Streets, at a cost of about \$80,000.

The T. A. Lytle Co., Toronto, will erect a three story factory on Sterling Road, at a cost of about \$35,000.

Messrs. Mills & Anticknap are arranging to erect a large tannery in Welland, Ont.

The E. W. Gillet Co., Toronto, will erect a four story warehouse at a cost of about \$12,000.

The Minerva Mfg. Co., Limited, Toronto, are erecting a five story mill construction building, 150 x 60 feet, on Bathurst Street, near College, for the manufacture of skirts, shirt waists and underwear. They expect to move into the new premises about August 1. Theo. Telier is the contractor.

The Norton Telephone Mfg. Co. have equipped the factory of M. Langmuir & Co., with automatic telephones.

The Laidlaw Litho Co., Hamilton, Ont., have been incorporated with a capital of \$100,000, to carry on the business of printers, lithographers, typesetters, electrotypers, engravers, bookbinders, etc. The provisional directors include R. Laidlaw, C. R. McCullough and J. I. McLaren, Hamilton, Ont.

The General Brass Co., Toronto, will build a factory at a cost of about \$9,000.

John Leckie, Toronto, will erect a four story warehouse on Wellington Street.

The Canadian Brass Mfg. Co., Galt, Ont., will erect a two story brick factory, 150x50 feet.

The Faircloth Art Glass & Decorating Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture art and stained glass, wall paper, etc. The provisional directors include R. T. Faircloth, J. M. Faircloth and G. A. Pringle, Toronto.

Cobalt Eldorado Mines Co., Toronto, have been incorporated with a capital of \$2,000,000, to carry on a mining, milling and reduction business. The provisional directors include A. W. Bixel, J. E. Day and E. V. O'Sullivan, Toronto.

The British Dominion Mines, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. C. Burgess, Toronto, J. Ferguson and J. Dixon, North Bay, Ont.

The Canadian Shipbuilding Co., Toronto, report that the two cargo steamers, which they have under construction, at their Niagara yards, are almost completed. They are being built for the St. Lawrence & Chicago Steam Navigation Co., and the Hamilton & Fort William Navigation Co.

The ratepayers of Campbellford, Ont., will vote on a by-law to authorize the issue of debentures to the amount of \$15,000, for granting a bonus to Dickson Bros., to aid them in the erection of a factory for the manufacture of steel bridges.

A new armoury will be erected at Belleville, Ont., at a cost of about \$90,000.

A post office and customs house is being erected at Owen Sound, Ont., at a cost of about \$75,000.

The St. Mary's-Medina Telephone Co., St. Mary's, Ont., have been incorporated with a capital of \$40,000, to carry on the business of a telephone company. The provisional directors include W. F. Brown, J. Pool and J. B. Thompson, St. Mary's, Ont.

The Rogers Electric Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture electrical supplies, etc. The provisional directors include C. Reid, London, Ont., W. R. P. Parker and G. M. Clark, Toronto.

The National Refining Co., Toronto, have been incorporated with a capital of \$20,000, to manufacture electro plated ware, dental supplies, etc., and to carry on a smelting and refining business. The provisional directors include W. M. McTavish, R. J. Dunlop and R. A. McTavish, Toronto.

Convocation Hall, the magnificent new building of the Toronto University will be ready for use this fall. The cost will be in the neighborhood of \$170,000.

The Colonial Investment & Loan Co. have purchased a site on King Street East, Toronto, and will erect a 12 story office building.

A new Wycliffe College will be erected on Hoskin Avenue, Toronto, at a cost of about \$280,000.

Toronto's new reference library will cost about \$260,000.

The W. H. Willis Shoe Co., Seaforth, Ont., have been incorporated with a capital of \$40,000, to manufacture boots, shoes, leggings, leather goods, etc. The provisional directors include W. H. Willis, A. F. Cluff, G. A. Sills, Seaforth, Ont.

Dominion Exploration & Development Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling

and reduction business. The provisional directors include R. J. Tough, R. D. Moorhead and R. H. Paterson, Toronto.

The Algoma Steel Co., Sault Ste. Marie, Ont., will at once commence the erection of a blast furnace at a cost of about \$1,000,000. They will shortly erect a large coke plant to supply the steel works.

Welland, Ont., is considering the erection of a new hospital.

The congregation of the Mill Street Presbyterian church, Port Hope, Ont., will erect a new edifice at a cost of about \$6,400.

The St. Mary Magdalene church, Toronto, will be altered at a cost of about \$40,000.

Mr. Shea, Toronto, will erect a new theatre at the corner of Richmond and Victoria Streets.

The Twin City Oil Co., Berlin, Ont., have been incorporated with a capital of \$40,000, to manufacture oils, greases, compounds, etc. The provisional directors include V. O. Phillips, C. N. Huether, Berlin, Ont., and R. Richmond, Hamilton, Ont.

The Norton Telephone Mfg. Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture electrical supplies, telephones, hotel registers, cabinets, etc. The provisional directors include J. E. Day, J. M. Ferguson and A. W. Bixel, Toronto.

The Auld Silver Mines, North Bay, Ont., have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include I. H. Wright, R. Y. Angus and J. J. Martin, North Bay, Ont.

A new school will be erected in the South ward, Port Arthur, Ont., at a cost of about \$30,000.

The Mergenthaler Co., Toronto, have been incorporated with a capital of \$30,000, to manufacture linotype, type casting, composing machines, etc. The provisional directors include J. D. Montgomery, E. R. Lynch and R. A. Montgomery, Toronto.

The ratepayers of Kingston, Ont., voted favorably on by-laws, granting sites and exemptions from all taxations for ten years to the Stanley Smelting Works, Toronto, and Messrs. Grey & Hedley, of Guelph, Ont., zinc smelters. The concerns will erect buildings at a cost of about \$50,000.

The Mutual Life of New York are considering the erection of a 20 story office building in Toronto. The Janes property, at the corner of Yonge and King Streets, is one of the three sites under consideration.

The warehouse of the Imperial Varnish Co., Morse Street, Toronto, was damaged by fire May 28. Loss about \$1,000.

The Dominion Linseed Oil Co. have closed their mill at Elora, Ont., and have transferred the machinery to Winnipeg, Man., where they have established a large plant to supply the trade of the West.

A. Boyd, Bracebridge, Ont., has purchased the saw mill of the Rathbun Co., at Gravenhurst, Ont., and will operate same.

The Silver City News, Limited, Haileybury, Ont., have been incorporated with a capital of \$40,000, to carry on a printing and publishing business. The provisional directors include C. T. Young, G. T. Hamilton and A. J. Murphy, Haileybury, Ont.

The Champion Mines Co., New Liskeard, Ont., have been incorporated with a capital

of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include M. Rothschild, New Liskeard, Ont., J. Ettenberg, and J. L. Eaves, Montreal.

The Parker Car Heating Co., London, Ont. have been incorporated with a capital of \$16,000, to manufacture car heating devices etc. The provisional directors include T. Parker, J. M. McEvoy and E. J. Dawson, London, Ont.

The Observer Printing Co., Sarnia, Ont. have been incorporated with a capital of \$40,000, to take over the Sarnia Observer newspaper, and to carry on a printing and publishing business. The provisional directors include F. Gorman, A. K. Wanless and N. St. Clair Gurd, Sarnia, Ont.

The MacLean Cream Separator Co., Sarnia, Ont., have been incorporated with a capital of \$40,000, to manufacture cream separators etc. The provisional directors include L. A. MacLean, J. W. Hamilton, and E. L. Macdonald, Sarnia, Ont.

The British American Wax Paper Co. Toronto, have been incorporated with a capital of \$50,000, to manufacture paper of all kinds, machinery for manufacturing paper etc. The provisional directors include J. S. Lovell, E. W. McNeill and H. Chambers, Toronto.

It is stated that large car works will be established at Bridgewater, Ont. A. Roberts, Bridgewater, is interested.

The Michigan Central Railway Co. are building a new subway in St. Thomas, Ont., at a cost of about \$65,000.

The Canadian Pacific Railway Co. will build a line from Hamilton, Ont., to Guelph Junction, Ont.

The Ontario Dock Co. have commenced the construction of the new pier at the foot of York Street, Toronto, for the Canadian Northern Railway Co. The structure will be 466 feet long by 65 feet wide. The wharf will be constructed on two rows of piles, 29 feet apart, with three rows of piles between.

The Polson Iron Works, Toronto, are building a five cubic yard dipper dredge for the British Columbia Public Works Department, two tugs, 80 feet long, for the Rideau and Trent canals; a 15-inch hydraulic suction dredge for Toronto, also a high speed steam yacht.

The Federal Construction Co., Toronto, have been awarded the contract for the wiring of the plant of the Iron & Steel Co., Welland, Ont.

The Owen Sound Dredging Co., Owen Sound, Ont., have been awarded the contract for dredging at Victoria Harbor.

The City Gas Co. has been organized at Oshawa, Ont., Mr. Noxon and J. D. McCutcheon, Oshawa, are interested.

Messrs. Dickson Bros., Campbellford, Ont., have been awarded the contract for the construction of the steel superstructure across the Spanish River at Massey, Algoma District, Ont. The bridge will have four spans of 105 feet, and one of 128 feet, with two approaches of 100 feet.

Canadian Logging Tool Co., Sault Ste. Marie, Ont., have been incorporated with a capital of \$15,000, to manufacture logging and lumbermen's tools, handles, etc.

timber, lumber, etc. The provisional directors include D. Wolf, Grand Rapids, Mich., J. Bennett and V. R. Davey, Ewart, Mich.

The ratepayers of Norwood, Ont., voted favorably on a by-law to raise \$10,000 for cement walks and to improve the town hall.

The Ames-Holden Co., Montreal, are building a five story reinforced concrete factory faced with brick and Indiana limestone at a cost of about \$250,000. The building will have a frontage of 162 feet 6 inches on Lagachetiere Street, running back 170 feet 4 inches, on Inspector, and 202 feet 1 inch on St. Monique to a lane on the south. Foundations are now being laid. Ross & MacFarlane, Montreal, are the architects.

The offices of the Canadian Fairbanks Co., Limited, Montreal, are being remodelled. The second floor of the stock and office building, St. James Street, with a floor space of nearly 7,000 square feet, is being fitted up for office purposes. The front will be divided into three, for the president, secretary and treasurer; the main body of the room will be devoted to the selling and purchasing departments, and the rear end will be the counting room. The finish will be weathered oak, with leaded glass partitions. Saxe & Archibald, Montreal, are the architects.

The Slater Shoe Co., Montreal, have been incorporated with a capital of \$1,000,000, to manufacture leather, boots, shoes, rubbers, varnish, buckles, lasts, etc. The charter members include A. W. Ballantyne, A. Cohen, and A. E. Knox, Toronto.

The Provincial Construction Co., Montreal, have been incorporated with a capital of \$20,000, to carry on a contracting and constructing business. The charter members include J. B. Pauze, P. Trudeau, and Z. Beauchamp, Montreal.

The Snap Co., Montreal, have been incorporated with a capital of \$90,000, to manufacture chemicals, soaps, polishes, toilet articles, etc. The charter members include T. J. Clark, E. G. Long and F. L. Winstley, Toronto.

The lumber mill of B. Grier & Co., and the tannery of the Bonner Leather Co., Notre Dame Street, Montreal, were destroyed by fire May 24. Loss about \$35,000.

The ratepayers of Richmond, Que., voted favorably on a by-law to improve the waterworks system at a cost of about \$25,000.

The premises of the Union Abattoir Co. Montreal, were destroyed by fire recently. Loss about \$100,000.

The hardware warehouse of Messrs. Coverhill & Learmont, Montreal, was damaged by fire to the extent of about \$10,000.

The Laprairie Brick Co., Laprairie, Que., are erecting an extensive addition to their plant.

The Vulcan Portland Cement Co., Montreal, have been incorporated with a capital of \$2,500,000, to manufacture cement, lime, stone, gravel, marl, etc. The charter members include C. A. Pope, L. Macfarlane and A. Swindlehurst, Montreal.

The Macfarlane Shoe Co., Montreal, have been incorporated with a capital of \$150,000, to manufacture boots, shoes, gaiters, etc. The charter members include H. H. Perry, C. L. Buchanan, Montreal, and N. Macfarlane, Westmount, Que.

N. Lord, St. John's, Que., will erect a three story hotel.

The Louison Lumber Co., Sayabec, Que., have been incorporated with a capital of \$200,000, to manufacture lumber, timber, pulp, paper, steamboats, schooners, etc. The charter members include H. H. Brodie, A. W. Cameron, Montreal, and A. C. Dutton, Springfield, Mass.

Farley Phillips, Limited, Montreal, have been incorporated with a capital of \$45,000, to manufacture cut glass, pottery, silver, cutlery, crockery, marble, etc. The charter members include W. Smith, G. Phillips, and E. Gill, Montreal.

Sugars & Cannery, Limited, Montreal, have been incorporated with a capital of \$250,000, to manufacture syrup, sugar, confectionery, etc. The charter members include T. A. Hubley, E. L. Jackson and J. Watson, Montreal.

Messrs. W. R. Cuthbert & Co., Montreal, have secured a lot adjoining their property and will erect an addition to their premises at a cost of about \$100,000.

A new theatre will be erected on St. Catherine street, Montreal, at a cost of about \$68,000.

J. E. Sauve, Limited, St. Louis, Que., have been incorporated with a capital of \$40,000, to manufacture lumber, timber, etc. The charter members include J. E. Sauve, R. Sauve, and G. Poliquin, St. Louis, Que.

The River Plate Shipping Co., Montreal, have been incorporated with a capital of \$150,000, to manufacture ships, steamships, barges, lighters, etc. The charter members include G. I. Dewar, Ottawa, C. A. McCullough, New York, and N. M. Ward, Orange, N.J.

The Canada Optical Goods Co., Montreal, have moved from 207 St. James St. to larger premises at 302 Lagachetiere St. New machinery is being installed doubling their former capacity.

Messrs. John Stewart & Co., Montreal, have commenced work on a new office building for the Bank of Toronto. The building will be five stories in height, reinforced concrete construction, with a frontage of 40 feet on St. Catherine Street and 110 feet on Guy Street. It is to be ready for occupation April 1, 1908. Messrs. Ross & MacFarlane Montreal, are the architects.

The Saraguay Electric Light & Power Co., Montreal, have secured the contract for the construction of the sewer works for the corporation of Cartierville, Que.

The Dominion Textile Co., Montreal, have just completed the new storehouse at the Merchant's Mill, St. Henri, Que. A new story 250x100 feet is being added to the Montmorency plant, to meet the increasing wants of the knitting work. This will be completed this summer. Work has just started on an extension to the bleaching plant of the Magog Print Works.

The Dominion Iron & Steel Co., Sydney, N.S., are erecting seven more batteries of 50 coke ovens each. The company now have ten batteries or 500 ovens. A new record was made at the blast furnaces recently when the three huge smelters turned out on double shifts, 900 tons of metal. The capacity of the furnaces is 750 tons for 24 hours.

The Maritime Mfg. Co., clothing manufac-

turers, Pugwash, N.S., will erect a three story brick factory, 75x40 feet.

Work on the plant of the National Rolling Mills, Sydney, N.S., will commence at once.

The Robb Engineering Co., Amherst, N.S., have received an order from the Intercolonial Railway Co. for ten Robb-Mumford boilers.

The wood working factory of G. S. Eddy, Bathurst, N.B., was destroyed by fire May 29. Loss about \$15,000.

The premises of Messrs. Emack Bros., taxidermists and snowshoe manufacturers, Fredericton, N.B., were destroyed by fire May 26. Loss about \$6,000.

The large dry goods establishment of Macaulay Bros., St. John, N.B., was damaged by fire recently to the extent of about \$100,000.

E. A. Wallberg, Montreal, is considering the establishment of car works at Moncton, N.B.

The ratepayers of St. Mary's, N.B., voted favorably on a by-law to expend \$13,000 on the waterworks system.

The town clerk, Dalhousie, N.B., invites tenders up to June 19, for the following works: Pumping engine, two boilers, dam and gate house, electric light engine, electric light system.

Work has been commenced on the 30,000 bushel elevator being built at Roblin, Man., by Messrs. Perrizo, of Hancock, Minn.

A new steel bridge is to be built over the Pembina River at Snowflake, Man.

The J. McDiarmid Co., Winnipeg, Man., have been awarded the contract for the construction of the postal station B at Winnipeg at a cost of about \$50,000.

The Brandon Electric Light Co. will be extended at a cost of about \$21,000. Considerable new machinery will be added.

The ratepayers of Carman, Man., will vote on a by-law, June 11, to raise \$16,000, for a waterworks system.

A town hall is being considered for Killarney, Man.

The new factory of the London Fence Co., Portage la Prairie, Man., was damaged by fire May 20, to the extent of about \$75,000.

The warehouse of the Massey-Harris Co., Virden, Man., was damaged by fire recently. Loss about \$800.

Messrs. Kelly Bros., Winnipeg, Man., have been awarded the contract by the Canadian Pacific Railway Co. to erect a machine shop at Brandon, Man., at a cost of about \$20,000.

The large workshop of Wm. Gardhouse, Carman, Man., was destroyed by fire recently. Loss about \$4,000.

The Brandon Construction Co., Brandon, Man., have been awarded the contract for the construction of the new building for the Dominion Bank at Deloraine, Man.

The International Heating & Lighting Co., Cleveland, Ohio, have secured an option on a site at Portage la Prairie, Man., and will commence the erection of a gas plant.

The Perfection Concrete Co. have been organized at Winnipeg, Man., with a capital of \$100,000, for the purpose of making hollow building blocks, artificial stone trimmings, lintel sills, and fence posts.

The Canadian Pacific Railway Co. will erect a new depot at Treherne, Man.

Tenders will shortly be called for the erection of a five story addition, 140 x 83 feet, to the Agricultural College Winnipeg, Man.

A waterworks system will be installed at Reliance, Alta.

The Golden West Realty Co., of Calgary, Alta., are installing a complete clay brick plant, the contract for same being filled by A. Berg & Sons, Toronto. A 150 h.p. boiler and 100 h.p. engine from the works of the John Inglis Co., Toronto, are part of the equipment.

The ratepayers of Cardston, Alta., will vote on a by-law to raise \$20,000 for the extension and completion of the electric light and waterworks systems.

A waterworks system will be installed at Francis, Sask., at a cost of about \$25,000.

The sewerage, waterworks and electric light systems, Saskatoon, Sask., are to be extended.

The Warren Bituminous Paving Co., Toronto, have been awarded the contract for laying 31,250 square yards of bitulithic pavement in Regina, Sask.

The J. C. Mitchell Smokeless Powder Co., of Canada, Medicine Hat, Alta., have been incorporated with a capital of \$100,000, to manufacture chemicals, powder, dynamite, cellulose, etc. The provisional directors include J. F. Bending, D. W. Brown and G. Miller, Medicine Hat, Alta.

The premises of the Roman Catholic church, Duck Lake, Sask., were destroyed by fire recently. Loss about \$7,000.

A new Methodist church may be erected at Lumsden, Sask.

The Canadian Pacific Railway Co. will be requested to erect an hotel at Medicine Hat, Alta.

J. M. Dyck will erect a flour mill at Arcola, Sask., having a capacity of 150 barrels.

The ratepayers of Yellow Grass, Sask., will vote on a by-law to expend \$20,000, for waterworks and other improvements.

The large warehouse of J. F. Cairns, Saskatoon, Sask., was destroyed by fire May 27. Loss about \$40,000.

The Canadian Pacific Railway Co. will erect a bridge over the Belly River at Lethbridge, Alta., at a cost of about \$1,000,000.

The Western General Supply Co., dealers in lumber, timber, etc., have opened a branch in Calgary, Alta.

Messrs. Wilker & Son, Rosthern, Sask., are erecting an addition to their sash and door factory.

Two new fire halls will be erected at Edmonton, Alta., at a cost of about \$41,000. Each hall is to have a chemical engine and hose wagon and ladders.

The ratepayers of Indian Head, Sask., voted favorably on a by-law to sanction the issue of debentures for the sum of \$50,000, to provide for the following: new fire hall, \$10,000; extensions to electric light system, \$10,000; waterworks extensions, \$30,000.

The congregation of the Baptist church, Edmonton, Alta., have secured a site and will erect a new edifice.

The Cutknife Trading & Realty Co., North Battleford, Sask., will erect a sand-lime brick plant at a cost of about \$35,000. Besides sand-lime brick, the plant will turn out artificial Indiana sandstone.

J. A. Martin, Portland, Ore., has been carrying on negotiations under the Nanaimo city council, relative to the erection of a

saw mill near Departure Bay. The mill is to have a capacity of 50,000 feet daily.

The Staples Lumber Co., Wycliffe, B.C., have purchased from S. W. Arbuckle and E. H. Crandall, Calgary, Alta., a cement manufacturing plant situated at Exshaw, Alta., including quarrying rights on 640 acres of land.

The Columbia Blower Co., Nelson, B.C., are installing a three fan blower and separator system in the new planing mill of the Elk Lumber Co., Fernie, B.C.

A new school house may be erected at Nelson, B.C., at a cost of about \$60,000.

The Merchants Bank of Canada will erect a large building on the present site of the Palace Hotel, Vancouver, B.C.

Messrs. McPherson & Wilband, formerly of Vancouver, are erecting a saw mill at Abbotsford, B.C.

The new boiler house of the Royal City Planing Mills, New Westminster, B.C., is nearing completion and plans are being made for the erection of new dry kilns.

O. L. Boynton, Fernie, B.C., is considering the erection of a mill at Summit Lake, between Nelson and Nakusp, B.C.

The Fernie Lumber Co., Fernie, B.C., have been making extensive changes and improvements to their mill. They have erected a new boiler house, installed an additional Waterous boiler of 120 h.p., and otherwise improved the power plant. A new fire pump has also been put in. Both the saw mill and the planing mill have been remodelled, and several new machines installed. A new refuse conveyor, with a 900 foot chain, has been erected. In addition to these inside improvements, they have constructed two miles of logging railroad, running from the Elk River at the front of the mill back into their timber limits.

The Golden West Soap Co. have purchased a site in Burrard Inlet, Vancouver, B.C., upon which to erect a factory at a cost of about \$150,000. P. Burns & Co., Vancouver, are interested.

Vancouver, B.C., will spend about \$750,000, on the extension of its waterworks system from Seymour Creek.

The Ontario Storage & Cartage Co., Toronto, who lost one of their warehouses by fire recently, have secured a part of the new Gowans Kent Co. building, near the King street subway. They will build a large central up-to-date plant this summer near the G.T.R. freight sheds.

The Standard Construction Co., Montreal, are equipping the plant of St. Raymond Paper Co., St. Raymond, Que., with electric light and power plant. They are also installing complete motor and lighting equipment for the Kings' Asbestos Mines, Thetford Mines, Quebec.

Livingston & Scott, manufacturers of ladies high grade dress skins, are adding a story 32x46 feet to the addition to their factory built last fall. This will provide for increasing the cutting, shipping and storing departments and will also allow for improving the office and sample room facilities.

The Saginay Electric Light & Power Co. have acquired the electric street lighting contract and franchise for Notre Dame De Grace, near Montreal. About 150 Nerpse

lamps of 50 c.v. each will be installed for the street lighting system. The same company is also building waterworks at Cartierville having secured a 25 year franchise. The waterworks will be completed early this fall. Mr. C. Brandeis is consulting engineer for the company.

Mr. K. L. Aitken, consulting engineer, who was retained some time ago by the waterworks department of the city of Hamilton and the Hamilton Gas Light Co., to report upon electrolytic damage to their piping systems, has returned to Toronto after spending a week on this work. No statement has been given out as yet, as the report will require another month to complete, other than general information to the effect that a large flow of current from the street railway tracks to the two piping systems was found. This matter of electrolytic damage is a serious one, and the results of the Hamilton test are being awaited with interest.

The services of Mr. C. Brandeis, consulting engineer, Montreal, have been retained in connection with the new provincial jail, to be erected near Montreal at a cost of \$1,500,000.

## PUBLICATIONS.

**HOISTING ENGINES.** Bulletin 201 issued by Allis-Chalmers-Bullock, Limited, Montreal, describe Lidgerwood steam hoisting engines for mining purposes. The duplicate part systems from complete sets of standard gauges and templates forms the basis upon which the various styles of these engines are built. An illustration of each style is presented together with detailed description of operation and parts with size and dimensions.

**IRON AGE DIRECTORY.** The annual directory of the Iron Age just to hand has reached its eleventh year of publication. During these years it has increased in volume and scope, and a classified index of goods manufactured by advertisers in Iron Age forms a comprehensive list of the manufacturers of hardware, iron machinery and various metal products in the United States, and as such is a useful book of reference. The price of this volume is twenty-five cents.

**PRINT STYLES on Shoddy Material** is the title of a 28 page cloth bound bulletin issued by the Cassella Color Co., of New York and Montreal. It describes and gives directions for the printing of shoddy materials. The discharge style and the direct print style are elaborated on and full details given for both methods.

**HOPS.** The Bureau of Statistics of the Department of Agriculture have issued a bulletin entitled Hops in Principal Countries that supply foreign trade and consumption with statistics of beer brewing. This compiled by Eugene Merritt and based on data relating to the present commercial situation gives information of continuing value some years to come.

**STEAM BOILERS and Robb-Armstrong engines** are dealt with in two attractive catalogues just issued by the Robb Engineering Co., Limited, Amherst, N.S. In the first catalogue are described Robb-Mumford, Robb-Mumford Brady, return tubular, vertical and marine boiler and interesting information concerning same given. In the second catalogue the well known make Robb-Armstrong engines are dealt with.

The universal use of these is strikingly shown by illustrations of various power plants where they are installed showing that the demand is not confined to Canada but includes Great Britain, the continent, Australia, etc.

**STEEL CASTINGS.** How to make steel castings and tool steel in the ordinary iron or brass foundry by means of dantium alloy. This interesting booklet is in its fifth edition and shows the practical use of dantium which is the invention of James W. Chenhall in the manufacture of steel and malleable castings high quality tool steels and high carbon steel for constructive purposes. Dantium is manufactured by the Dantium Syndicate, Limited, 26 Basinghall St., London, Eng.

**ENGINES AND THRESHERS.** An idea of the extent and variety of the lines manufactured by the Robt. Bell Engine & Thresher Co., Seaforth, Ont., is given in a handsomely illustrated 88 page catalogue just issued by that firm. These include traction, portable and stationary engines, locomotive and stationary boilers, separators, wind stackers, feeders and attachments, saw mill machinery, belting and threshermen's and mill supplies. Detailed descriptions of the engines are given with very complete illustrations that add much to the interest. Any one interested in these lines should not fail to write for a copy of this attractive catalogue.

#### ADDITION TO SAFE WORKS.

J. J. Taylor, safe manufacturers, 145 Front St. E., Toronto, have just completed and are at present moving into an important addition to their already large plant. The new building is a handsome brick and steel structure 242x60 feet, on cement foundations reinforced by extra heavy concrete piers. The new factory addition, which will cost about \$50,000, was necessitated by the growing demand for safes, fire proof vaults, etc., in keeping with the growth and development of the country. It is of first-class factory construction, one story with gallery steel trussed roof with sheet metal outside covering. A forty ton electric travelling crane is being installed so that the heaviest work may be handled with facility. Power will be supplied by three direct current electric motors running three separate lines of shafting, the latter having been installed. For two years past this company have been running their factory night and day to keep up with orders. About 300 men are employed and 50 more will be required.

#### WINNIPEG INDUSTRIAL EXHIBITION.

From July 13 to 20 the big Industrial Exhibition will be held in Winnipeg, Man., and for this preparations in keeping with the magnitude of the undertaking are being made by parties interested in the plan of making this the biggest and best exhibition of the kind ever held in the city.

To this end the industrial bureau of the city is making efforts of especial significance to the manufacturers and the people of Winnipeg. Many of the citizens of Winnipeg are in a condition of comparative ignorance as to the magnitude and scope of the home manufacturing interests, and to enlighten such and for the further purpose of collecting accurate and reliable information as to the manufacturing that is already established and in flourishing condition in Winnipeg, the bureau has decided to devote much energy and effort.

Chas. F. Roland, secretary of the Winnipeg Development and Industrial Bureau, has been for some time doing preparatory work among the manufacturers of the city, looking toward a full and complete display of home manufactures at the exhibition, and in this he has met with an instant and gratifying response from the leading manufacturers of the city who have, without exception, endorsed the plan of a special display of "Made in Winnipeg" goods, and have promised their fullest co-operation.

There is no doubt that the coming Industrial Exhibition will be an occasion upon which the manufacturing capacities of Winnipeg will be thoroughly exploited to the very great enlightenment of many people of the city as well as to the considerable advancement of the very important interests of home manufacture which are involved.

#### ESPERANTO FOR BUSINESS.

While the subject of a universal language has received little consideration in Canada it would be well for manufacturers and others doing business with foreign countries to give the matter some thought. The progress Esperanto has made during the past few years is significant. By means of its universal adoption international commerce will be greatly facilitated.

United States Consul H. L. Spahr, of Breslau, in a recent consular report, gives some information regarding Esperanto.

All over the world trade associations, tourist clubs, scientific societies, and other organizations are seeking a universal language. Whenever an international congress is held, the need for such a language is recognized and discussed. An international committee is being formed, which is to select a universal auxiliary language subject to the following generally accepted limitations: It must be able to serve the needs of daily life, the demands of trade and commerce, and also the purpose of science. It must be easy for people of average education to learn. It should not be one of the living national languages. If the committee adopt a language it is almost certain to be Esperanto.

Esperanto is a language with few rules and no exceptions, no irregular verbs; with a pronunciation, accent, and spelling that can be learned in one lesson, and with a small vocabulary, many of whose words learners already know or guess; besides it is clear flexible, and rather sonorous.

American manufacturers and dealers should make use of this medium in their campaigns for trade with foreign countries. Chambers of commerce and trade organizations should give it a careful consideration. Exporters should study it and have their managers, clerks, and travelling salesmen study it. There are Esperanto groups in the 24 leading cities of Germany, and new ones are forming. There are in the world about 425 groups, besides 60 trade or scientific organizations, whose members either are all Esperantists, or use Esperanto when writing to a member in another country. Fourteen periodicals are printed wholly in Esperanto, 17 partly, and 19 well known journals devote more or less space to Esperanto articles. In recent times eight international business or professional congresses have recommended or adopted Esperanto as the language to be used.

American exporters should not be behind,

if Esperanto be selected; favorable action by them will hasten its adoption. Indifference may give their trade rivals an advantage. Our manufacturers may wake up some day to see English, French, and German salesmen running over the world, glibly talking Esperanto wherever they go, and taking large orders. This is no exaggeration, for Esperanto is being taught in many Japanese schools, and Peru publishes an Esperanto journal. In France and England the movement is especially strong. With Esperanto, in case a correspondent thinks the addressee will not be able to read his letter, he has only to put in a key in the addressee's language, or refer him to the nearest Esperanto group, which will translate for him free of charge. This key is published in many languages, and by its use the letter can soon be read. The key weighs only 5 grams (0.17 ounce).

#### EXHIBITION PRIZE LIST.

In the prize list of the Canadian National Exhibition of Toronto, just issued, numerous changes and alterations have been made, making it more convenient for reference by exhibitors. All animals exhibited in the live stock sections must be registered in the Canadian Herd Book registers.

In the horse section the Canadian breeder is put on a fair footing with the importer. The directors have endeavored in every way to protect and encourage Canadian-bred horses. The prizes in the breeding classes of the horse section have been increased over \$600. Several new classes have been added, especially the one for strings of ten horses, which is expected to be one of the features of this year's exhibit. In the harness, hunter and jumping classes the prize list remains the same as last year, including the King Edward Hotel Cup, which is again being given for the best horse in the runabout class.

In the speed division the prizes have been increased by \$1,000. A new class has been added, providing for horses that are not fast enough for the "free-for-all," but that are too speedy for the 230 classes. The conditions are the same.

In the cattle section, A. T. Gordon, of Combeaway, Scotland, has consented to judge the shorthorns, which is the largest class in this section. The prizes in the Herefords and the Holsteins have been considerably increased.

The general arrangement throughout the prize list this year is alphabetical, so that the finding of any section is made easy. The aggregate amount of the prizes is \$39,000, not including the \$3,600 given in the speed department. This is the largest purely agricultural prize list on the American Continent.

Henry J. Fuller, president of the Canadian Fairbanks Co., Limited, Montreal, has just returned from an extended trip through the Canadian North West.

The Page-Storms Drop Forge Co., of Springfield, Mass., have placed their order for one 300 h.p. Weber triple cylinder vertical gas engine with twin suction gas producers, which is to operate their new half million dollar plant at Chicopee Falls, Mass. The fuel used in these producers will be buckwheat anthracite coal. The engine and producers will be installed by the Weber Gas Engine Co., Kansas City, Mo.



# Growth of Canadian Manufactures.

A WONDERFUL RECORD. NEARLY DOUBLED IN FIVE YEARS.

A bulletin issued by the Census Department at Ottawa on June 5 gives information showing the wonderful progress made in manufactures in the Dominion from 1901 to 1906. In 1901 the amount taken from the census of works employing five persons or over was \$481,055,575, while in 1906 they had increased to \$712,664,835. By provinces the returns are:

	1901.	1906.
*Canada.....	\$481,055,375	\$712,664,835
Brit. Columbia...	19,447,778	38,013,515
*Manitoba.....	12,927,439	27,609,268
New Brunswick	20,972,470	22,133,681
Nova Scotia...	23,592,513	32,545,930
*Ontario.....	241,533,486	365,692,144
P. E. Island...	2,326,708	1,851,615
*Quebec.....	158,287,994	217,224,073
*The Territories..	1,964,987	7,594,600
* Not Complete.		

## IN THE CHIEF CITIES.

By cities the returns for the chief places of the Dominion in 1900 and 1905 were as follows:

Place.	1900	1905.
Montreal	\$71,099,750	\$99,716,772
Toronto	58,415,498	84,689,253
Hamilton	17,122,346	24,625,776
Winnipeg	8,616,248	18,983,290
London	4,122,185	12,626,844
Peterboro	3,789,164	11,566,805
Quebec.....	12,779,510	11,388,045
Vancouver.....	499,152	10,067,556
Ottawa.....	7,638,688	9,336,024
Brantford.....	5,564,625	8,546,679
Halifax.....	6,927,552	8,145,016
St. John.....	6,712,768	6,918,638
Maisonneuve....	6,008,780	6,866,107
St. Cuneonde....	2,904,381	5,475,686
Berli.....	3,307,513	5,449,012
Saint Ste. Marie..	2,278,472	5,251,643
Hull.....	3,182,505	4,892,381
Amherst.....	1,151,907	4,174,929
Sydney.....	631,396	4,085,659
	1901	1906.
Guelph.....	3,689,183	4,814,925
Kingston.....	2,405,173	4,329,607

## PRINCIPAL TOWNS OF ONTARIO.

In towns in Ontario of 1,500 population and over the figures are:

Place.	1901.	1906.
Alexandria.....	\$214,870	\$374,259
Almonte.....	845,800	906,466
Amherstburg.....	71,100	103,924
Arnprior.....	1,117,322	1,408,460
Aurora.....	213,539	428,225
Aylmer.....	313,527	793,114
Barrie.....	367,338	774,366
Belleville.....	559,950	1,658,112
Berlin.....	3,307,513	5,449,012
Blenheim.....	73,090	400,555
Bowmanville.....	632,500	545,250
Bracebridge.....	980,200	2,315,407
Brampton.....	249,915	819,658
Brantford.....	5,564,625	8,545,679
Brockville.....	1,551,590	1,645,940
Campbellford.....	354,037	714,652
Carleton Place.....	392,735	597,160
Chatham.....	2,714,977	3,530,200
Chealey.....	222,950	487,649
Clinton.....	338,225	386,818
Cobourg.....	949,968	871,842

Collingwood.....	3,232,609	2,937,477
Corwall.....	2,159,809	2,210,901
Deseronto	1,666,047	1,838,136
Dresden.....	63,170	156,000
Dundas.....	1,017,150	1,700,051
Dunnville.....	268,090	444,290
Exeter.....	142,411	248,060
Forest.....	129,240	218,127
Fort William.....	111,507	581,996
Galt	2,225,343	2,849,155
Gananoque	863,079	1,384,116
Goderich	289,614	2,105,847
Gravenhurst.	521,045	743,039
Guelph.....	3,689,183	4,814,925
Hamilton.....	17,122,346	24,625,776
Hanover.....	150,016	808,839
Harriston.....	575,930	691,968
Hawkesbury....	1,101,049	1,757,044
Hespeler.....	925,643	738,208
Hintonburg....		393,000
Huntsville....	771,827	1,601,250
Ingersoll	2,515,169	2,719,460
Kemptville	106,547	206,845
Kincardine....	219,225	202,369
Kingston.....	2,045,173	4,329,607
Kingville	116,762	180,084
Leamington...	72,825	286,428
Lindsay	1,773,427	1,939,787
Lastowel	358,223	440,179
London	8,122,185	12,626,844
Meaford	228,025	641,154
Merriton	1,036,350	790,180
Midland	1,638,312	1,807,110
Mitchell	237,927	236,492
Mount Forest	214,258	404,034
Morrisburg...	56,100	18,064
Napanee.....	230,157	408,206
Newmarket....	349,000	1,322,600
Niagara Falls	422,728	774,142
North Bay.....	16,500	478,802
Oakville.....	267,342	492,200
Orillia.....	836,491	1,119,825
Orangeville....	84,350	98,240
Ottawa.....	7,638,688	9,336,024
Ottawa East...		95,552
Oshawa	1,341,100	2,298,640
Owen Sound..	1,173,777	2,191,789
Palmerston	807,654	802,537
Paris.....	1,071,069	1,601,875
Perry Sound	440,998	601,059
Pembroke	616,581	913,015
Penetanguishene...	740,706	1,160,442
Perth.....	273,369	227,845
Peterboro'.....	3,789,164	11,566,805
Petrolia.....	261,493	718,434
Pictou.....	368,157	869,385
Port Arthur.....	105,000	686,837
Port Hope.....	656,605	968,396
Portsmouth.....	91,239	25,000
Prescott.....	191,600	397,274
Preston.....	857,425	1,472,764
Rat Portage, (Ken-		
ora).....	807,111	1,311,346
Renfrew.....	379,525	692,362
Ridgetown.....	285,850	290,902
Rockland.....	750,350	1,247,800
St. Catharines....	2,070,543	3,042,343
St. Mary's.....	717,652	729,004
St. Thomas.....	2,248,346	2,213,503
Sarnia.....	2,645,797	3,825,470
Sault Ste. Marie..	737,842	5,251,643
Seaforth.....	398,217	347,389
Simcoe.....	371,660	539,150

Smith's Falls.....	1,397,075	1,387,115
Southampton	115,259	167,119
Stratford..	1,935,176	3,824,586
Strathroy.....	352,029	416,564
Thorold..	317,946	612,588
Tillsonburg.	546,111	1,006,896
Toronto...	58,415,498	84,689,253
Toronto Junction.	1,951,359	3,577,861
Trenton...	662,675	331,415
Uxbridge...	222,905	235,755
Vankleek Hill	100,857	173,161
Walkerton....	356,719	318,241
Walkerville...	2,017,179	3,566,451
Wallaceburg...	482,779	913,900
Waterloo..	1,052,177	1,668,647
Welland...	152,087	362,475
Whitby.....	144,890	211,640
Warton.....	252,003	309,701
Windsor...	1,260,947	1,715,160
Wingham.....	407,291	439,561
Woodstock....	2,508,247	2,778,578

## STATIONERY ENGINEERS' CERTIFICATES. AN ACT CALCULATED TO BENEFIT BOTH THE STATIONARY ENGINEER AND THE EMPLOYER.

The Legislature of Ontario at its recent session passed an act respecting stationary engineers in which engineers and employers are alike interested. Briefly stated, its provisions are that, after the 1st day of July, 1908, no engineer will be allowed to operate or have charge of a stationary steam plant of 50 h.p. or upwards who does not hold a government certificate. There are three classes of engineers to whom certificates will be granted without the applicant having to undergo an examination: first, those who on the 20th of April, 1907, (the date on which the Act was passed) held certificates from an association of stationary engineers in Ontario, or a marine or locomotive engineers' certificate; second, engineers who on the above date were in charge of a plant of 25 h.p. or over in Ontario; third, engineers who had at any time previous to the passing of this Act, not less than two years' experience in the operation of such a plant in the province. Those who cannot qualify as above will have to pass the examinations which will hereafter be prescribed by the Board of Examiners.

Those interested may obtain a copy of the Act and application forms for certificates by addressing The Secretary, Department of Agriculture, Toronto.

## TESTING AND INSPECTING.

There are times when a test of a power plant will save hundreds of dollars to its owner. There is no time when a manufacturer should not know the efficiency of his boilers and prime movers. By finding out this, one is in a position to make needed changes that tend to economy. Some are content to drift along in this direction from year to year but it is a mistake and a costly one. Another drain to manufacturers is the use of inefficient or worn out lamps, the power for which in proportion to the light desired, is many times the price when standard lamps are used. It is a further mistake for a company not to know where it stands in this connection. The Electrical Inspection Bureau & Test Laboratory, 40 Hospital Street, Montreal, have made a specialty of these two features and at a nominal cost give full reports. A card dropped to the above address will give complete information.

## A Fine Municipal Lighting Plant.

RECENT INSTALLATION AT BARRIE. ONE OF THE MOST ECONOMICAL EQUIPMENTS IN ONTARIO.

When the town of Barrie, Ont., in 1899 decided to buy out the then existing electric light plant from a private company, they came into possession of electrical equipment comprising one 16 feet x 66 inches horizontal return tubular boiler, and a 14 and 28 x 36 Brown engine. A 133 cycle, single phase, 2,200 volt alternator of approximately 50 kilowatts capacity was installed, together with an equipment of direct current, series arc machines. The entire plant was then completely remodelled and the old boiler and engine room made into one, at which time a 12 and 22 x 30 Wheelock engine was installed. Two new Goldie & McCulloch boilers,

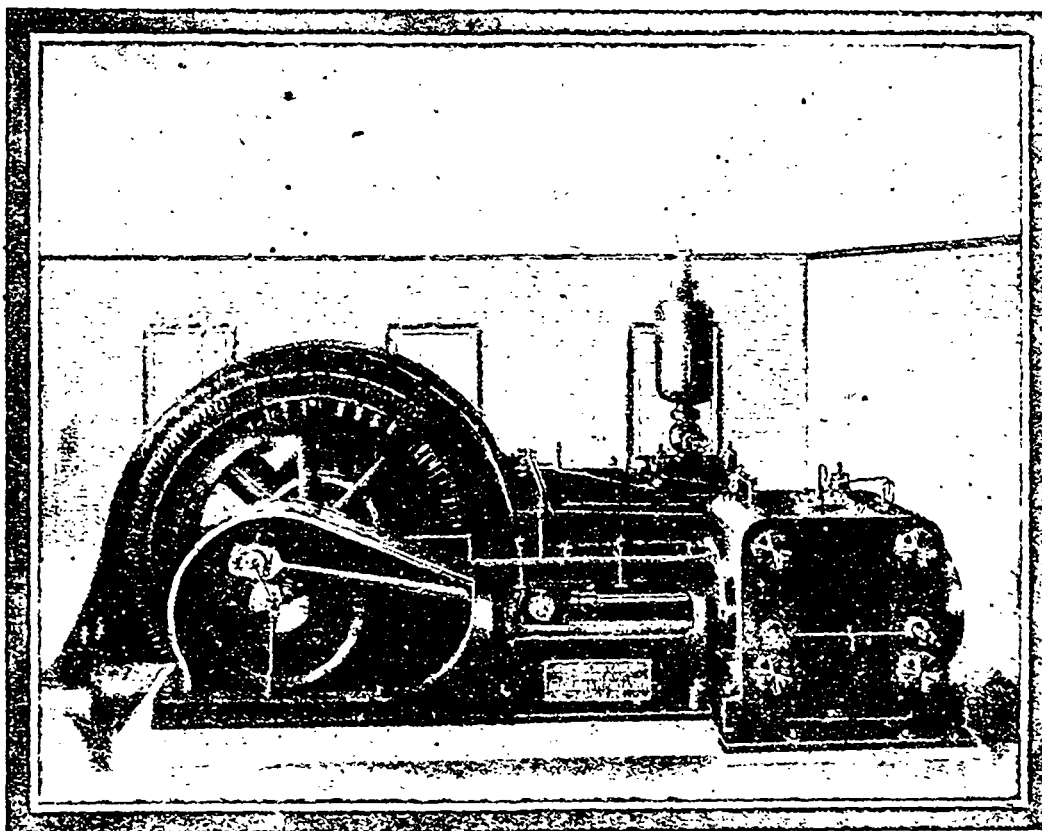
over is purchasing current on the meter basis. Although by this means very apparent reduction was made in the load on the plant it was found necessary three years later to again increase the capacity.

### THE PRESENT HIGH-CLASS INSTALLATION.

It was decided to have the most economical and high-class plant and apparatus obtainable, and with this in view, the consulting engineer of the town worked out the requirements for the present plant, which has been fully installed and recently tested with the most satisfactory results, such that to-day no other town in the province of Ontario has

pulley 42 inches in diameter, which is used for driving a 17 kilowatt exciter. This pulley is mounted between the generator and the flywheel, and hence it is not unsightly.

A 12 and 20 x 18 independent jet condenser was also purchased from the Goldie & McCulloch Co., and a heater of the open type was installed by the Canada Foundry Co. Two duplex, outside packed, plunger pumps were supplied by the Deane Steam Pump Co., of Holyoke, Mass., and these, with the old duplex pump formerly used in the plant, comprise the feed water supply. One pump, operating under a Williams governor, supplies water from the hot well to the heater while one of the other pumps takes its water from the heater and delivers same to the boiler, the third pump being held as a spare. The pump connections are so arranged that any of the three machines may be used either for supplying the heater or delivering



GOLDIE & McCULLOCH ENGINE AND ALLIS-CHALMERS-BULLOCK GENERATOR IN MUNICIPAL POWER PLANT, TOWN OF BARRIE, ONT.

16 feet x 73 inches, each containing ninety-six 3 1/2 inch tubes, were also added. Besides building a new smoke stack, the electrical generating capacity was increased by the addition of a 150 kilowatt, 66 cycle, S.K.C. generator of the two-phase type, wound for 2,200 volts. The arc machine equipment was also added to the new switchboards purchased for the two generators.

### INCREASED DEMAND.

As the demand for electrical energy increased, the load on the plant grew until in 1903 it was found necessary to install meters. This time considerable controversy arose as to the frequency of the meters to be used, and it was finally decided to install those of sixty cycles and from then until the present time every consumer using three lights or

an equally efficient and up-to-date municipal electric light plant. These changes were made under the supervision of Mr. K. L. Aitken, Consulting Engineer, of Toronto, who had full charge of the installation.

The old boiler house was considerably enlarged, and a new Babcock & Wilcox boiler was installed therein. This new boiler contains some 2,000 square feet of heating surface, and is designed for a working pressure of 165 pounds to the square inch. A cross compound, high speed Corliss engine with steam actuated dash pots, was purchased from the Goldie & McCulloch Co., and a 300 kilowatt, two phase, 60 cycle, 2,300 volt Bullock generator was mounted directly upon its shaft. There is also mounted on the shaft of the engine a double flanged

to the boiler and hence the equipment is extremely flexible.

The heater discharge is equipped with a thermometer, and a similar device has been placed on the outlet of the condenser so that the highest possible temperatures may be continuously maintained. The steam delivered to the heater is the exhaust from the feed pumps and condenser, and is just sufficient at full load to give a feed temperature a little over 200 degrees Fahrenheit.

All low pressure piping was supplied by the Garth Co., of Montreal, while the high pressure lines, which consist of extra heavy pipe, flanges, and fittings, put together with copper gaskets, were supplied by the Walworth Co., of Boston, Mass. A new 50 light constant current transformer, with full com-

plement of lamps and absolute cutouts, was furnished by the Canadian Westinghouse Co., of Hamilton, Ont., who also supplied the arc generator and switchboards.

Pending the installation of a second direct connected unit, the old boilers, the Brown engine, and the S.K.C. generator are being retained, but when the time comes for the change, this belted equipment will be discarded and a new engine designed for working on 150 lbs. initial pressure, will be installed.

As the plant stood before the present changes were commenced, the engine room was completely filled, and hence, to put in the new unit, the Wheelock engine had to be taken out. The new installation has been made throughout with the idea in mind that

future enlargements will not in any way disturb the existing equipment and this will be appreciated as a very desirable condition of affairs, and directly opposite to that which existed a year or so ago.

The new engine and generator were put into commission on December 12, 1906, and the official tests were made in March of the present year. When operating at its most economical point, the engine developed an indicated h.p. on approximately 13½ lbs. of steam per hour. This is with a boiler pressure of 160 lbs. and a 27 in. vacuum in the condenser. This remarkably high vacuum for a condenser of this type is made possible through the general arrangement of the exhaust piping and it is being maintained continuously.

## Advertising of Engineering Products.

BROOKE-McCONNELL in Industrial World.

Advertising is to the manufacturer of engineering products what steam is to machinery—the great propelling power.

No kind of business can enjoy substantial growth without advertising, and it is more necessary in the engineering field where competition is sharp than in any other field.

Some well-informed genius has aptly expressed the idea in the following verse:

### AN AD-VANTAGE.

"Who would add unto his trade  
Should have an 'ad' and well displayed,  
For 'ads,' if one knows how to write 'em,  
Add to one's trade ad infinitum."

Only a few years back advertising was considered a mere adjunct to a business, receiving but scant attention. To-day, on the other hand, advertising is an established business, an industry with fixed methods and the advertising specialist occupies the same plane in the world of commerce as the inventor, the engineer, and the manufacturer.

Following the ingenuity of the inventor and the skill of the engineer in developing an idea and carrying it to the state of highest perfection as a marketable engineering product, the manufacturer takes the article in hand. The manufacturer's duty is twofold, that is, he must devise means of manufacturing the article at the lowest cost and at the same time fertilize, by judicious advertising, the selling field. It is at this point that the services of the advertising specialists become necessary.

### AN ADVERTISING CAMPAIGN.

A convinced public is the ultimate aim of every well-planned advertising campaign. By campaign is meant the carrying out of a conservative plan based upon a substantial and logical reasoning of the conditions surrounding the inception, and the successive methods employed in the general exploitation of the commodity.

In carrying out a successful advertising campaign for engineering products there are two important mediums at the command of the advertiser—his trade journal and his catalogue. Both are essential, the former as a means to arouse public interest and create a public demand for the article or commodity exploited, while the latter constitutes a record of ever ready reference for the consumer's library or file. Of the two, the former is least understood.

In the trade journal lies the quickest, surest and most reliable way of reaching the attention of the man who buys your product.

Too often is the advertising in the trade journal looked upon merely as a piece of printed paper. Trade journal advertising is a process, the ultimate workings of which result in direct returns, indirect returns and good will. The value of the first two is pretty generally understood and appreciated, but the third, the cumulative value of advertising as evidenced in the good will created, is underestimated. What manufacturer of engineering products, who has been well advertised to his trade, does not consider that the good will is the largest asset he has? Good will, reputation and public confidence are created only through advertising, which at the same time constitutes the cheapest form of insurance.

### HOW TO ADVERTISE.

With the foregoing facts understood there exists the question, "How shall I advertise?" To this we would reply that each case must be analyzed. No two businesses, even those following similar lines, can be advertised in the same way with like results. If we assume, for instance, that the competing lines be gears, identical in material and form, and manufactured for the same market, we would find that the resources of the manufacturer, the conditions under which the work is carried on, etc., all combine to vary the method of procedure.

A thorough understanding of human nature is essential to successful advertising. Primarily, advertising creates the desire. Desire, in turn, depends largely on feeling and emotion. Therefore, play on the inner feelings. Individualize your copy: select your words and illustrations with a view of attracting attention or curiosity, and then, in the language of the "spell-binder," "drive your arguments home." Curiosity, interest, desire, and resolve to buy, follows successively and mark the effective result of an effective advertisement.

Don't blame the trade journal for not bringing results if you simply "hang out your sign" in your advertising copy. Much depends on the way an advertising proposition is presented. Strong business-getting copy is a composite result of a thorough knowledge of the subject, of business methods, of type,

white space, illustrations, etc. The arguments must be varied, and new methods devised to make the copy more attractive and compelling.

Publicity is the finest business-getter there is, but the prime requisites for ultimate success are confidence and patience. Many promising advertisers give up advertising because results are slow at first, forgetting for the time that the beginning of most things is difficult. Just as sure as it is necessary to go through a formal introduction in your social intercourse, you will find it equally as necessary to formally introduce your product to the ever suspicious consumer. When the consumer becomes better acquainted with the advertiser the latter will get the trade he has so earnestly striven for. It takes time to build up a reputation for a product that will make it the choice of discriminating users everywhere. A trademark which is synonymous with sterling worth is not established in a day. Good advice, in condensed form, reduces down to: "Be sure your advertising is being conducted right, and then go ahead."

### VALUE OF ADVERTISING.

An advertiser will say that his advertising space in the trade journal will not be productive for the reason that it will not be seen. This is an argument so lame that it requires but a few minutes' conversation with any trade journal reader of the present day to refute. The advertising section of the trade journal to-day is a criterion of the progress made in commercial engineering and has become equally as important and full of interest as the editorial pages.

A further argument advanced by the non-advertiser is that his real business success lies in personal solicitation. In this age of giant enterprises, no business man can personally reach the consumer—he must seek some means of presenting his product to that all important bulwark of trade in an attractive and convincing manner that will induce him to buy. After years of costly experimenting it has been found that the only truly successful means lies in persistent systematic, specialized advertising.

The present apparently overworked condition of the market ushers into active interest the question of whether it pays to advertise when orders are plenty. Much depends on the view-point from which the question is considered. If the opinions of some manufacturers were taken as final, advertising would receive little attention at such a time.

No business can stand still—it must improve or deteriorate. No progressive business man is content with a normal growth. This satisfied state of mind means stagnation and stagnation at this stage of the world progress foreshadows death. The man who stops advertising because he has ordered ahead is attempting to conduct broad-gauged business on narrow-gauge advertising, a procedure destined to fail. The manufacturer who continues to advertise when enjoying prosperity has all the substance of a captain of industry.

The difficulty with many advertising manufacturers lies in their not having a clear grasp of the relation that production bears to consumption. They fear to increase the facilities, claiming that there is always the danger of becoming a victim to over-



duction. There is no question of over-production. The producers of the world are taxed to their utmost to meet the demands of the consumer. Production has never been able to keep pace with consumption, and it is safe to say, never will, for the desire to consume is always vastly greater than the effort to produce.

It is not a question of "Do the demands of trade justify increasing my plant?" but one of "Is my advertising sufficiently broad-gauged to keep pace with my rapidly-growing business?" Don't imagine that because you are obliged to turn down orders you are discouraging future inquiries from the same sources. It is human nature to want what

you cannot get. An order crowded out to-day will multiply into several orders in the future. Advertise while times are prosperous and, as in accident assurance, reap your reward when you need it most.

Properly nourished there is no business investment so safe, reliable, secure and productive as your advertising.

## Producer Gas Engine Plant--For Pumping and Lighting.

A power plant, for pumping and electric lighting, of a model nature with producer gas engines as prime movers has been installed at Rocky Ford, Colorado.

### POWER HOUSE.

The plant is housed in a concrete block structure on concrete foundations, having a 40x52 foot main building for the engines

cross connection between the gas pipe lines permitting each producer to operate either engine. The producers are specially arranged for operation with Colorado anthracite, an inferior grade of anthracite coal. These were installed under a fuel consumption guarantee of 1½ pounds of this fuel per h.p.-hour, but it is stated that they have been operating

since the completion of the plant on about 1 lb. per hour.

The producer consists of a cylindrical steel shell, lined with fire brick and fitted with a grate, and has a charging hopper at the top and a hand blower. It is also fitted with a small drum or boiler, through which the hot gases travel to the scrubber, thereby creating the steam which is necessary to supply hydrogen to the gas. The cylindrical scrubber is used for cleansing the gas and cooling it, the gas, after leaving the boiler, flowing through a water bath at the bottom, and then up through the scrubber proper, which is filled with coke and covered by a continuous spray of water. It is then delivered to the gas receiver and is ready to be used in the engine.

### VERTICAL GAS ENGINES.

The two engines are of the three-cylinder vertical Weber type, specially designed for operation with suction gas. They are located at opposite sides of the rear of the engine room and direct connected to a short jack-shaft from which the pump and generator are belt-driven. The jack-shaft is 5 inch steel shaft, 20 feet in length, which connects through a friction clutch at either end to the fly wheel of one of the gas engines, thus permitting the load to be transferred from one engine to the other at any time. This arrangement also facilitated connections to the gas mains from the producers, which are brought into the engine room at an elevation of about 7 feet



FIG. 1--TWO 100 H.P. TRIPLE CYLINDER WEBER GAS ENGINES IN POWER PLANT AT ROCKY FORD, COL.

and pumping and electrical generating equipments, and a smaller building 28 feet square, at the rear and at one side, for the gas producer plant the two being connected by a 12 foot passageway. The building is finished with concrete floors and a wooden roof with skylights for light and ventilation. In the front of the engine room an office, bath and dressing rooms are provided for the convenience of the attendants. Fuel is stored in a 14x40 foot building at the rear of the producer house, which adjoins a side track from the railroad permitting shoveling coal directly from cars into the bin. This house provides for the storage of over 100 tons of fuel: this is wheeled into the producer house in buckets which are hoisted by a jib crane on the elevator charging platform from which they are pumped directly into the producer charging hoppers.

### THE PRODUCERS.

There are two Weber gas producers of 100 h.p. each, centrally arranged in the producer house with an elevated platform for access to the charging hoppers. Each outfit consists of a producer, a scrubber and a receiver, which is connected to deliver gas through a 1 inch line to a corresponding gas engine in the adjoining room. The producer equipments are installed in duplicate, as are also the engines, so that two complete and independent power plants are secured, a

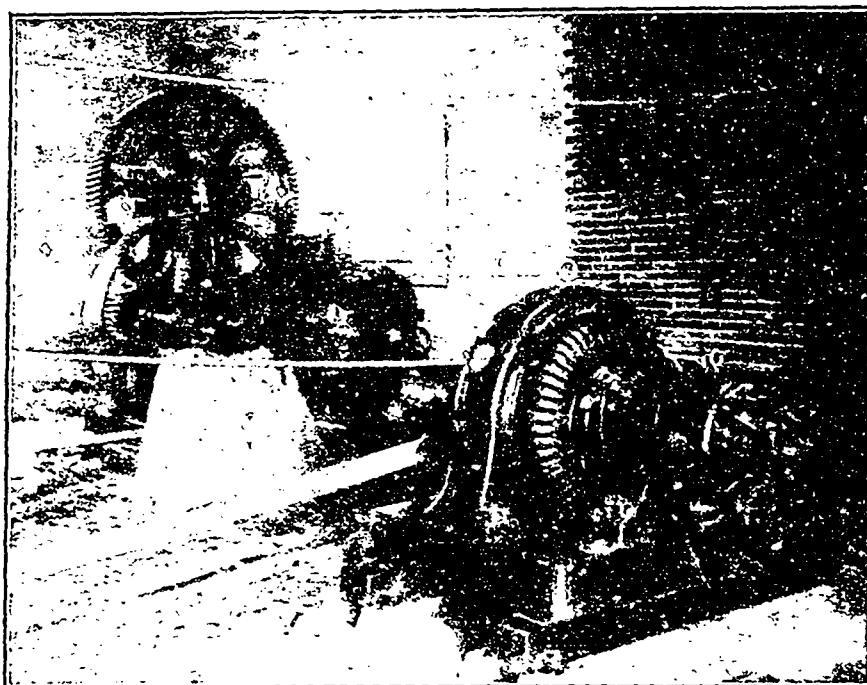


FIG. 2 DEANE TRIPLEX POWER PUMP AND 65-K.W. ALTERNATORS WITH DIRECT CONNECTED EXCITER BELT CONNECTED TO WEBER GAS ENGINES.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

above the floor level. The exhaust connections are 5 inch lines carried from the cylinders of either engine through the roof independently.

The engines have cylinders 14 inch in diameter by 15 inch stroke, and operate at 280 r.p.m. The ignition system is of the positive make and break or "hammer" type, the current being supplied from friction-driven magnetos. The engines are governed with a ball governor driven by a secondary shaft, the governor actuating special intake valves which act directly on the air and gas by throttling. Lubrication is accomplished by the splash system, the crank case being enclosed and filled with oil. The engines are started by compressed air, which is furnished by a 5 h.p. gasoline engine, direct-connected by an air compressor. This engine is ordinarily started by hand for supply of air pressure in starting a producer, and the air is stored in a 24x72 inch cylindrical tank. It is also connected by belt to an exhaust fan which is of service for quickly building up the fires in a producer in starting, so that while the compressor is developing sufficient air pressure for starting an engine, the exhauster may be used to force the fire in the producer so that both parts are made ready for use at the same time.

#### PUMP AND GENERATOR.

Both the pump and the generator are driven by pulleys mounted on quills on the jack-shaft and connected to it by friction clutches operated by floor-stand wheels at the rear of the shaft. The generator is 65-kw. Bullock

alternator, supplied by the Allis-Chalmers Co., which is wound to deliver at 2,200 volts direct to the distribution lines. It has a four-pole exciter direct-connected to the generator shaft. This unit is used for both street and commercial lighting in the city.

The pump is 12x14 inch Deane triplex pump rated at 1,000 gallons per minute against a pressure of 100 pounds. It has a 12 inch suction from the wells and delivers through the mains through a 10 inch line. The pressure carried normally is 40 pounds on the main, which is raised to about 100 pounds direct pressure for fighting fire. In tests that have been made fire alarms have been turned in when one engine was driving the generator and the pumps were delivering at 40 pounds pressure to the system. The pressure was immediately raised from 40 to 100 pounds. Under such conditions the duplicate engine of the plant has repeatedly been put in operation and the load shifted from the other engine in not over five minutes, and with a variation of water pressure of less than two per cent. during the change. Under repeated test the engines have shown themselves capable of withstanding changes from no load to full load with variations in speed of less than two per cent., and with the duplicated arrangement of equipments throughout, one always serves as relay to the other for immediate use in case of a fire alarm or accident.

The entire power equipment of the plant, together with the generator and pump, were installed by the Weber Gas Engine Co., of Kansas City, Mo.

## Busy Berlin.

The twenty-first annual report of the Board of Trade of the town of Berlin, Ont., just issued, is full of interesting information concerning that progressive industrial centre. Berlin, for its size, is known as one of the busiest places on the map, and a perusal of the report gives many illustrations of the reason why. One of the most prominent of these is the progressiveness of her citizens, and their enthusiasm for their town's welfare. This has been and always must be the secret of any municipality's progress, but alas the citizens of too many towns and villages are either too short sighted or too selfish to realize it.

Berlin has \$350,000 invested in public utilities, owning both the waterworks and lighting systems. The quality of water, light and power is good, the rates reasonable, and both systems are paying.

Another public utility only recently assumed is the Berlin & Waterloo Street Railway. After lengthy arbitration proceedings the ratepayers on April 4, by an overwhelming majority voted the sum of \$83,200, to purchase the road. Berlin, therefore, owns its street railway, but at the time of writing this report, has not had sufficient time to decide the exact method of handling it. The town is operating it for the time being. With characteristic promptness Berlin has grappled with the problem of a central heating system; a franchise has been granted and before 1907 passes out the system will be in use. Only one Canadian town preceded Berlin in this forward step.

Manufacturing is an important feature in

the life of Berlin. Quite early in its career the town showed a marked taste for manufacturing as there were at least two furniture factories prior to 1850. And furniture has continued to lead all other manufactures, there being to-day a dozen good sized plants thus making Berlin the furniture centre of the Dominion. But leather early entered the race, the first Lang & Breithaupt tanneries going up about 1850. While tanneries have not multiplied in number like furniture factories the original plants have grown to enormous proportions so that Berlin is also a leather centre. It is famed, too, as a button town, the first buttons being turned out in the sixties. To-day there are several factories and the bulk of the Dominion's product comes from Berlin. Shirts and collars also hold a large place in the manufacturing field, there being several factories, one of them among the largest in Canada. After these come a host of industries—some 70 in all—their products almost as varied as their number is large, and scattering their goods to every nook of this large Dominion and beyond. All busy, bustling workshops, turning out A. 1. goods made by earnest and contented workmen.

#### POINTED PARAGRAPHS.

Closely linked with the prosperity of a town is its transportation facilities. Always on the main line of the Grand Trunk, Berlin also, has Canadian Pacific Railway connection while trolley lines radiate to Waterloo, Galt, Preston, Hespeler and Bridgeport.

Berlin believes in commissions. She has

three at present, viz.: Water, Light and Sewage Commissions. They have worked well in Berlin, being always composed of good business men and giving careful and economical service. They relieve the town council of much work.

A new market building, costing \$20,000, is being erected this year. It will be thoroughly modern and will afford ample accommodation for buyers and sellers. It will be 230 by 80 feet.

Recently the fire department was thoroughly overhauled and put on a sound basis. A chief and six salaried firemen are constantly on the job and all appliances are up-to-date.

If the young idea does not "shoot" in Berlin it's not because the facilities are not provided. There are four public schools all equipped with kindergartens; a Roman Catholic Separate school; a Collegiate Institute, second to none, in connection with which is one of the foremost manual training schools in the province; a far-famed Roman Catholic college (St. Jeromes); a first-class business college; and other private or semi-private schools.

Athletics do not languish. Berlin is a hockey town from the ice up and held the Senior O.H.A. championship last year.

Berlin added six new factories and 300 new houses during 1906.

Berlin's population is 12,151; the assessment, \$5,417,080.

The tax rate in Berlin is 19½ mills; local improvements are done on the frontage plan.

The Berliner is a home lover and a home owner. Out of 3,126 persons on the voter's list, 2,138 are owners—nearly 70 per cent.

John Bright said: "The Nation dwells in the cottage." If the Quaker statesman could have visited Berlin he would have revised his statement. Everybody here lives in a modern brick house.

#### COAL LANDS REGULATIONS.

The Governor-General-in-Council has approved of new regulations concerning the leasing of coal lands in Manitoba, Saskatchewan, Alberta, the Yukon, the North-West Territories, and the railway belt of British Columbia. They provide that coal areas may be leased for a period of 21 years, at an annual rental of \$1 in advance; that no application shall be for more than 2,500 acres; that priority of legal possession shall ensure title, that operations must be begun within 12 months; that a royalty of five cents per ton shall be paid, and that actual settlers shall be allowed to buy coal for their own use at the price not to exceed \$1.75 per ton at the pit's mouth.

#### CHEMICAL CONVENTION.

An important meeting will take place in Toronto on June 26, 27 and 28, when the American Chemical Society will hold its annual convention, coming on the invitation of the Society of Chemical Industry and the University of Toronto. The city of Toronto has voted an appropriation for the entertainment of the visitors and altogether a notable gathering is anticipated.

"Honesty is the best policy," remarked Meandering Mike.

"It sure is fur folks like us," answered Plodding Pete. "Our transactions ain't big enough to enable us to hire de best legal talent."—Washington Star.

# Great Future for the Canadian West

By J. S. DENNIS, LAND COMMISSIONER OF THE  
CANADIAN PACIFIC RAILWAY.\*

## EARLY HISTORY.

"Thirty-five years ago Western Canada was a name only. Those of the fathers of confederation who worked so hard to create our Dominion, who had the hardihood to fortell that the great Western portion of the Dominion would, within a measureable time, occupy the position it now occupies, were certainly characterized as visionaries, if nothing more.

"Thirty-five years ago, Winnipeg, now the great city at the eastern limit of this great Western country, a city which has surprised North America as a whole in the marvellous rapidity of its growth and extension in the last ten years at least, was a small, isolated village, surrounding the old Hudson's Bay post at Fort Garry, and was reached only in the summer by boat or steamer down the Red river, or by a long 300-mile stage journey in the winter.

"It was popularly accepted at that time that the western limit of the habitable portion of our West, and the western limit of agricultural and wheat growing land lay about sixty miles to the west of Winnipeg.

"There are gentlemen sitting at this board who are old Winnipeggers like myself, and who remember that years after the time I speak of it was the popularly accepted idea that the Red River valley, the limits of which extended some 60 or 70 miles to the west of Winnipeg, contained the country in which the wheat would be grown, and outside of that it would be nonsense to think of growing grain. That vast country to the west now comprising the province of Manitoba and the provinces of Saskatchewan and Alberta, was practically unknown. It was popularly supposed that the great American desert, of which so much had been written, extended up into that country, and that it was totally unsuited for grain production, and was practically unfit for human habitation. And of this great province lying on the Pacific at that time little was known, except by the hardy gold seeker. British Columbia was practically unknown to the rest of Canada at that time.

"The province of British Columbia I will deal with more particularly later on. But I wish to say now in passing that this province has been more richly endowed in nature and in natural resources than has any other portion of Canada.

"With regard to that portion of the country lying east of the mountains, as I have said before, it was looked upon as being largely desert. If it was desert, it was generally spoken of as being so near the North Pole that it is only suitable for the festive Arctic Esquimans or the hardy Hudson's Bay man who was looking for furs.

"It is true that that hardy band of explorers—Palliser, Hector, Milton, Cheadle, Russel, and later on Butler, wrote extensively of that country, embodied in exhaustive reports, and endeavored to create a correct impression of its climate, its soil and possible resources. But their writings

at that time attracted very little attention. And I think it quite proper that we should say at this meeting of the Canadian Club that those framers of our treaties, who had so much to do with the fixing of our boundaries must have been impressed by the fact that that portion of this Western country lying east of the mountains lay near the North Pole, and was an Arctic and useless region. And it is popularly supposed that they were influenced by these impressions in the same way as they were influenced in the opinion that British Columbia salmon were not sporting fish and could not rise to the fly, when they so readily agreed to the accepting of the 48th parallel as the boundary between us and our neighbors South. Because, gentlemen, there is no question in the world but that we were entitled to go farther south. I am only making that statement because I think it is perfectly clear that our treaty makers were influenced by the facts as popularly accepted then, that Western Canada was a remote and isolated country, unsuited largely for settlement, and that so far as British Columbia was concerned, it was practically a timbered wilderness.

"That general conception with regard to Western Canada practically continued until that very intrepid band of surveyors, employed in surveying and laying out the survey system east of the mountains, had largely dispelled the erroneous impressions with regard to the soil and climate, because they took their lives in their hands and saw the country as it was.

"These reports, I say, were, I think, the first medium through which the widely accepted theory with regard to the country were dispelled.

"They were followed by that band of engineers who were engaged in attempting to locate a road for that steel band across Canada, which was subsequently built and which has done so much to awaken Canadians to their great inheritance and give impetus to a development that is now spoken of throughout the world.

## TIDE OF IMMIGRATION.

"It was not, gentlemen, until that erroneous impression had been largely dispelled that we began to get an overflow of people from the south of the line; and in 1892 we had an inflow of nearly 8,000 people from south of the boundary line. They were pioneers, and were hard to get. They came to this country in doubt. Many of them, I expect, were in fear and trembling as to whether they would ever get back. But that pioneer band has grown until last year we got from the south of the boundary, and located in the new provinces to the east of the mountains, a population of 243,000 people.

"Just let us start from the conditions as they are to-day, and I will endeavor to lay before you my views as to our future development and the part that the Canadian Club should take in that development. That movement of people which commenced in the year 1905 has rolled up until to-day Western Canada is recognized not only as

the greatest portion of our great Dominion, but an important part of our British Empire, and stands with cities like Winnipeg, Vancouver and Victoria at its eastern and western gateways, with hundreds of other thriving cities, towns and villages within its borders—cities lying along the Canadian Pacific line like Brandon, Moose Jaw, Medicine Hat, and in British Columbia, cities like Revelstoke, Rossland, Nelson and Kamloops, cities up in the northern portion of the country in that great Saskatchewan valley, which up to ten years ago—possibly not ten years ago, but certainly 15 years ago—were looked upon as being absolutely worthless—cities like Edmonton, cities lying along the Canadian Northern Railway Company's line. Saskatoon is another instance of development of this country. When I was in the service of the Dominion government as deputy minister of public works, I was asked to visit Saskatoon for the purpose of constituting it a village, in the fall of 1898. A place like Saskatoon has grown so that its citizens will argue with you, gentlemen, that their real estate on the front street is worth more than yours here.

"Now, these are the conditions which existed as far as urban population is concerned. These cities are now rapidly becoming great centres of trade, and more than that, great industrial centres, something which 15 or 20 years ago was ridiculed with regard to Western Canada. I say 'great industrial centres,' such as Winnipeg, and other places throughout the West, and places in British Columbia. 'Industrial centres' to the extent that in a comparatively few years we should be independent as far as manufacturing is concerned of the great country to the south, or of Europe.

"Now, we have those towns and villages strung out along that great system of railway to the east, and in the provinces of Manitoba, Saskatchewan, Alberta and British Columbia—with a population of a little over 900,000 people, with an increasing population averaging 250,000 per year. Think of what that means, gentlemen. These figures, gentlemen, were obtained from the census of recent years, and you will find that they are correct, as I have taken some little trouble to get them. We have in this country 7,000 miles of railway in operation, and at least 3,000 miles under construction. We have a total bank clearing in the cities of Western Canada having clearing houses, of \$15,750,000 a week. I may say that outside of Winnipeg, to the east of the mountains, Edmonton and Calgary are the only two places that have clearing houses. And these clearings average \$15,000,000 a week. Just think of that, gentlemen.

"And we have finally a position not only on this continent, but throughout the world as possessing in those provinces east of the mountains, and in this great province of British Columbia, and the great Yukon country, the greatest unoccupied area of land suitable for agriculture and horticulture, and the greatest natural wealth in timber, coal, minerals and fish, of any portion of North America.

## RESOURCES.

"We have proved that we can produce east of the mountains, where the development is largely agricultural, annually a larger average wheat crop than ever has

\* Address before Victoria, B.C., Canadian Club.

been produced in North America, because the average annual wheat production of the wheat growing provinces east of the mountains is considerably in excess of the greatest annual wheat production per acre south of the boundary line—even taking the great wheat producing states of Iowa and Illinois when they were wheat states, which they are not now. And we can prove that in the western portion of Canada east of the mountains we can offer to people facilities for dairy farming, which it would be very hard to equal elsewhere.

"My claims with regard to the development of this western portion of Canada are based on opinions which I have held for a long time. That in the very near future the whole transportation problem of this Western Canada, like that of America, will undergo a serious revolution. It may surprise some of my hearers, but I refer to the fact that a great many years ago one of our Fathers of Confederation, one of our great Canadian statesmen, Sir John A. Macdonald, speaking in the city of Victoria, directed the attention of his hearers to the fact that in his opinion the time would come when a great portion of the produce of Western Canada would go westward instead of eastward. So far as I can see, from the newspapers of that date; his utterance attracted very little attention, but it was not until 15 years after that that the question became a live one. But my opinion is that great western movement of traffic, which has commenced, and which is going to come along at a very rapid pace, will have more to do with the rapid development of Western Canada in the future than anything else that has taken place. Mr. Chairman, last year the ports to the south of us here shipped to the Oriental and Australasian markets flour to something over two million barrels. They shipped also a vast quantity of lumber, of fish, and of manufactured products, whereas our exports to that market were comparatively small. Is it not fair to assume, sir, that we can produce in Western Canada just as good wheat or flour as is produced south of the line? That we have in British Columbia perhaps the largest undeveloped area of merchantable timber that there is in North America; that we have in the fisheries of British Columbia an asset that practically has not been developed at all, and that we can in the future, if not right now, produce in manufactured goods an article which is equally as good as any article produced or manufactured in that country to the south of us?

"If that is the case, gentlemen, why should we not be in a position to participate in that great Western market. It is a fact that to-day the Western market available for the flour and wheat of Western Canada is far in excess of the supply. This, to a certain extent, is the result of the great development which has taken place in Canada. And to-day all our flour mills to the east of the mountains are practically in a position of having to refuse orders for shipment there because they have not got the supply. But that great movement of traffic, gentlemen, will, as I have said, have more to do with the development of Western Canada than anything that has taken place since the construction of the Grand Trunk Pacific. I will tell you why. It is comparatively only a few years ago since the generally accepted

theory was that the only thing we could ship to the eastern market was the wheat and the beef. It was recognized and admitted freely that the wheat we produced in Western Canada would stand the long haul, and the beef we produced would also stand the long haul. As regards our being able to export anything else was ridiculed, and whatever else we produced we would have to find a local market for it. The isolated position of those provinces east of the mountains, shut off as they were from the Pacific by those great mountain ranges, and isolated from the Atlantic by that long line of railway, made everyone think that outside of the product of wheat and beef it was hopeless to look for anything else in the way of exportation. That is now all a thing of the past, and there is no question but that within ten years from now the great majority of the manufactured articles consumed in Western Canada will be the product of Western Canada.

"We have in Western Canada the greatest natural resources to be found anywhere, in the way of raw material and an unlimited fuel supply. We have an inexhaustible timber supply if properly conserved. And with the market to the east of us, and cheap ocean rates, our manufacturers on this coast should be in a better position to handle the trade than any manufacturers situated on the Atlantic. I do not think that the Manufacturers' Association until up to within the last few years recognized that condition of affairs. But I believe thoroughly that after their trip of last year to this coast, with the facts that were put before them as to the possibilities of British Columbia as a manufacturing centre they became more convinced of the fact that the province of British Columbia offers openings for certain lines of industrial development unequalled by any other portion of Canada. While they were necessarily loath to admit that the opinion which had always existed in the minds of the people in the East to the effect that we could only produce wheat and beef for the East, and must always go to them for the manufactured articles, they were naturally loath to admit that that time had gone by, but I think they do admit it now, and they admit it for the very reasons I have put before you. We have the natural resources, the raw material, the fuel, the timber, the metals, the fish, and everything which in a comparatively short time should enable us in Western Canada to produce all the great bread stuffs, the sugar supply, meat packing in all its branches, condensed milk and cream, and all the products of the forest, farm machinery, the products of the great fishing industry, and many of the articles resulting from our cheap fuel and mineral wealth will be manufactured locally, and the consequent development will be rapid and marked.

#### FUTURE POSSIBILITIES.

"Who can foresee, gentlemen, what the result will be when the construction of the two other transcontinental railways is completed, and which are now being pressed forward through Western Canada?"

"I have outlined to you crudely, I admit what the position of Canada was before the Canadian Pacific Railway was constructed, and what the general impression was with regard to the country and the development which followed its construction and the

commencement of the movement of the people from the south. Is it not fair to assume that if we have anything like the proportionate development on the completion of the other two lines of railway which are now pressing forward their construction for the purpose of obtaining our share in that traffic which was stated would never buy oil for one line—is it not fair to assume if we have anything like the proportionate development that we have had during the past fifteen years, when the Canadian Pacific and its branches were handling all the business, that there are numbers of gentlemen at this table to-day who will see Western Canada with a population of ten million people?"

I want to point out what we are doing in the development of Western Canada to-day. As I explained to you, we now have a population of some 900,000 people, with a railway mileage of over 7,000 miles, and railways under construction 3,000 mileage; average bank clearings (weekly) of a little over \$15,000,000. Our grain crop in the country to the east of the mountains is over 100,000,000 bushels—I am not taking wheat exclusively, but with wheat, barley and oats our crop would equal 100,000,000 bushels; our coal mined would reach 3,250,000 tons and our timber output would reach 650,000,000 feet, and the products of our mines other than coal would total \$20,000,000. I am taking the coal as produced in British Columbia, excepting of course that small area in Saskatchewan and Alberta, the product of which would not be over 365,000 tons.

"Now, that is the position we are in to-day gentlemen, and I would like to speak to you just for a few moments on what is perhaps a little more local, and deal with the province in which we are situated—the province of British Columbia as distinct from Western Canada. I do this, because I am of the opinion that the development of the province of British Columbia has to be somewhat along different lines to what has taken place in that Western country east of the mountains. To the east of the mountains there is a very large prairie country where a man only has to come with his plow and get results. That great country has not the natural resources that this province has, nor has it the great asset of climate this province has. It has not the great timber wealth, and it practically has no timber wealth; it has not the mineral wealth of this province, although there is a vast area of coal in the Alberta district which will supply cheap fuel to that portion of the country east of the mountains. That country is one which appeals to the agriculturist, the man who is looking for a wheat farm, or a dairy farm. But it does not offer any attraction to the horticulturist on account of its climate. But the province of British Columbia, in its climate, in the possibility of the growth of semi-tropical fruits, in its natural resources, timber, mines, and fish, is in my opinion, as I have said before, more favorably endowed by nature than any other province of Canada.

"British Columbia is essentially a mountainous country. Like all mountainous countries, its development and settlement must follow the valleys. It is practically throughout a timbered country, for as you know the areas without timber are very small. Being a mountainous country, the area available for settlement is very limited, and the population

lation cannot be as large as in an untimbered and a country which is not mountainous. But with the climate British Columbia possesses its development is assured, and particularly in the southern portion of the province, where it is a known fact you can produce fruits, even those of an almost tropical character. And this development will make of those valleys great fruit districts, and the fact of their being limited as they are, will bring about intense settlement, and intense cultivation should bring about very rapid development.

"The great work which was done east of the mountains, and which cost the Dominion government of Canada some seventeen millions of dollars, has never been attempted in British Columbia.

British Columbia has in a sense been asleep. It has been asleep compared with the province to the east of the mountains. But the awakening, gentlemen, mark my words, is going to be so loud that you will all hear it. I do not wish, sir, to paint a roseate picture at all. But I am on record that within a very short time you will see a great movement of a vast number of people coming to this province attracted by just what you have here—first, the great asset of climate, and then the other assets that I have outlined, and finally, after having got these people with you on the coast, you will have great industrial opportunities to offer them in connection with the development of your mines and other resources unequalled anywhere in Canada.

The paper floor coverings naturally do not possess the properties of rich Persian carpets, but are adapted to uses to which oriental rugs can be ill put. Although they can be made in pile, they are at present manufactured chiefly after the manner of an ingrain carpet, but in finely wrought, artistic patterns. They are clean and fresh, and particularly suited to summer homes and veranda use.

Another great field for the paper yarn is in the manufacture of bagging, being a practical substitute for the more expensive jute. It has been found best, however, in making sacks to mix one thread of jute with two of paper. The combination secures the advantages of jute gunny cloth and the lightness and cheapness of wood paper. Closer woven, equally strong, and at one-half of the cost, it can replace with advantage the jute sacking now in general use. Inasmuch as the production of jute is localized and the demand for it steadily increases, xylolin used in place of jute for sacks will make those who have hitherto used jute sacking in large quantities more or less independent of the jute market, with the high prices now prevailing. Sacking made of the combination of xylolin and jute seems to be a cleaner and a neater fabric and not as heavy. The output of this combination paper sacking is already of great proportions, and it is estimated that in the near future the new sacking will be a formidable rival of the jute now in use the world over.

## Cloth from Paper.

### VALUABLE INVENTION—NEW MATERIAL FOR TEXTILES.

To the ingenuity of the well-known Saxon inventor and manufacturer, Herr Emil Claviez, is due the production of a paper and yarn, termed "Xylolin," that has been successfully used in a wide range of textile fabrics. The utilization of paper wood fibre in this new and practical way and the extreme cheapness of the new material compared with other yarns now in use is really a remarkable achievement. It should be said that this is not a haphazard discovery, but rather the logical result of years of painstaking study and experimentation. After the final development of the theory at first in mind into tangible material for all manner of uses in textile industries, the paper thread and yarn, loose or tightly spun, of all thicknesses, have since been woven into almost every conceivable fabric and tested and re-tested, until the invention has become an important commercial success. The paper yarn has extraordinary wearing properties, and as the full scope of its usefulness has probably not been determined, it will, in all likelihood, lend itself to other purposes yet to be discovered.

### METHODS OF MANUFACTURE.

It should be understood that xylolin is good fibre spun into a paper thread or yarn, and may be woven into any desired fabric. Although of the same material as paper, xylolin is not used in sheets and has nothing whatever of the nature of papier-mache or any substance such as may be molded or cut in blocks. It is primarily a thread or yarn and is employed exclusively in weaving. The looms used in the manufacture of most textiles do not have to be especially constructed for this substance, although they may have to be slightly adapted for its readier manipulation. A carpet loom of almost any kind can employ this new yarn. A loom that is used for weaving linen or cotton fabrics of fine or loose mesh can readily take the finer kinds of paper thread. The thread is not brittle, it does not have a hard surface, and it neither shrinks nor stretches to any appreciable extent. Having certain resilient qualities, it can not be readily crushed or folded like paper, and on it moisture has practically no effect. It is a serviceable substitute for cotton, jute, linen, and even silk. When bleached the yarn or thread

is of a snowy whiteness, and at a first glance can not be distinguished from cotton. It can be woven to appear as homespun linen. It combines the good qualities of cotton and linen at one-third of the price of cotton and one-tenth of the price of linen.

### MORE READILY DYED THAN COTTON OR LINEN.

Being paper it can be more readily dyed in delicate shades, far outmatching the range of colors to which cotton or silks are susceptible and vastly more than those of linens. The process of dyeing the thread or yarn is patented, and appears to be of such perfection that no colors, from the daintiest nuances to the richest hues, are affected by strong light. If it should be the wish of a manufacturer to combine the paper thread or yarn with other materials to gain the cheapness of the new substance, it can be readily done. It can be run in greater or less quantity as may be desired. Ninety-five per cent. of the material used in the thread is cellulose, such as is used for newspapers, and 5 per cent. cotton, but of course subjected to entirely novel treatment before spinning. The crude materials in this proportion are consequently very cheap compared to other vegetable fibres used in weaving, and this alone will make its place in the textile market permanent. Already factories are busily at work in England and in Bohemia, as well as in Saxony, turning out the paper thread and yarn, which is bought by textile manufacturers for use in their mills. It is the business of the inventor to supply the spun paper and not, with the one exception of floor coverings, to make up the multitude of articles which can be woven from xylolin.

### RUGS AND CARPETS.

Among the various fabrics in which the greatest amount of work has thus far been accomplished is the making of rugs and carpets, and at the factories of the inventor paper floor coverings are woven in great quantities, and are already being exported to the United States and elsewhere with marked success. Here the yarn of heavier quality woven into beautiful designs, is found to possess advantages over certain classes of floor coverings. They can be turned out in any thickness as rugs, mats, or carpets. They are elastic to tread, do not retain dust readily, and are easily cleaned by beating, or washed without fear of injury. Unpalatable by moths, they are not eaten by these insects.

### USED FOR HATS, SHOES, AND WALL HANGINGS.

The spun paper fiber has been woven into outing hats for men and women. "Canvas" shoes and slippers have been made of it at nominal cost. Some idea of its adaptability for towels may be gathered from the fact that last year alone 7,000,000 pieces were made and sold, and it is likely that not one purchaser in a hundred but thought he was buying linen toweling at bargain prices. These are wholesaled at about 24 cents a dozen, medium size. It should not be thought that the new fiber is put upon the market as a crafty imitation, but makers of many sorts of textiles have found it so serviceable that they use it for mixing with other thread and yarn or weave it alone.

Wonderfully successful have been the essays in making wall hangings and furniture coverings. When used for mural decoration, the material may be either nailed or applied with paste, and the delicate coloring that the paper fiber takes renders the effect of the tapestries singularly effective. For upholstering veranda furniture the material has an unusual advantage beyond its merits of decoration because it is not subject to injury by light or dampness or even by rain.

### ADAPTED TO WEARING APPAREL.

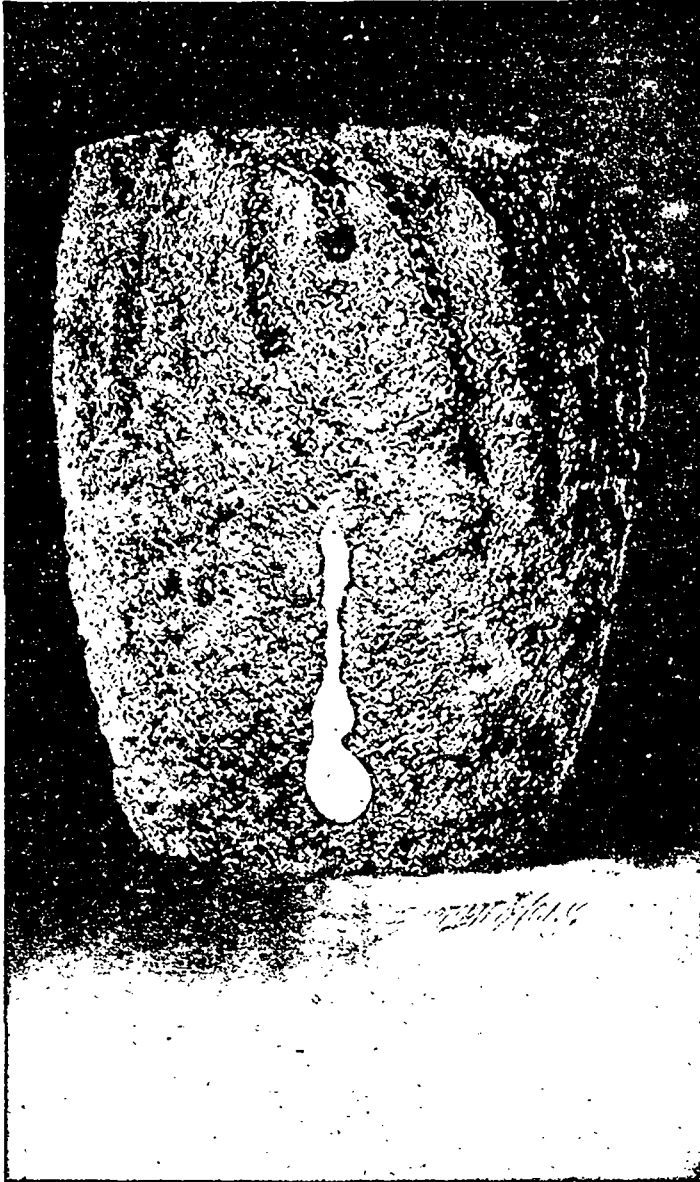
For certain grades of wearing apparel the new paper fiber has in itself an important sphere. The readiness with which yarn can be made up into cloth of any design or shade makes its use in this regard easy and successful. One peculiar feature when the paper thread is used in garments for clothing of medium thickness is the resultant warmth. It possesses the advantage of lightness in comparison with an equal bulk of linen or even cotton. The cost of the material for a full three-piece suit of clothes of average weight is not over \$1. In lighter weights it is particularly adapted to outing costumes. It can be made to look like a good grade of ducking and is an excellent material for wear



in the tropics. For workmen's jackets and blouses and overalls it can be made up in brown and blue at half the cost of the material usually employed. There have been articles in the market made of tough, narrow strips of paper sewed together, making vests and light jackets to be worn under other clothing, retaining the warmth of the body, but allowing little or no ventilation. This has nothing in common with xylolin. The new paper fiber, however, being woven, possesses sufficient porosity to make a hygienic garment.

qualities of fashionable stuffs, it may lack in finish and style the appearance of finer grades of woolen goods: but it really makes little difference whether the paper-woven garment becomes the vogue or not, as its many admirable qualities, coupled with excessive cheapness, are bound to make it an article of practical and far-reaching beneficence.

The process of preparing the new thread and yarn is a secret one and is patented in all civilized countries. It is of interest to note



CRUCIBLE SHOWING PIN-HOLES FROM WHICH METAL HAS LEAKED

It seems well suited for underwear. In consideration of the fact that loosely woven underclothing is replacing to a certain extent the heavier flannels of an older generation, the paper fiber has been found to be very serviceable, combining warmth and lightness, and is fine enough to be worn by the youngest children.

Although there seems to be no limit to the uses to which paper yarn can be put, fashion will have to take up the new material before it can be worn as gentlemen's and ladies' clothing. While possessing most of the good

that the inventor intends starting mills in the United States, where the necessary raw material is abundant and of fine quality.

C. Webster, secretary of the Hundred Thousand Club, Calgary, Alta., reports that Calgary is nearly assured of a sugar refinery, a box factory, another soap manufacturing plant, and a wholesale produce concern. Some of these will be branches, and some will be independent firms, with headquarters in Calgary.

## BUSINESS TACT.

By GEORGE L. LOUIS.

Placing business tact before the merchandise itself may seem to be the wrong sequence; it may look as if an unwarranted preference and pre-eminence were given to business tact.

Yet such is the case; in fact, I will emphasize this statement, that business tact is of more importance than the merchandise itself.

We have only to remember the many times a persuasive, skilful book-agent has lured us into buying one or a volume of books which we never had intended to purchase, for which we have no use and whose pages have never been opened after the first hasty glance, to demonstrate the contention that business tact, properly applied, precludes the merchandise itself.

To introduce yourself to a prospective buyer—gain his attention and confidence—interest him in your proposition and ultimately bring it to a successful termination, requires a combination of self-assertion, deference, imperativeness, and docility.

It means nothing should be omitted or committed that will tend to place the buyer in an aggressive attitude.

It means you must have no mannerisms in dress, speech, or physical make-up to distract the buyer's mind from your proposition.

It means you must grasp a situation or a change in a situation immediately so as to modify or assert yourself as the occasion may require.

It means you must have yourself under absolute control, and, regardless of the provocation, never lose your temper or over-enthusiasm.

It means that you must know your proposition and goods so thoroughly that there will be no hesitancy—no indecision—or faltering in answering any question that may be put to you. You do not have to talk quickly; think before you answer, but when you do speak, carry conviction with every word.

All this is business tact. Just as these many details are observed and fulfilled, just so we have the highly successful, mediocre and poor salesman.

You cannot appeal to all men along the same lines; what will interest one receives a deaf ear from another.

Where you must harangue with price with one man you must ignore price and harp on quality with another.

Where you must impress one man that you are an authority on the subject under discussion, and that every argument you make is beyond question or criticism, you must figuratively "kow-tow" to another and so express yourself that while you are really giving information and putting forth the best points of your proposition or merchandise, you are at the same time catering to his ego and giving your hearer the impression that of course you are aware he is well informed on all the points about which you are talking, you are only mentioning them to recall them to his mind.

Right here is where we meet one of the most important elements of salesmanship, and that is catering to the ego of the average business man.—The Business Man's Magazine.

**HARBISON-WALKER REFRACTORIES CO.**  
PITTSBURGH, PA.

Fire Clay, Silica,  
Magnesia, Chrome  
**BRICK**

Manufacturers of  
Highest Grade  
Refractories.  
Importers of  
Chrome Ore.  
Sole Agents for  
Carl Spaeter Magnesite

Plast Furnace Linings, Sewer Brick  
and Shapes, Open Hearth Furnace  
Refractories, Cupola Linings, Brick  
for Rolling Mill Furnaces, Brick for  
Coke, Nickel, Brass and other  
Smelting Furnaces.  
Rotary Cement Kiln Linings, Lime  
Kiln Brick, Beehive by-product  
Coke Oven Brick, Locomotive Tile

7,500 Regular Customers.      Write for Booklet K.      1,200,000 Daily Capacity.

**I** F you could get a consensus of opinion from all the greatest founders in America, the result would show McCullough-Dalzell Crucibles most economical, durable and profitable. Write for prices.  
**MCCULLOUGH-DALZELL CRUCIBLE COMPANY, PITTSBURG, PA.**

**The Howe-Baker Co.**      **FIRE BRICK**      SILICA FIRE CLAY  
CLEVELAND, O.      ALUMNITE  
MAGNESITE      BURNT MAGNESITE      SILICA CEMENT

Our factories are the most complete in the country. Located in Pennsylvania, Ohio, and Kentucky—and controlling the largest known bodies of Refractory materials for different work. Operated by experienced managers. We manufacture material for all heat work—second to none. Capacity over 200,000 Brick and Special Shapes per day. Write for catalogue.

## “Something Better”

That's the unanimous decision of all shrewd buyers who have given our **VARNISH TURPENTINE** a fair trial. And there's more than one reason for this verdict. Our

# Varnish Turpentine

is guaranteed to do any work that spirits of turpentine will do, and do that work better. So absolutely certain are we of this that we are willing to ship a test order to any address. When you are convinced of the merit of our Varnish Turpentine you can pay us—not until then. Can we give you greater evidence of the faith that is in us?

**THE DEFIANCE MFG. and SUPPLY CO.**

Toronto = = = Ontario

**J. B. HALL**

118 Adelaide St. West, Toronto

SAFETY STAMPING PRESSES.

DIES, TOOLS AND SPECIAL MACHINERY MADE TO ORDER.

First-class work only. Designs made for machine you may require.

A small advertisement will always serve to keep your name before the buyers who read this paper.

**Albert Manufacturing Co.**

MANUFACTURERS OF THE WELL-KNOWN

"Hammer Brand" **Calcined Plaster** AND **PATENT ROCK WALL PLASTER.**  
HILLSBOROUGH, N.B., CANADA.

**NOW READY**

Containing the Manufacturers,  
Importers and Exporters,  
Banks, Etc. of every  
known country.

Price, complete,  
\$12.50

**Kelly's Directory** of  
**Merchants, Manufacturers and Shippers**  
of the World.

Annually  
by Kelly's  
Directories, Ltd.  
London, Eng.

Kelly Publishing Co.,  
Head Office:

London, W.C., England, and at New  
York, Paris, Hamburg, Melbourne, Sydney,  
Dunedin, Cape Town, Buenos Ayres, etc., etc.  
Dominion Branch

70 Dunn Ave., TORONTO, W.P. Dent, Manager

**THE TELEPHONE**

Is a Companion, Friend and Servant Combined.  
Invaluable for convenience in the household.

**LONG DISTANCE TELEPHONE SERVICE**

has no equal for the facility it affords in business life.

Full particulars as to rates and service at the nearest office of the

**BELL TELEPHONE COMPANY  
OF CANADA.**

**DO THIS NOW**

Look through this issue—note how much there is in it that is of interest and value to YOU: remember that 24 issues in the year cost but \$1.00. (This subscription includes the 224-page Tariff Edition). Fill out attached order and send it, with one dollar, to us, NOW.

**Subscription Order**

Date here \_\_\_\_\_

The Canadian Manufacturer Pub. Co., Limited  
408 McKinnon Bldg., Toronto.

Please send to our address, as below, one copy of the CANADIAN MANUFACTURER, until ordered discontinued.

Enclosed find \$1.00, subscription for one year from date.

.....  
.....  
This order includes Special Tariff Edition.



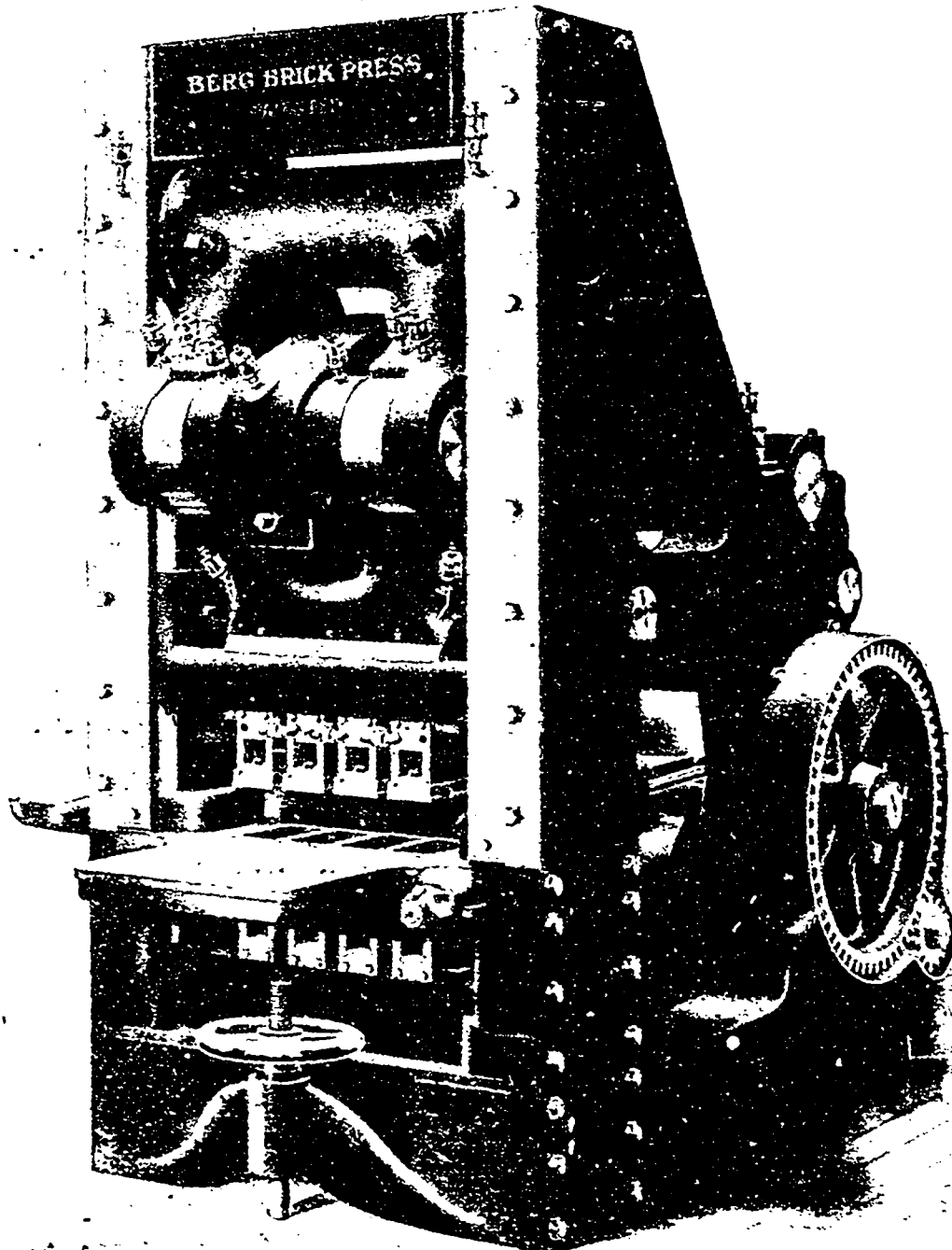
What's  
in a  
Name

SIMPLICITY  
STRENGTH  
DURABILITY

ACCESS  
TO ALL  
PARTS

GREATEST  
PRESSURE

BEST  
PRODUCT



IMPROVED BERG BRICK PRESS.

The BERG is built for quality, for simplicity and for strength.

The BERG is built for work; long work; hard work; steady work—and it never fails to do its work, day after day, year after year.

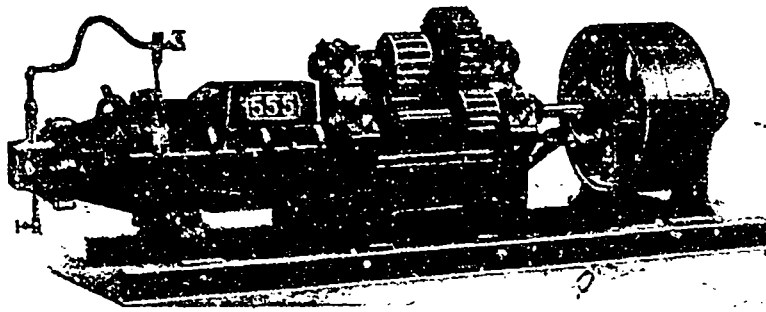
The Berg saves the most time and saves the most labor—and it makes the most money for the brick manufacturers.

Correspondence invited.

Manufactured by its inventor in Toronto, Canada, exclusively.  
All equipment for Pressed Brick Plants to make Sand Lime Brick, Sand Cement Brick, Shale Brick, Clay Brick and Fire Brick.

**A. Berg & Sons,** Manning Chambers  
TORONTO CANADA

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



## No. 555 BRICK MACHINE

This machine embodies the best ideas in the construction of Brick Machinery. Its capacity is large, only a question of the power you put behind. Without doubt this is the *STRONGEST* and *MOST SERVICEABLE BRICK MACHINE BUILT IN THE DOMINION*. It is also adapted to the manufacture of tile, fire proofing, conduits, and hollow blocks.

*We install COMPLETE CLAY WORKING PLANTS. Let us send you our NEW CATALOGUE*

**BECHTELS, LIMITED, Waterloo, Ont., Can.**

# The International Steel Co. of Canada, LIMITED

—HAVE SUCCEEDED—

## THE ST. LAWRENCE SUPPLY CO., LIMITED

1591 Ontario Street, Montreal

And will continue to conduct the business as

## MANUFACTURERS AND MERCHANTS

of every description of

# Equipment and Supplies

FOR

Municipalities, Contractors and Railroads

Ornamental Iron Work,

Drop and Other Forgings

## IRON AND STEEL

Bars, Flats, Billets, Angles, Channels, Etc.

HEAD OFFICE:

WORKS:

1591 Ontario St., Montreal

Moreau and Forsyth Sts., Montreal

BRANCHES: London, Eng.; Toronto, Ont.; St. John, N.B.; Winnipeg, Man.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

# Brantford Roofing Co., Limited, Brantford, Can.

Manufacturers of High-Grade Ready Roofing

Viz "Brantford Asphalt"

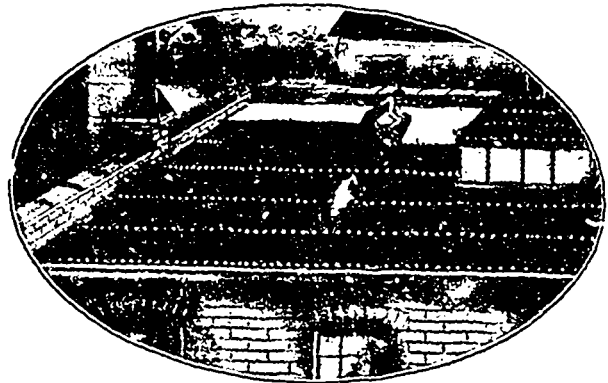
"Brantford Rubber"

Under this Trade Mark



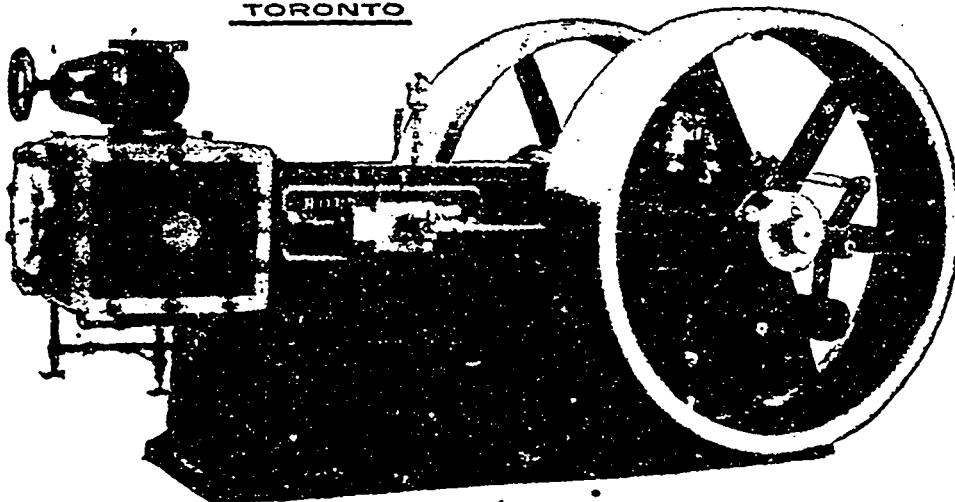
Specially Adapted for the Roofing of Factories, Warehouses, Rinks, and Large Buildings of every Description.

Get a "Brantford Specification" for an A-1 Job. Write us for Tenders - on Materials Only, or Laid Complete.



## The A. R. Williams Machinery Co., LIMITED MANUFACTURERS IMPORTERS AND DEALERS

TORONTO



OUR NEW BELL PATENT HIGH SPEED AUTOMATIC ENGINE

-IS-  
Engines, Boilers  
Iron Machinery  
Tools  
Wood-Working  
Machinery  
-AND-  
**GENERAL MILL  
MACHINERY and  
SUPPLIES**

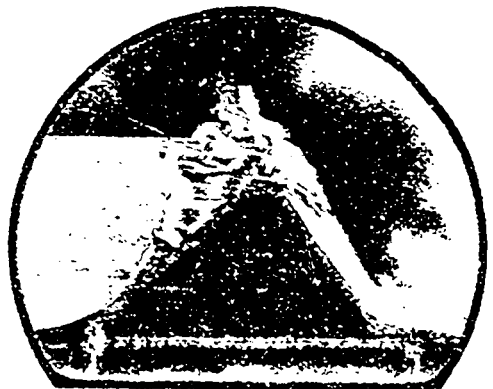
Write for.....  
CATALOGUE and  
QUOTATIONS

## AMBURSEN HYDRAULIC CONSTRUCTION CO. OF CANADA, Limited Coristine Building, MONTREAL

(Associated with the Amburson Hydraulic Construction Co. of Boston, Mass.)

**CONCRETE-STEEL GRAVITY DAMS POWER HOUSES AND GENERAL  
HYDRAULIC CONSTRUCTION IN CONCRETE**

- A Concrete-steel Dam is bottle tight.
- It may be inspected on every square foot of internal surface.
- It may be built on clay, hard-pan or cemented gravel foundations.
- It enormously decreases the cost of any foundation.
- There is no possibility of static "floating" pressure on its base.
- It has more than double the factor of safety of a solid dam.
- It is indestructible by ice, water or time.
- It can be built in half the time of any other dam.
- It costs less to build than any other permanent dam.
- It costs nothing at all to maintain.
- All its advantages increase with its height.



If you propose building a dam next year begin to prepare for it AT ONCE by giving us an opportunity to explain our method of construction to you.



# SODA ASH

LIGHT or HEAVY

# BLEACHING POWDER,

HIGH STRENGTH, 35/37% IN  
HARDWOOD CASK-

THE MOST ECONOMICAL FORM OF SODA FOR MANUFACTURERS OF  
GLASS, SOAP, PAPER, WOOD PULP  
and COLORS, and for PRINTERS  
and BLEACHERS

ALSO CAUSTIC SODA, SALSODA, CONCENTRATED SALSODA  
SALAMMONIAC, Etc.

## BRUNNER, MOND & CO., LIMITED, NORTHWICH, ENG.

WINN & HOLLAND, Montreal, SOLE AGENTS FOR CANADA

# "REDSTONE"

## HIGH PRESSURE SHEET PACKING

MAKES PERFECT JOINTS.

Does not blow out and requires no following up.

Try a sample lot and be convinced of its merits.

MANUFACTURED SOLELY BY

### The GUTTA PERCHA & RUBBER MFG. CO. OF TORONTO, LIMITED

Head Office:

47 Yonge St., - TORONTO, CANADA

BRANCHES—Montreal, Winnipeg, Vancouver.

## ARTHUR P. TIPPET & CO.

Montreal

HYPOSULPHITE OF SODA

SULPHITE OF SODA

WHITE MURIATE

GREY MURIATE

GLAUBER SALTS

EPSOM SALTS

Manufacturers'

Prices.

# THE NICHOLS CHEMICAL COMPANY. OF CANADA, LIMITED

Head Office—222 ST. JAMES ST., MONTREAL.

Works—CAPELTON, P.Q.

MANUFACTURERS OF HIGHEST QUALITY CHEMICALS

Sulphuric, Muriatic and Nitric Acids, Glauber's Salt, Salt Cake, Mixed Acid for  
**DYNAMITE MAKERS, Etc.**

AGENTS FOR STAR and TRIANGLE BRANDS

**BLUE VITRIOL.**

PUREST AND STRONGEST

**PAPER MAKERS' ALUM.**

Address all Correspondence to the Head Office, - MONTREAL.  
When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

**The Canada Chemical Manufacturing Company, Limited**  
 MANUFACTURERS OF

**COMMERCIAL QUALITY** **Acids and Chemicals** **Chemically Pure Quality**

**ACIDS:** Sulphuric, Muriatic, Nitric, Mixed, Acetic, Phosphoric, Hydrofluoric.

**CHEMICALS:** Salt Cake, Glauber's Salts, Soda Hypo, Silicate, Sulphide, Epsom Salts, Blue Vitrol, Alumina Sulphate, Lime Bisulphite, Nitrate of Iron, C.T.S. and Calcium Acid Phosphate.

Chemical Works and Head Office  
**LONDON.**

Sales Office  
**TORONTO.**

Warehouses  
**TORONTO and MONTREAL**

**CASSELLA COLOR COMPANY**

(American Branch of Leopold Cassella & Co., C. m. b. H.)

ARTIFICIAL

**DYESTUFFS**

New York, 182-184 Front Street.

Boston, 68 Essex Street.

Philadelphia, 126-128 South Front St.

Providence, 64 Exchange Place.

Atlanta, 47 North Pryor Street.

Montreal, 86-88 Youville Square.

**W. T. Benson & Co.**

164 ST. JAMES ST., MONTREAL

**DOMESTIC WOOL**

Also direct importers of all kinds of Foreign Wools, Coconut, Palm and other Soap Oils.

AGENTS FOR  
 Wm. Blythe & Co., Church, England.

SOLE AGENTS:  
 British Dyewood & Chemical Co., Limited.

BRANCH  
 John W. Dawson & Co., and W. R. Scott & Co., Glasgow.

Manfrs. Extract of Logwood, Fustic, Sumac, Quebracho Extracts, Solid and Liquid.

Complete stocks of all above always on hand.

PRIZE MEDAL & HIGHEST AWARD PHILADELPHIA, 1876, FOR SUPERIORITY OF QUALITY, SKILFUL MANUFACTURE, SHARPNESS, DURABILITY, & UNIFORMITY OF GRAIN.

**GENUINE EMERY**

**OAKEY'S** Flexible Twilled Emery Cloth.

**OAKEY'S** Flint Paper and Glass Paper.

**OAKEY'S** Emery Paper, Black Lead, etc.

Manufacturers: **JOHN OAKEY & SONS, Limited,**  
 Wellington Mills, LONDON, ENGLAND.

Enquiries should be addressed to—

**JOHN FORMAN, 708, Craig Street, Montreal.**

**THE IMPERIAL OIL COMPANY, Limited**

Highest Awards at the World's Fair, Chicago, upon

**Lubricating, Water White Illuminating Oils,  
 Paraffine Wax, Etc.**

We manufacture all grades of oils, greases, soap stocks, candles, wool stocks, leather and tanners' oils, fuel gas, machinery, cylinder oils, &c. And solicit opportunity to compete against any oil on the market. Write for prices and samples.

Refineries at **SARNIA and PETROLIA, CANADA** Merchandising Branches at:

HALIFAX, N.S. HAMILTON, ONT. QUEBEC, QUE. LONDON, ONT. TORONTO, ONT. WINNIPEG, MAN. ST. JOHN, N.B. GUELPH, ONT.  
 MONTREAL, QUE. CHATHAM, ONT. PETERBORO, ONT. VANCOUVER, B.C. MONCTON, N.E. STRATFORD, ONT. KINGSTON, ONT. WINDSOR, ONT.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# MACHINERY AND EQUIPMENT FOR SALE

## BUILDERS' SUPPLIES

OUR SPECIALTIES - LIME, CEMENT, sewer pipe, plaster Paris, fire brick and fire clay. ONTARIO LIME ASSOCIATION, 118 Esplanado Street East, Toronto.

## BUSINESS CHANCES

THE ENTIRE ASSETS, INCLUDING MACHINERY and plant of the O-hawa Wire Fence Co., Limited, will be offered for sale by public auction on June 8th next. For further particulars apply to T. H. Everson, O-hawa, Ont.

Valuable manufacturing premises. The Subscribers, having built a new factory, offer for sale their old premises, built of stone, 3 stories. Boiler, Sprinkler and Heating. Situated in the heart of the best manufacturing town in Canada. Will take portion purchase money in stock. If desired. The Galt Knitting Co., Limited, Galt, Ont.

## INDUSTRIAL CENTRES

NIAGARA AND CATARACT POWER gives Welland cheapest electric lighting in Canada; manufacturers investigate our power, lake shipping and five railways. Write Board of Trade, Welland.

PORT DOVER, ONTARIO-In the natural gas belt; immense quantities of gas for manufacturing purposes at low rates. Has best sheltered harbor on north shore of Lake Erie, directly opposite Erie, Pa. South terminus of two branches of Grand Trunk; other railways building. Cheap coal and cheap electrical power. Good clay, sand, and limestone. Address W. K. Gordon, Secretary Board of Trade, Port Dover, Ont.

## COVERINGS AND INSULATION

MICA FIREPROOF COVERINGS - Highest insulator of heat known. For boilers, flues, furnaces, steam and hot or cold water pipes, cold storage, sound insulation. Mica Boiler Covering Co., 86 to 92 Ann St., Montreal.

## BOILERS AND ENGINES

BOILERS.-For special quotations on boilers and sheet iron work, write Park Bros., Chatham, Ont.

## RUBBER STAMPS

B. CAIRNS, 77 QUEEN STREET EAST, Toronto-Rubber Stamps, Seals, Name Plates, Stencils.

## SCRAP METALS, PAPER, ETC.

E. PULLAN, TORONTO, positively the largest dealer in paper stock in the Dominion. Also buys rags, iron, metals, etc. Corner Adelaide and Maud. Phone Main 463, Toronto.

## SITUATIONS WANTED

Electrical Engineer with 11 years practical, theoretical and central station experience. 30 years of age, at the present time Chief Assistant Engineer to lighting and traction authority in England. seeks change. Would like similar position in Canada or charge of large contract work. Experienced in every branch, excellent references. Associate Member of Institute of Electrical Engineers. W. H. Stamp, 11 Somerset Place, Devonport, England.

FOREMAN PATTERN MAKER desires a change; experience with well-known firms in England and Canada. Testimonials and references forwarded on application. Address: Pattern Maker, Canadian Manufacturer, Toronto.

## SPECIAL MACHINERY

GENERAL MACHINE WORK and repairing: special machinery. Fisher Bros., machinists, 816 Bathurst Street, Toronto.

## PATENT RIGHTS FOR SALE.

LICENSES FOR SALE OR BRUSHES SUPPLIED under Canadian Patent No. 42,632. Sectional Hair Brush, the only hygienic hair brush known.

Apply to Thomas S. Crane, 70 Nassau Street, New York, N. Y.

## TYPEWRITERS FOR SALE

SMITH PREMIER TYPEWRITER FOR sale, newly rebuilt, price \$50.00, guaranteed for two years. Splendid value, will be sent on approval. National Typewriter Co., Limited, 73 Victoria Street, Toronto.

## BELTING

LEATHER BELTING - We are the largest manufacturers of leather belting in Canada. Sadler & Haworth, Toronto and Montreal.

## PLA S WANTED

CITY OF WOODSTOCK - PRELIMINARY competitive plans for a new City Hall for the City of Woodstock are invited. Cost of building, \$50,000. For all information apply to John Morrison, City Clerk, Woodstock, Ont.



## THE WELDING PROCESS FOR THE FOUNDRYMAN

Gives liquid steel at 5100° F, anywhere in half a minute.

Write for booklet.

Goldschmidt Thermit Co. 334 St. James St., Montreal

WORK AND PRICES RIGHT GALVANIZING ONT. WIND ENGINE & PUMP CO. TORONTO, ONT. LIMITED.

## WM. BARBER & BROS.

Georgetown, Ont.

Manufacturers of . . .

## Book and Fine Papers

## TYPEWRITER FOR SALE

Second Hand Remington Typewriter in good repair. Cheaper than renting. Let us send you samples of its work.

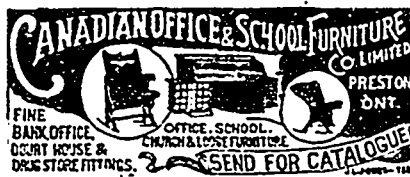
## Canadian Manufacturer

McKINNON BLDG. TORONTO

THE.....

## Toronto Paper Manufacturing Co., Cornwall, Ont.

Manufacturers of Engine Sixed Superfine Papers, White and Tinted Book Papers, Blue and Cream Laid and Wove Foolscaps, Account, Envelope and Lithographic Papers, etc.



## R. SPENCE & CO.

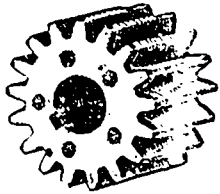
HAMILTON, ONT.

## FILE and RASP MANUFACTURERS AND RE-CUTTERS.

A trial order solicited. Write for terms. C. P. MOORE, PROPRIETOR.

## RAWHIDE GEARS

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



## FACTORY LOCATIONS.

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

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

The Special Tariff Edition of . . .

## The Canadian Manufacturer

Contains the full text, with official alphabetical index, of the Canadian Tariff. As this tariff has been finally ratified it will remain as it appears in this issue for several years. Great care has been taken to have it absolutely correct.

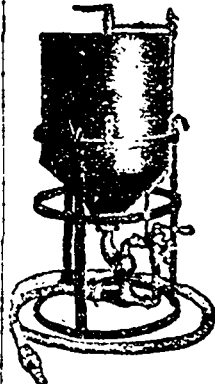
Contains full text, corrected to date, of the British United States, South African, Australian and Japanese tariffs.

The advertising pages of this edition are also of great interest to shrewd, studious buyers.

Every manufacturer in Canada will find this issue of exceptional value.

The charge for this issue above is for subscribers to THE CANADIAN MANUFACTURER get it with year's subscription at \$1.00.

## THE INJECTOR SAND BLAST APPARATUS



Patented in the DOMINION OF CANADA, May 8th, 1905, No. 93,054.

Manufactured and sold by Canadian Rand Co., Limited.

MONTREAL, QUE.  
TORONTO, ONT.  
HALIFAX N.S.  
KENORA, ONT.  
ROSLAND, B.C.  
VANCOUVER, B.C.

**RYE'S STANDARD**  
 HAY, COAL AND WAGON **SCALES**  
 Warranted Superior Quality.  
 498 St. Paul St., MONTREAL

**JOHN J. GARTSHORE**  
 83 Front St. W., Toronto.  
**Rails and SUPPLIES,**  
 Now and Secondhand.  
 For RAILWAYS, TRAMWAYS, Etc.  
 Old material bought and sold.

**MACHINERY**  
 FOR  
 Wire Drawing.  
 Chain Making.  
 Core Machines for general foundry practice.  
 Vitrified Sewer Pipe.  
 Rubber Washing.  
 Reclaimed Rubber Water Separators.  
 Write us—  
 The **TURNER, VAUGHN & TAYLOR CO.**  
 Cuyahoga Falls, O., U.S.A.

Established 1849.  
**BRADSTREET'S**  
 Capital and Surplus, \$1,500,000  
 Offices Throughout the Civilized World.  
**EXECUTIVE OFFICES,**  
 346 & 348 Broadway, New York City, U.S.A.  
 CORRESPONDENCE INVITED.  
**OFFICES IN CANADA:**  
 Halifax, N.S. Hamilton, Ont.  
 London, Ont. Montreal, Que.  
 Ottawa, Ont. Quebec, Que.  
 St. John, N.B. Toronto, Ont.  
 Vancouver, B.C. Winnipeg, Man.  
**THOMAS C. IRVING,** Gen'l Manager Western Canada  
 TORONTO.

The **DOMINION OIL CLOTH CO.**  
 LIMITED  
 Manufacturers of ...  
**LINOLEUMS**  
**FLOOR OIL CLOTHS**  
**TABLE OIL CLOTHS**  
 Also Carriage, Stair and Enamelled Oil Cloths, Decorative Burlaps.  
**Office and Works - MONTREAL**  
**F. W. HORE & SON, Limited,** HAMILTON, ONT.  
 Manufacturers of  
**GARRIAGE, WAGGON, AND SLEIGH WOOD WORK.**

**WOOD ENGRAVING**  
**PHOTO ENGRAVING**  
**HALF TONES**  
 OR ANY CLASS OF ENGRAVING FOR ADVERTISING PURPOSES.  
 CATALOGUES, MAGAZINES, &c  
**J.L. JONES ENG. CO.**  
**168 BAY ST - TORONTO**

**MAPLE LEAF**  
**STITCHED COTTON DUCK**  
**BELTING**  
**DOMINION BELTING CO. LTD.**  
**HAMILTON CANADA**

  
**VISES**  
 Bench Vises  
 Drill Vises  
 Miller Vises  
 Pattern Makers' Vises  
 Get Our Prices.  
**The Stevens Mfg. Co., Limited**  
 GALT, ONT.

  
**MONTREAL**  
 Where a great reduction of angular velocity is required or an increase in the pressure, this gear is especially suitable and is in request for reducing high speeds of electric motors and for the working of cranes, capstans, heavy line tools, etc.

Write for Free Copy  
**TENTH EDITION**  
 Dixon's latest book, "Graphite as a Lubricant," tenth edition, explains the modern practice of graphite lubrication and quotes experiments by scientific authorities and experiences of practical men.  
 GET FREE COPY 33-C.  
**Joseph Dixon Crucible Co.**  
 JERSEY CITY, N.J., U.S.A.

**KEEPING DOWN COST**  
**THE WEBSTER FEED WATER HEATER**  
**IS THE GREAT SAVER OF STEAM AND FUEL**  
 First—It uses only just enough of the exhaust to bring the feed-water to the highest point.  
 Second—It heats it by **DIRECT CONTACT** with the steam.  
 Third—It prevents waste from "back pressure" on the engine.  
 These and other points of advantage are to-day reducing the cost of production for hundreds of manufacturers so greatly as to make it very hard indeed for others with less efficient steam appliances to keep pace with them.  
 WRITE TO-DAY FOR CATALOGUE H.2.  
**DARLING BROTHERS LIMITED**  
**MONTREAL — TORONTO — WINNIPEG**



# BALATA BELTING

Full Stock all Sizes

## GENUINE OAK LEATHER BELTING

ENGLISH CARD CLOTHING

All Sizes Sheets and Fillet

## D. K. McLAREN, Limited

Montreal, Toronto, Quebec, St. John, N.B.  
Vancouver, B.C.



**NOTICE** The following are the Factory Inspectors for the Province of Ontario:

- JAS. T. BURKE, Parliament Buildings, Toronto.
- THOMAS KEILTY, Parliament Buildings, Toronto.
- ARTHUR W. HOLMES, Parliament Buildings, Toronto.
- JOHN ARGUE, Parliament Buildings, Toronto.
- MARGARET CARLYLE, Parliament Buildings, Toronto.
- MRS. JAS. R. BROWN, Parliament Buildings, Toronto.

Persons having business with any of the Inspectors will find them at the above address. HON. NELSON MONTEITH, Minister of Agriculture.

## B. & W. Patent Water-Tube

# BOILERS

Specially designed for the  
**RAPID, ECONOMICAL AND SAFE**

Generation of Steam up to the highest pressures.

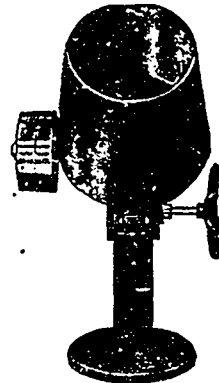
Over 6,000,000 H.P. in use.

## BABCOCK & WILCOX, LIMITED

HEAD OFFICE FOR CANADA:

New York Life Bldg., MONTREAL.

BRANCH—Traders Bank Bldg., TORONTO.



## IMPROVED TUMBLING BARRELS

The Globe Tilting Tumblers being CHEAPEST to operate are the CHEAPEST TO BUY.

SEND FOR CIRCULAR.  
WRITE FOR AGENCIES.  
MANUFACTURED BY

### THE GLOBE MACHINE & STAMPING CO.

977 Hamilton St., CLEVELAND, OHIO.

H. W. PETRIE, Canadian Agent,  
131-145 Front Street West, TORONTO, ONT.

## HYDRAULIC, KNUCKLE JOINT AND POWER SCREW

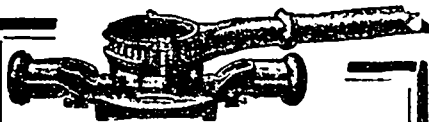
# PRESSES

The Canadian Boomer & Boschert Press Co., Ltd.

Send for Catalogue.

No. 1042 St. Catherine St. East, Montreal

For Almost Every Purpose Requiring Pressure. Write us Your Requirements and Let us Quote You Prices



## ARMSTRONG'S RATCHET ATTACHMENT

fits all GENUINE Armstrong Die Stocks. It is invaluable in corners, against walls and ceilings, or wherever the handles of a die stock cannot be turned.

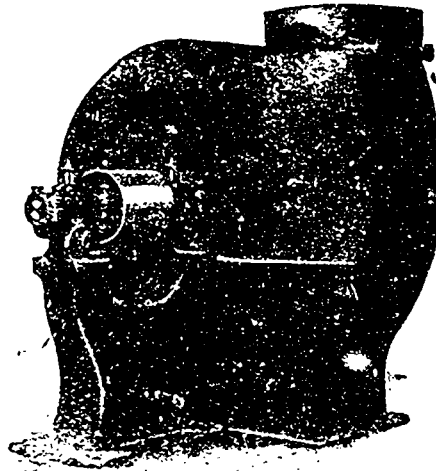
It is a well-made tool and the cost is moderate.

Circulars and prices on application

THE ARMSTRONG MFG. CO.

281 Knowlton St., BRIDGEPORT, CONN.

Chicago Office, 23 S. Canal St.



## It's Easy to Save

Power enough in a single year to pay the full cost of putting in a new fan of larger size in place of one that is already overloaded. It's only necessary to reduce the speed of any fan by 20 per cent. to save half the power.

## B.F. Sturtevant Co.

Boston, Mass.

General Office and Works,  
Hyde Park, Mass.

New York Philadelphia Chicago Cincinnati London

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus, Fan Blowers and Exhaustors, Rotary Blowers and Exhaustors, Steam Engines, Electric Motors and Generating Sets, Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc.





**Pages Missing**